3(4)

AUTHOR: Andreyev, V. I.

SOV/6-59-4-2/20

TITLE: Metallic Stands on the Mountain Summits of the Altay (Metallicheskiye shtativy na gornykh vershinakh Altaya)

PERIODICAL: Geodeziya i kartografiya, 1959, Nr 4, pp 10-13 (USSR)

ABSTRACT: This is a report on the use of metallic stands instead of concrete towers on the mountain summits in the Altay-Range. The relative suggestion was made by K. R. Lebedev, Head of the Construction Department. Duralumin stands were made for this purpose in the Novosibirskoye AGP (Novosibirsk AGP). The height of these tripod stands was about 2 m and the weight about 16 kg. The sighting drum was made of narrow metal plates or wood laths. Experience taught that as a rule it is sufficient to increase the working brigade by one or two workers, and that these tripods can be erected by any reconnaissance brigade. Camp Nr 1 was at first established at the foot of the mountain, and then Camp Nr 2 not very far from the summit. Sleeping and cooking was done in Camp Nr 2. Spots where the rock forms the surface were chosen for erecting the tripod. Holes about 30 cm deep were chiseled out with a steel chisel. The tripod was mounted in such way that the tripod table was about 1.2 - 1.3 m above

Card 1/2

the ground. The table wase aligned in strictly horizontal-, and the sighting drum in strictly perpendicular direction, and the feet of the tripod were then embedded in concrete. It is shown that by the use of metal tripods instead of concrete towers about 2100 rubles can be saved in any place. The first metal stands were erected in summer 1958. Some shortcomings of construction are pointed out. Because of the short field season, observations were only made on one metal stand. Engineer Podskrebayev is of opinion that in spite of unfavorable conditions during observations it is convenient to use the metal stands. In summer 1959, more such tripods will be erected on the summits of the Altay. There are 2 figures.

ANDREYEV, V.I.

[illegible] produced by the [illegible] the composition of [illegible] Andreyev [illegible] disintegration of Ra D [illegible] Ra E [illegible] was found [illegible] of the parent element [illegible] The linear integration of [illegible] can be used for the simple and convenient [illegible] of high specific activity, and [illegible]

W. M. Sternberg

4

4E4j

4E3d

nB

ANDREYEV, V. I.

USSR/ Physics - Physical chemistry

Card 1/1 : Pub. 147 - 18/22

Authors : Tunitskiy, N. N.; Cherneva, E. P.; and Andreyev, V. I.

Title : On the theory of the dynamics of sorption and chromatography. Part 3.- The dynamics of ion-exchange sorption during intradiffusion kinetics.

Periodical : Zhur. fiz. khim. 28/11, 2006-2020, November 1954

Abstract : The dynamics of ion-exchange sorption was investigated to determine the behavior of the sorbent layer in a flow containing the sorption substance. The conditions favorable for parallel transfer for ion-exchange sorption are indicated. The term expressing the time loss of the protective effect is introduced. The role of internal diffusion and hydrodynamic factors in the sorption dynamics, is explained. The experimental data obtained for calcium sorption with cationite in H-form, hydrogen sorption with cationite in Ca-form and sorption of radioactive calcium with cationite in Ca-form were found to be in excellent conformity with the theoretical data. Twelve USSR references (1929-1953). Tables; graphs.

Institution : The L. Ya. Karpov Physico-Chemical Institute, Moscow

Submitted : March 26, 1954

24 (4)

AUTHOR: Andreyev, V. I. SOV/32-25-5-41/56

TITLE: Use of the Instrument "Tiss" as Signal Dosimetric Device in Working With Gamma Rays (Ispol'zovaniye pribora "Tiss" v kachestve signal'nodozimetricheskoy ustanovki pri rabote s gamma-izlucheniyem)

PERIODICAL: Zavodskaya Laboratoriya, 1959, Vol 25, Nr 5, pp 622 - 623 (USSR)

ABSTRACT: For the purpose of dosing gamma rays, smaller laboratories use radiometers which in this case are provided with small counters of gamma quanta. A corresponding unit for the radiometer "Tiss" is described here (Fig). The unit contains several counters of the type STS-1 which are enclosed in a cylindrical envelope and connected with a coaxial cable. The counters are fed by a high-tension rectifier. An amplifier secures good impulse recording even if the coaxial cable of the type RK-50 is 100 m long. The test of a unit with Co^{60} of an activity of 1 mC showed that this type of dosimeter allows to measure the capacity of a dose of

Card 1/2

Use of the Instrument "Tiss" as Signal Dosimetric Device in Working With Gamma Rays SOV/32-25-5-41/56

50-60 microroentgens/sec. There is 1 figure.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva Akademii nauk SSSR (Physics Institute imeni P. N. Lebedev of the Academy of Sciences, USSR)

Card 2/2

1. VOL'KENSHTEYN, A. A., ANDREYEV, V. I., ISAYENKO, V. I.

2. USSR (600)

4. Photometry

7. Optical method of measuring the intensity, brightness and flow of light.
Zhur, tekh. fiz. 22 No. 12, 1952.

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

ANDREYEV, V.I., inzh.

New plows. Trakt. i sel'khozmash. no.11:32-34 N '59. (MIRA 13:3)

1. Altaystiy zavod sel'skokhozyaystvennogo mashinostroyeniya (Altaysel'mash).
(Plows)

ANDREYEV, V.I.

The P5-35A light-weight five-bottom tractor plow. Biul.tekh.-ekon. inform. no.2:53-54 '58. (MIRA 11:4)
(Plows)

ANDREYEV, V.I.

Refrigeration in alcohol plants. Spirt. prom 22 no.3:29 '56.
(MIRA 9:11)

1. Kuybyshevskiy spirtovyy trest.
(Refrigeration and refrigerating machinery)

ANDREYEV, V.I.

Applying the graphical integration method to the calculation of induced moments. Trudy KKHTI no.14:81-87 '49.
(MIRA 12:11)

1.Kafedra fiziki Kazanskogo khimiko-tekhnologicheskogo instituta im. S.M. Korova.
(Molecules--Dipole moments)

5(1)

AUTHOR: Andreyev, V. K. SOV/64-59-1-1/24

TITLE: Tasks of the Chemical Industry in the Light of the Resolutions of the XXI Congress of the CPSS (Zadachi khimicheskoy promyshlennosti v svete resheniy XXI s"yezda KPSS)

PERIODICAL: Khimicheskaya promyshlennost', 1959, Nr 1, pp 1-5 (USSR)

ABSTRACT: The Seven-year Plan 1959-65 provides a general increase in the capacity of the chemical industry in the USSR by 3. Production of synthetic fibers is to be increased by 4 (the most valuable fibers by 12 - 13), and production of synthetic materials and resins by more than 7. The production of synthetic rubber is to be 4 times larger than during the preceding Seven-year Plan, that of mineral fertilizers 3.6 times, of ammonia 3 times, of sulphuric acid 2. 6 times, of anhydrous sodium carbonate 2.1 times and of car tires 2.2 times. In 1965 the production of mineral fertilizers will amount to 35 million tons. In the new Seven-year Plan, capital investment will be 4.6 times larger (50 % for the synthetic industry); more than 140 new large chemical factories are to be built and more than

Card 1/5

130 reorganized and extended. The most rapid development will occur in the chemical industry in the Eastern regions of the country, in the Volga Area, and on the Ural where the largest raw material deposits are situated. As compared with the general capital investment which will increase by 4.6, investments in Siberia and the Soviet Far East will increase by 5.6, in Central Asia and Kazakhstan by 5.5, and in the Volga Area and Ural by almost 5. In the RSFSR, only the development of the chemical industry will be intensified. The total production of the chemical plants in the Kuybyshev Economic District is to be increased by 11, that in Saratov by 17. In Bashkiriya, large chemical factories for the production of new types of synthetic rubber and products of organic synthesis will be built, and the total production will increase by 8. For various areas in the Ural a production of synthetic materials is provided as well as a strong intensification of the production of potash fertilizers in the Solikamsk and Berezniki Potassium Kombinats. In West Siberia, a number of factories are to be built on the basis of petroleum

Tasks of the Chemical Industry in the Light of the Resolutions of the XXI Congress of the CPSS SOV/64-59-1-1/24

processing gases, while the water power of the Irkutsk GES (Gidro-elektricheskaya Stantsiya) is to be used for the same purpose in East Siberia. In the Ukrainskaya SSR production is to be especially intensified by use of natural and waste gases of the coke production, and three new large chemical factories are to be built, and the building of the factories for viscose and caprone fibers, as well as of the potassium Kombinat, is to be completed. A strong intensification of the chemical industry will also take place in the Uzbekskaya, Kazakhskaya, Tadzhikskaya, Turkmenskaya, Gruzinskaya, Azerbaydzhanskaya, Armyanskaya, Belorusskaya SSR and other Soviet Republics. To solve all these tasks successfully, an organized control and cooperation of the results of scientific and research work in the experimental plants of the Goskhimkomitet and the chemical plants of the various economic districts will have to be carried out. By a suitable control of more than 50 projects, a saving of 2 billion rubles could already be attained. Within the general increase in production, the capacity of acetylene

Card 3/5

Tasks of the Chemical Industry in the Light of the Resolutions of the XXI Congress of the CPSS SOV/64-59-1-1/24

production should increase to 15.000, 20.000 and 40.000 tons a year, of acetic anhydrides to 25-50.000 tons/year, of polyethylene to 24-50.000 tons/year, of polypropylene to 25-50.000 tons/year, of polychloro-vinyl resins to 30-50.000 tons/year, for which purpose the corresponding plants will have to be built too as, for instance, gas separators with a capacity of 30-60.000 tons of ethylene a year, and - in a near future - of 150-170.000 tons a year. In this connection, already in 1959 about 1.000 new types of equipment and devices will have to be developed including 170 types of chemical apparatus, 52 types of compressors, 7 types of refrigerators, 133 types of pumps, 34 types of machines for the manufacture of synthetic fibers, and more than 600 types of measuring instruments. The TsK KPSS and the Sovet Ministrov SSSR (Council of Ministers of the USSR) raise capital investments for the building of the chemical industry from year to year. Thus, an increase of 39 % took place between 1957 and 1958, while it will be 70% between 1958 and 1959. The following large factories will start working in 1959: Sterlitamakskiy

Card 4/5

Tasks of the Chemical Industry in the Light of the Resolutions of the XXI Congress of the CPSS

SOV/64-59-1-1/24

zavod SK (Sterlitamak Works SK (synthetic rubber)), the production of synthetic rubber at the Karagandinskiy zavod (Karaganda Works), the production of synthetic rubber from butane at the Sumgaitskiy zavod (Sumgait Works). the factories for car tires in Krasnoyarsk and Baku, the factories for the production of synthetic fibers in Ryazan', Engel's and several other factories. 10 new large chemical factories will be built in 1959.

Card 5/5

L 7791-66 EWT(1)/EEC(k)-2/EWA(h)
ACCESSION NR: AP5027623 UR/0109/65/010/011/2010/2020
621.396.622.029.64.001.24

0820

AUTHOR: Andreyev, V. K.; Lomize, L. G.; Lyudmirskiy, V. I.; Filipchikov, L. L.

TITLE: Calculation of frequency conversion in high-speed serrodyne shf phasemeters with delay lines

25

SOURCE: Radiotekhnika i elektronika, v. 10, no. 11, 1965, 2010-2020

TOPIC TAGS: shf phase meter, frequency conversion ; circuit delay line

ABSTRACT: The theory is presented and the formulas are developed for amplitudes and phases in a serrodyne shf phasemeter; the conditions of maximum phase deviation at the mixer input are analyzed; the role of the nonlinear-forward and finite-return motions in serrated modulation is clarified. These conclusions and practical recommendations are offered: 1) The maximum modulation frequency can be determined from $T \geqslant 5\tau$, where T is the modulation period and τ is the delay time of the long line involved; thus, the maximum speed (or maximum permissible Doppler frequency) is about $0.1/\tau$; the IF corresponds to the 4th or 5th harmonic of the modulation frequency. 2) With the return motion of the modulating voltage, or when the delay time is commensurate with the modulation

Card 1/2

2

L 7791-66 EWT(1)/EEC(k)-2/EWA(h)

ACCESSION NR: AP5027623

2

period, the maximum phase deviation is $2\pi n(1+\beta)$ for operation on the first 2—3 harmonics and is $2\pi n(1-\beta)$ for operation on higher harmonics, where β is the ratio of the return time to the phase-modulation period. 3) Strict linearity of the modulating voltage and the frequency characteristic of the shf oscillator is not needed; a 20—30% nonlinearity is tolerable. "In conclusion, the authors wish to thank N. I. Malykh and Ye. S. Yampol'skiy for a useful discussion." Orig. art. has: 7 figures and 42 formulas. [03]

ASSOCIATION: none

SUBMITTED: 28Jul64 ENCL: 00 SUB CODE: 09

NO REF SOV: 003 OTHER: 005 ATD PRESS: 4147

Card 2/2 nw

KORNEVA, N.K.; ANDREYEV, V.L.; DOROFEYEV, G.A.; GRINEVICH, I.P.; VINOKUROV, Ye.B.; TKACHENKO, V.A.

Study of the operation of ports in heavy duty open-hearth furnaces. Stal' 25 no.4:324-325 Ap '65. (MIRA 18:11)

1. Donetskiy institut chernoy metallurgii.

KULIKOV, V.O.; BORNATSKIY, I.I.; ZARUBIN, N.G.; DOROFEYEV, G.A.;
KALUZHSKIY, Ye.A.; KAZAKOV, A.A.; KOVAL', R.F.; KORNEVA, N.K.;
TRET'YAKOV, Ye.V.; TRUNOV, Ye.A.; Prinimali uchastiye: ANDREYEV, V.L.;
GORDIYENKO, V.V.; GRINEVICH, I.P.; GUBAR', V.F.; DOLINENKO, V.I.;
ZHERNOVSKIY, V.S.; ZHIGALOVA, Z.I.; KOMOV, N.G.; KURAPIN, B.S.;
OLESHKEVICH, T.I.; PRIKHOZHENKO, Ye.

Mastering the operations of 650- and 900-ton (mega - gram) capacity open-hearth furnaces at the Il'ich metallurgical plant. Stal' 25 no.8:805-807 S '65. (MIRA 18:9)

1. DONNIICHERMET i Zhdanovskiy metallurgicheskiy zavod imeni Il'icha.

1. ANDREYEV, V. M.

2. USSR (600)

4. Geography

7. Discussion of a series of pamphlets "Maps of the world." Reviewed by V. M. Andreyev. Izv AN SSSR, Ser. geog. no. 5, 1952

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

SAKOVICH, V.P.; ANDREYEV, V.M., kand.med.nauk

Butadione treatment in rheumatism. Nauch.trudy L'vov.obl.terap. ob-va no.1:252-254 '61. (MIRA 16:5)

1. Kafedra fakul'tetskoy terapii lechebnogo fakul'teta L'vovskogo meditsinskogo instituta (zav. kafedroy - prof. S.F. Oleynik).
(RHEUMATIC FEVER) (BUTADIONE)

EMANUEL', N.M.; ANDREYEV, V.M.; YEVSEYENKO, L.S.; KORMAN, D.B.;
OBUKHOVA, L.K.

Kinetic criterion of the effectiveness of stomach cancer treatment in man. Dokl. AN SSSR 165 no.2:461-464 N '65.
(MIRA 18:11)

1. Chlen-korrespondent AN SSSR (for Emanuel').

NAZAROV, I.N.: TORGOV, I.V.; ZARETSKAYA, I.K. VERKHOLETOVA, G.P.; ANANCHENKO, S. N.; ANDREYEV, V. M.

Steroids

Synthesis of steroids and related substances. Part 16. Condensation of 1-methyl-Δ-cyclohexene-6-one with 2-methoxyl-1, 3-butadiene. Synthesis of 9-methyl-1-vinyl-Δ-octalone-6 and 9-methyl-1-vinyl- Δ octalone-7. Isv. AN SSSR. Otd. Khim. nauk no. 1, 1953.

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

ANDREYEV, V. M. ; NAZAROV, I. N.; TORGOV, I. V.; ZARETSKAYA, I. I.; VERKHOLETOVA, G. P.;
and ANANCHENKO, S. N.

"Synthesis of Polycyclic Compounds Related to Steroids. XVI. Condensation of 1-methyl-1-cyclohexen-6-one with 2-methoxy-1,3-butadiene. Synthesis of 8a-methyl-1-vinyl- -octahydro-7-naphthalene," Bull. Acad. Sci.,USSR, Div. Chem. Sci., 1953 69-80 (Eng translation). - See C.A. 48, 3324h. H.L.H.

ANDREYEV, V. M.

Dissertation: "Diene Reactions of 1-Vinyl - Δ^{1}-Cyclohexane. Bicyclic Orthodicarboxylic Acids, Their Transformation and Stereochemistry." Cand Chem Sci, Inst of Organic Chemistry, Acad Sci USSR, Department of Chemical Sciences, Moscow 1953.

W-30928
SO: Referativnyy Zhurnal, No. 5, Dec 1953, Moscow, AN USSR (N-[illegible])

ANDREYEV, V.M.

USSR/Chemistry - Cyclic compounds

Card 1/2 Pub. 40 - 11/27

Authors : Nazarov, I. N.; Kucherov, V. F.; and Andreyv, V. M.

Title : The stereochemistry of cyclic compounds. Part 4. Condensation of 1-vinyl- ' -cyclohexene with citraconic anhydride

Periodical : Izv. AN SSSR. Otd. khim. nauk 1, 78-88, Jan-Feb 1955

Abstract : A study of the diene condensation of 1-vinyl- ' -cyclohexene with citraconic anhydride showed that the condensation products are normal ortho- and meta-adducts. The products obtained through saponification of cis-anhydrides are listed. Unsaturated cis-anhydrides and their cis-acids were observed to hydrogenate easily over Pt-catalysts into

Institution : Acad. of Sc., USSR, The N. D. Zelinskiy Inst. of Org. Chem.

Submitted : April 6, 1954

Card 2/2 Pub. 40 - 11/27

Periodical : Izv. AN SSSR. Otd. khim. nauk 1, 78-88, Jan-Feb 1955

Abstract : homologous saturated compounds which is connected with the screening effect of the cis-substitutes on the double bond. The results obtained by isomerization of cis-diesters with sodium methylate are described. Eleven references : 8 USSR and 3 USA (1948-1953).

ANDREYEV, V.M.

USSR/ Chemistry - Cyclic compounds

Card 1/2 Pub. 40 - 12/27

Authors : Nazarov, I. N.; Kucherov, V. F.; and Andreyev, V. M.

Title : The stereochemistry of cyclic compounds. Part 5. Condensation of 1-vinyl- ' -cyclohexene with dimethyl ester of mesaconic acid

Periodical : Izv. AN SSSR. Otd. khim. nauk 1, 89-97, Jan-Feb 1955

Abstract : The characteristics of three isomeric trans-methyl - ^{4}-octalin-1,2-dicarboxylic acids obtained from the condensation of 1-vinyl- ^{1}-cyclohexene with dimethyl ester of mesaconic acid, are described. It was established that the trans-acids have an ortho-structure and are distinguished from each other only by the orientation of the hydrogen atom.

Institution : Acad. of Sc., USSR, The N. D. Zelinskiy Inst. of Org. Chem.

Submitted : April 6, 1954

Card 2/2 Pub. 40 - 12-27

Periodical : Izv. AN SSSR. Otd. khim. nauk 1, 89-97, Jan-Feb 1955

Abstract : Hydrogenation of the trans-acid and its anhydride with PtO results in the formation of individual compounds the properties of which are listed. Five references: 4 USA and 1 USSR (1943-1955).

Andreyev, V. M.

USSR/ Chemistry - Biochemistry

Card 1/1 Pub. 40 - 13/26

Authors : Nazarov, I. N.; Kucherov, V. F.; and Andreyev, V. M.

Title : The stereochemistry of cyclic compounds. Part 6. Lactonization of cis-and trans-Δ^4-octalin-1,2-dicarboxylic acids

Periodical : Izv. AN SSSR. Otd. khim. nauk 2, 289 - 297, Mar-Apr 1955

Abstract : Investigations were conducted to determine the lactonization of cis-methyl-Δ^4-octalin-1,2-dicarboxylic acid and to obtain data regarding the structure of the cis-lacto acids which are formed during the lactonization process. It was found that of all the epimeric trans-acids only a certain group of trans-acids is capable of lactonization. Trans-acids of other groups having double bonds between the cycles are not lactonizable. Experimental facts regarding steric hindrances observed during the lactonization are explained. Seven references: 2 USSR, 1 German, 1 Swiss, 2 USA and 1 French (1932-1955).

Institution : Acad. of Sc., USSR, The N. D. Zelinskiy Inst. of Organ. Chem.

Submitted : April 6, 1954

ANDREYEV, V.M.

Preparation of N-phenylpyrrolidine from 1,4-butanediol and aniline in the presence of aluminosilicate. Yu. K. Yur'ev, A. V. Arbatskii, I. K. Korobitsyna, and V. M. Andreev. J. Appl. Chem. U.S.S.R. 28, 746-8 (1955) (Engl. translation).—See C.A. 50, 3393. B. M. R.

AID P - 3582

Subject	: USSR/Chemistry
Card 1/1	Pub. 152 - 19/20
Authors	: Yur'yev, Yu. K., A. V. Arbatskiy, I. K. Korobitsyna, and V. M. Andreyev
Title	: Preparation of N-phenylpyrrolidine from 1,4-butanediol and aniline in the presence of aluminosilicate
Periodical	: Zhur. prikl. khim., <u>28</u>, 7, 781-782, 1955
Abstract	: Under optimum reaction conditions, the yield of N-phenypyrrolidine obtained was 68.1%. The preparation is described in detail. One table, 5 references, all Russian (1937-1950).
Institution	: None
Submitted	: Je 30, 1954

ANDREYEV, V. M.

USSR/Chemistry - Organic chemistry

Card 1/1 Pub. 22 - 26/53

Authors : Nazarov, I. N., Acad.; Kucherov, V. F.; and Andreyev, V. M.

Title : The stereochemistry of diene condensation of 1-vinyl-Δ^1-cyclohexene with maleic anhydride and the geometrical isomerism of Δ^4-octalin-1,2-dicarboxylic acid

Periodical : Dok. AN SSSR 102/4, 751-754, Jun 1, 1955

Abstract : Interesting experimental data are presented regarding the diene condensation of 1-vinyl-Δ^1-cyclohexene with maleic anhydride. It was found that the condensation is followed by the formation of two possible steric isomers the conversion of which makes it possible to obtain all four possible geometrical isomers of Δ^4-octalin-1,2-dicarboxylic acid. A study of the thermal conversions of these acids showed that the isomer with anti-cis-configurations is the most stable and easily forming isomeric acid. Eleven references: 6 USA, 1 German and 4 USSR (1937-1955).

Institution : Acad. of Sc., USSR, The N. D. Zelinskiy Inst. of Org. Chem.

Submitted : March 29, 1955

ANDREYEV, V.M.

1 Geometric isomers of decahydronaphthalene-1,2-dicarboxylic acid and their transformations. I. N. Nazarov, V. F. Kucherov, and V. M. Andreev (N. D. Zelinskii Inst. Org. Chem., Acad. Sci. U.S.S.R., Moscow). *Doklady Akad. Nauk S.S.S.R.* 102, 1127-30(1955); cf. preceding abstr.—Condensation of 1-vinylcyclohexene with maleic anhydride gave 2 isomers of *octahydronaphthalene-1,2-dicarboxylic anhydrides* (I), m. 54° and a liquid, which hydrogenated and hydrolyzed, resp., to the *decahydro acids*, m. 212°, and m. 163°, which are the *cis-syn-cis* and *trans-anti-cis* structures. *Mono-Me esters* of I were subjected to isomerization by heating with MeONa. Thus the *syn-cis* isomer gave *syn-cis ester* esterified at the 2-carboxyl, while saponification of the *syn-cis di-Me ester* with KOH gave mainly the *syn-cis mono-Me ester* esterified at 1-carboxyl; the former ester, m. 139°, the latter, m. 126°. Hydrogenation gave the *decahydro analogs*, m. 144°, and 121°, resp. Treatment with MeONa isomerized the satd. ester (m. 144°) yielding *cis-syn-trans-decahydronaphthalene-1,2-dicarboxylic acid*, m. 218° (*anhydride*, m. 76°); *di-Me ester*, m. 60°. The other mono-Me ester isomer isomerized with MeONa and hydrolyzed gave *cis-anti-trans-decahydronaphthalene-1,2-dicarboxylic acid*, m. 203° (*anhydride*, m. 188°; *di-Me ester*, m. 44°). Similarly were treated the monoesters of *anti-cis* configuration. The liquid isomer of I (*anti-cis*) with MeOH gave the *mono-Me ester*, m. 137° (esterified mainly at *2-position*), which hydrogenated to the *trans-anti-cis-decahydronaphthalene-1,2-dicarboxylic acid mono-Me ester*, m. 85°, isomerized with MeONa to the *trans-anti-trans isomer* of the *free acid*, m. 200° (*di-Me ester*, m. 55°; *anhydride*, m. 115°). Hydrolysis of di-Me ester from the liquid anhydride I with 1 mole KOH gave a *mono-Me ester*, a liquid; hydrogenation of this gave the corresponding *trans-anti-cis isomer* of the *decahydro analog*, which failed to isomerize with MeONa and yielded the initial *trans-anti-cis dicarboxylic acid*, m. 163° (*anhydride*, m. 128°; *di-Me ester*, a liquid). This fact is peculiar to the *trans*-decahydronaphthalene configuration at the 1 and 9 carbons. Heating *cis-syn-cis* anhydride of the decahydro acid, m. 76°, to 250° gave a new *anhydride*, m. 60°, which probably has the *cis-anti-cis* configuration; its hydrolysis gave the corresponding *dicarboxylic acid*, m. 198°, which with CH_2N_2 gave *di-Me ester*, liquid. The anhydride with MeOH gave the *mono-Me ester* with cis-anti-cis configuration esterified at 2-carboxyl and m. 93°, which with MeONa gave the *free acid*, m. 203°, while conventional increase of chain length at the 1-carboxyl gave the corresponding *2-carboxydecahydronaphthalene-1-acetic acid*, m. 182°, which dehydrogenated and decarboxylated to 1-$MeC_{10}H_7$. Isomerization of the mono-Me ester (m. 93°) with MeONa gave the previously described cis-anti-trans dicarboxylic acid, m. 203°. Hydrolysis of the di-Me ester with 1 mole KOH gave the *mono-Me ester* at the 1-carboxyl (m. 96°) and the mixed *isomerisation product*, m. 168°. The former, isomerized with MeONa, gave the known *cis-syn-trans dicarboxylic acid*, m. 218°, while the isomeric mono-Me ester gave (after treatment with CH_2N_2) *cis-anti-trans di-Me ester*, m. 44°. Arndt-Eistert method for chain increase gave, from this mono-ester, *1-carboxydecahydronaphthalene-2-acetic acid*, m. 199°, which dehydrogenated and decarboxylated to 2-$MeC_{10}H_7$. Thus of 8 possible isomers of decahydronaphthalene-1,2-dicarboxylic acid, 6 were isolated and identified; 4 are of the cis series and 2 of trans series. Three of the cis isomers heated to 250° are nearly quantitatively converted in 1 hr. to *cis-anti-cis* series; the *trans-anti* acid yields *trans-anti-cis* acid (as anhydride). Thus the most stable is the anti configuration at C atoms 1 and 9 with cis configuration of the anhydride ring (5 atomic). The unknown isomers of the trans series (*trans-syn-trans* and *trans-syn-cis*) are apparently rather unstable (cf. Robins and Walker, *C.A.* 49, 15836*h*). G. M. K.

E/I

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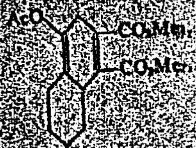
ANDREYEV, V.M.

1M

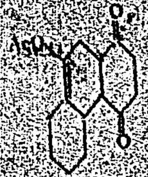
M.A.P. 1072

1-Acetoxyvinyl-1-cyclohexene in reactions of diene condensation. A new path of synthesis of polycyclic ketones with angular substituents. I. N. Nazarov, V. F. Kucherov, and V. M. Andreyev (N. D. Zelinskii Inst. Org. Chem., Acad. Sci. U.S.S.R., Moscow). Doklady Akad. Nauk S.S.S.R. 104, (1955).—To a warm mixt. of 5 ml. AcOH, 1 ml. Ac_2O, and 0.8 ml. $BF_3 \cdot Et_2O$ was added 0.92 g. HgO, 1 ml. Ac_2O and the mixt. chilled, treated over 0.5 hr. with 10.6 g. 1-ethynyl-1-cyclohexene, 6 ml. AcOH, and 1 ml. Ac_2O; after 40 min. dild. with 20 ml. H_2O and poured into cold 10% Na_2CO_3 yielded on distn. of the org. layer 37% *1-acetoxyvinyl-1-cyclohexene* (I), b_9 99-100°, 1.4872, d_4 1.0072. Hydrolysis with 3% HCl gave *1-acetyl-1-cyclohexene*, b. 79-80°, n_D 1.4902 (semicarbazone, m. 220-1°). Refluxing 5 g. I with 4 g. $CH_2:CHCO_2Me$ in abs. MePh with a little pyrogallol 18 hrs. gave *Me 1-acetoxy-Δ-octahydronaphthalene-1-carboxylate* (II), b. 133-5°, n_D 1.4910, d 1.090. Similarly, I and maleic anhydride 8 hrs. in refluxing C_6H_6 gave 81% *anhyl-cis-1-acetoxy-Δ-octahydronaphthalene-1,2-dicarboxylic anhydride* (III), b. 200-1°. I and benzoquinone similarly gave 87% IV, m. 121°, while I

(IV)



(V)



(VII)

1/2

Nazarov, I. N.

and (:CCO₂Me)₂ in boiling MePh apparently gave 81% V, m. 123-4°. II consists of 2 isomers with respect to the H atom at C₁; hydrolysis with KOH gave pure trans-anti-4-[illegible] acid, m. 160° (Me [illegible] anti-decahydronaphthalene-1-carboxylic acid [illegible]), which on Clemmensen reduction gave trans-[illegible] ester, m. 98°), which on Clemmensen reduction gave trans-anti-decahydronaphthalene-1-carboxylic acid, m. 88° (amide, m. 220°). The other epimeric acid was a liquid; Me ester, m. [illegible] trans-syn-4-oxo-decahydronaphthalene-1-carboxylic acid, Clemmensen reduction of which and amidation of the resulting acid gave trans-syn-decahydronaphthalene-1-benzamide, m. 114° (cf. Hückel, C.A. 32, 3776⁹). III saponified to the corresponding trans-anti-cis dicarboxylic acid, m. 212° (di-Me ester, m. [illegible]); the free acid with 0.5% HCl gave trans-4-oxo-decahydronaphthalene-1,2-dicarboxylic acid (VI), which on Clemmensen reduction gave trans-anti-cis-decahydronaphthalene-1,2-dicarboxylic acid, m. 183° (cf. C.A. 50, 4826b). The initial di-Me ester [illegible] was treated with 0.3% HCl gave [illegible] corresponding to that of VI (a cis di-Me ester, m. 111°; [illegible] with 0.5% MeONa gave di-Me [illegible], however, [illegible] trans-anti-trans-[illegible]decahydronaphthalene-1,2-dicarboxylic [illegible] m. 90° (2,4-dinitrophenylhydrazone, m. 170°); Clemmensen reduction of which gave trans-anti-trans-decahydronaphtha[illegible] [illegible] acid, m. 200° (cf. loc. cit.). Hydrogenation of [illegible] gave VII, which with 2% HCl gave trans-anti-cis-[illegible]perhydrophenanthrene, m. 108°. G. M. K.

2/2

NAZAROV, I.N.; KUCHEROV, V.F.; ANDREYEV, V.M.

Research in the field of stereochemistry of cyclic compounds. Part 10 Stereochemistry of the diene condensation of 1-vinyl-Δ^1-cyclohexene with maleic anhydride. Izv.AN SSSR Otd.khim.nauk no.6:715-722 Je '56.
(MLRA 9:9)

1. Institut organicheskoy khimii imeni N.D.Zelinskogo Akademii nauk SSSR.
(Cyclohexene) (Maleic anhydride) (Stereochemistry)

ANDREYEV, V M

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[illegible] X. Stereochem-
Stereochemistry [illegible] with
[illegible]
[illegible]
[illegible] (in English translation) [illegible]
1950 [illegible]

NAZAROV, I.N.; KUCHEROV, V.F.; ANDREYEV, V.M.

Research in the stereochemistry of cyclic compounds. Part 11. Stereochemistry of Δ^9 -octalin-1,2-dicarboxylic acids. Izv. AN SSSR Otd.khim.nauk no.7:817-826 Jl '56. (MLRA 9:10)

1.Institut organicheskoy khimii imeni N.D.Zelinskogo Akademii nauk SSSR.
(Acids, Fatty) (Stereochemistry)

ANDREYEV, V.M.

6

7 7

Stereochemistry of cyclic compounds. XI. Stereochemistry of Δ-octahydronaphthalene-1,2-dicarboxylic acids. I. N. Nazarov, V. F. Kucherov, and V. M. Andreev. Bull. Acad. Sci. U.S.S.R., Div. Chem. Sci. 1956, 845-53 (English translation).—See C.A. 51, 1928g. B. H. R.

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[illegible]

Nazarov, I.N.; Kucherov, V.F.; Andreev, V.M. 3

[illegible] (I) [illegible] the acid with CH_2N_2 gave the [illegible] ester [illegible] on [illegible], which refluxed 15 hrs. with MeONa-MeOH gave on acidification 60% [illegible] acid [illegible] identical with II. Heating the [illegible] with HCl-AcOH [illegible] at 60° gave 48% [illegible] acid (IV), m. 106-8°, in which [illegible] m. 106-7° [illegible] from the isolation of IV [illegible] acid (V), m. 166-8° [illegible] ether). Reducing V with 6% NaOH [illegible] gave on acidification 80% [illegible] dicarboxylic acid [illegible] identical with the A [illegible] described above. [illegible] V with [illegible] gave 80% [illegible] IV with CH_2N_2 [illegible] m. 85-6°, which after [illegible] with MeONa-MeOH and acidification gave only [illegible] Me [illegible] ester (loc. cit.). [illegible] AcOH-HCl [illegible] gave 60% [illegible] lactone [illegible] identical with V. The liquid isomer of the [illegible] acid [illegible] heated similarly with AcOH-HCl gave [illegible] product, retaining the [illegible] with 20% NaOH [illegible] of the [illegible] m. 161-3°, identical with the A [illegible] described above, [illegible] trans dicarboxylic acid (loc. cit.) [illegible] with AcOH-HCl as above gave mainly [illegible], starting [illegible] II forms from [illegible] in such a manner that [illegible] the [illegible] CO_2H [illegible] position, which is directed [illegible]

1/6

Nazarov, I. N.; Kucherov, V. F.; Andreev, V. M. 3

[illegible] the double bond react with the double bond; thus [illegible] the I-COOH group is retained in equatorial position, owing to which fact the mono-Me ester cannot isomerize under action of MeONa. [illegible] isomeric mono-Me ester, esterified at the [illegible]-position, [illegible] isomerizes and suffers a translocation of the double bond. The syn-trans isomer of I with diequatorial position [illegible] is esterified with difficulty, yielding the syn-trans-lactone acid with polar location of the [illegible] COOH [illegible]. Infrared spectra of the lactone mono-Me ester were the same for both isomers of the γ-lactone [illegible] 1740 and 1780 cm.$^{-1}$; the first is due to the free COOMe group, the latter band indicates a γ-lactone ring with some strain. In the anti-cis isomer of I, the I-COOH group is equatorial and cannot form a γ-lactone [illegible] the dicarboxy [illegible] forming the anti-cis-[illegible] acid whose mono-Me ester has an equatorial I-CO$_2$Me group and thus does not isomerize by action of MeONa. [illegible] Synthesis and stereochemistry of isomeric decahydro[illegible] dicarboxylic acids. *Ibid.* 1091-1101.—[illegible] the isomers of decahydronaphthalene-1,2-dicarboxylic acid (I) were isolated and identified as to configuration and the properties of these isomers were explained by means of equatorial-polar bond theory. [illegible] Me ester [illegible] m. 144° (cf. [illegible]) [illegible] with MeONa-MeOH gave *cis-trans*-I (II) [illegible] (from MeCO) diphenacyl ester, m. 98- [illegible] which with AcCl gave the *cis-syn-trans*-I [illegible] in 95% yield [illegible]

3/6

Nazarov, I. N., Kucherov, V.F., Andreev, V.M. 3

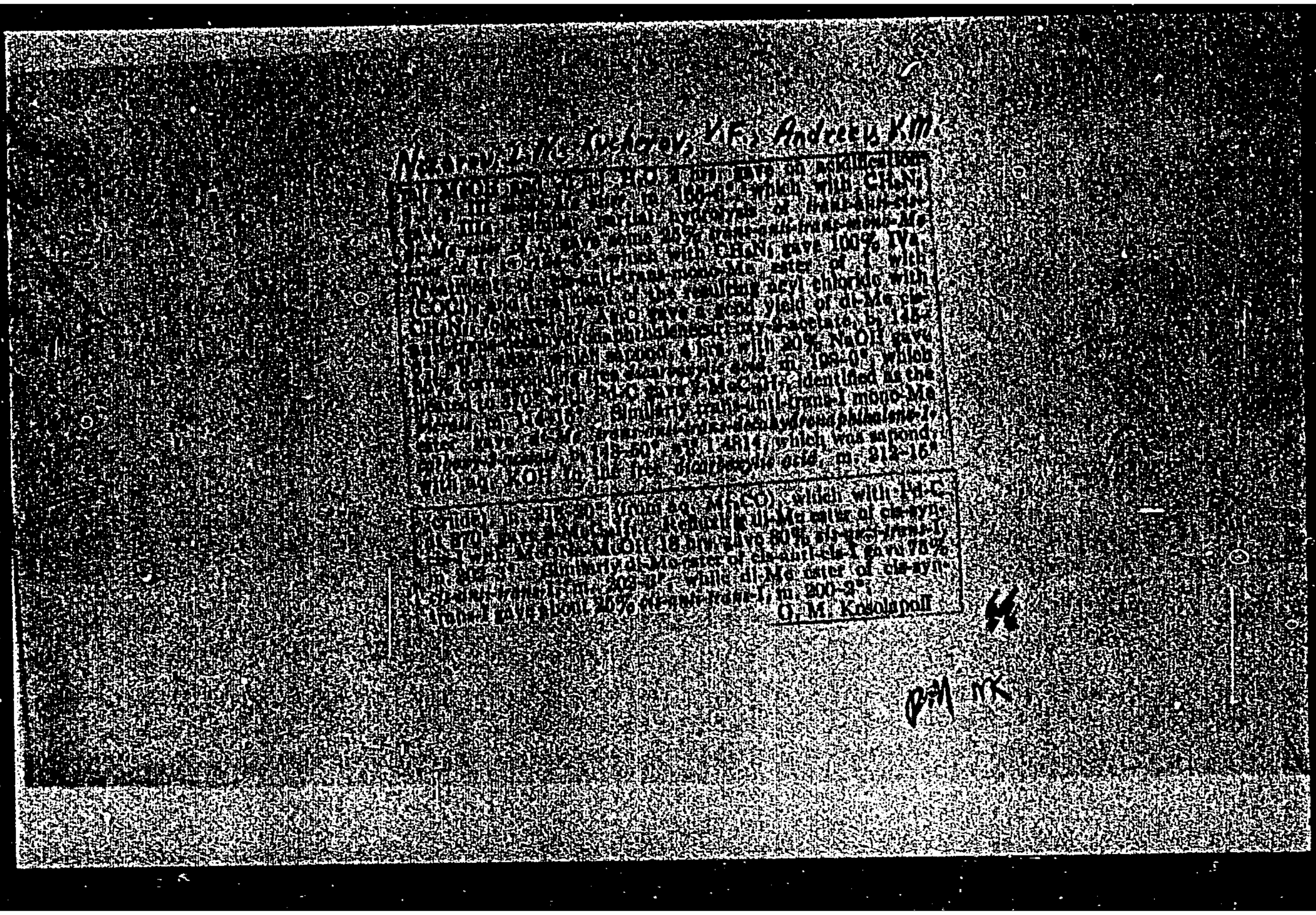
anhydride, m. 75-6° (from petr. ether), which with NaOH gave II, m. 215-16°. This with CH_2N_2 gave the di-Me ester of [illegible] II, m. 72-3° (from petr. ether). Thus the MeONa isomerization above occurred at the polar CO_2H at the [illegible] and the resulting cis-syn-trans-I has diequatorial (trans) distribution of the CO_2H groups. Reducing Ia [illegible] gave [illegible] I (III), m. 202-3° (from [illegible]), which with AcCl gave 80% cis-anti-trans-I anhydride, m. [illegible] (from C_6H_6-Et_2O), which with NaOH reverted to III. III with CH_2N_2 gave the di-Me ester (IIIa), m. [illegible] (from petr. ether). In this MeONa-induced isomerization of the polarly located CO_2H group the reaction should result in an unstable acid with di-polar distribution of CO_2H groups, which owing to mobility of the cis-decahydronaphthalene system spontaneously rearranged to the stable cis-anti-trans isomer described above, with diequatorial (trans) location of the CO_2H groups. Similar treatment with MeONa of the mono-Me ester, m. 85° (cf. above ref.) of trans-syn-trans-I (IIb) gave a good yield of trans-anti-trans-I (IV), m. 199-200°, which with AcCl readily gave the corresponding anhydride, m. 114-15° (from Et_2O-petr. ether), which with NaOH reverts to IV. IV with CH_2N_2 gave the di-Me ester (IVa) of IV, m. 82-3° (from petr. ether). Treatment with MeONa of the mono-Me ester of IIIb, m. 103° (loc. cit.) gave only the IIb, m. 161-2°, described previously (loc. cit.) [illegible] -I (V) anhydride, m. 76°. In N to 245- Heating [illegible] 1 hr. and to 275° 10 min. gave some 65% V anhydride

4/

Nazarov, I.N.; Kucherov, V.F.; Andreev, V.M.

[illegible] m. 60-80% (from Et_2O-petr. ether), which with aq. NaOH gave V, m. 107-8° (from 70% Me_2CO), which with CH_2N_2 gave the corresponding *di-Me ester*, b_1 131-2°, [illegible] 1.4975, [illegible] 1.171. If the anhydride is refluxed 1 hr. with MeOH it yields *cis-anti-cis-1-mono-Me ester* (VI), m. 92-3°, which treated as described above with MeONa gave V. The above liquid di-Me ester refluxed 3 hrs. with aq. MeOH-KOH gave some 60% *cis-anti-cis-mono-Me ester* of I, m. [illegible], which treated as above with MeONa gave 88% II. VI heated 2 hrs. at 60° in C_6H_6 with $(COCl)_2$ and the resulting acyl chloride treated with CH_2N_2 followed by Ag_2O and refluxed 5 hrs. gave some 80% *di-Me carboxydecahydronaphthaleneacetate*, b_1 163-6°, [illegible] 1.4860, which refluxed with 20% KOH 4 hrs. gave 60% *cis-anti-cis-decahydronaphthalene-1-carboxy-1-acetic acid*, m. 180-2°, which heated to 400-70° with 10% Pd-C gave $1\text{-}MeC_{10}H_7$, identified as the picrate, m. 137-8°. Hydrogenation of syn-trans-Δ^4-octahydronaphthalene-1,8-dicarboxylic acid over Pt gave II. Similarly, anti-trans-Δ^4-octahydronaphthalene-1,8-dicarboxylic acid gave 40% III. No other individual substances could be isolated. Heating III in N to 250-5° 45 [illegible] 20-25 min., followed by distn. gave 80% viscous [illegible] IIIc, which treated with 5% [illegible] Similarly, II gave 65% V [illegible] 120-

51



Nazarov, I.N.; Kucherov, V.F.; Andreev, V.M.

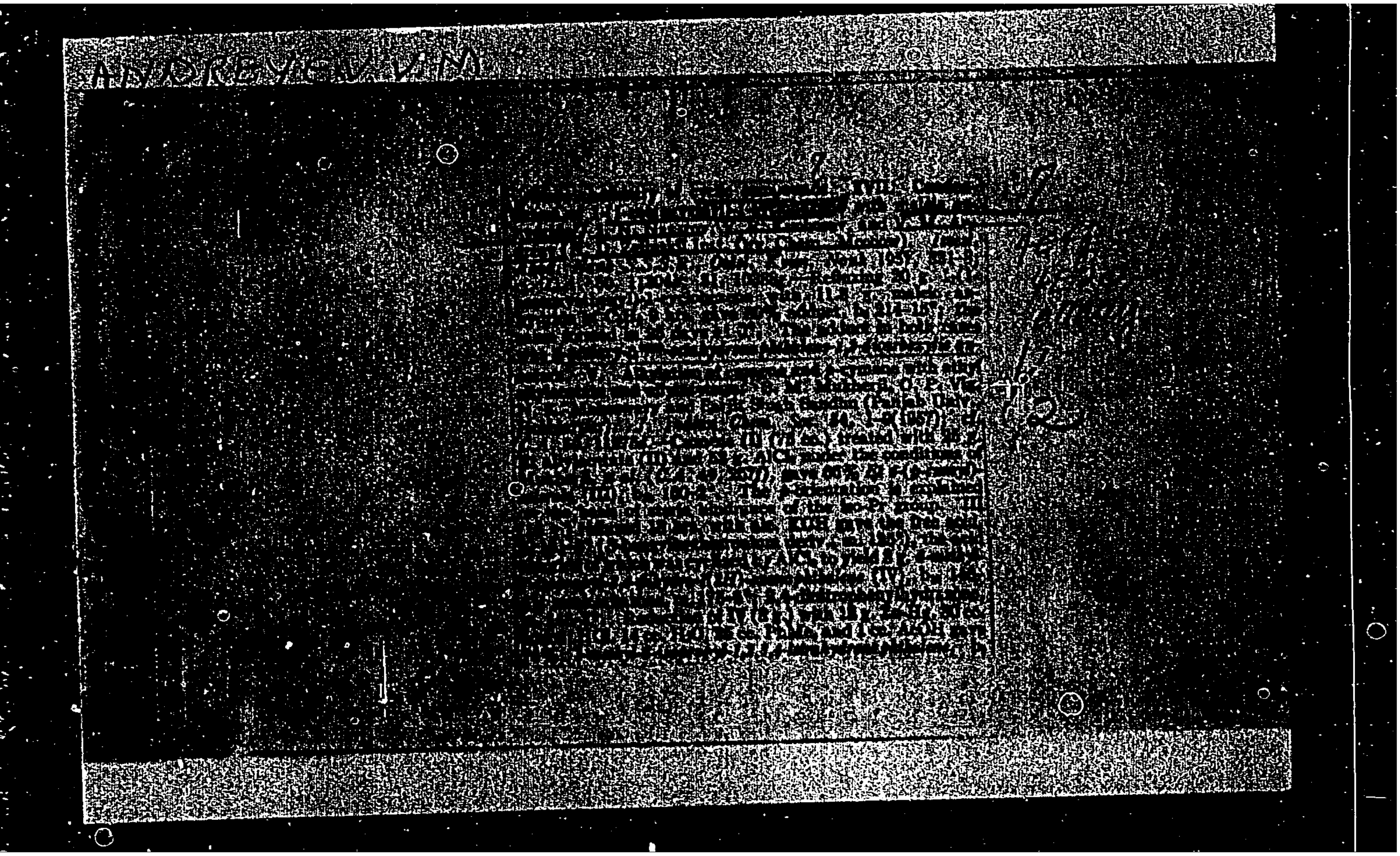
[illegible] KOH [illegible] gave an [illegible] which with CH_2N_2 [illegible] of trans-anti-trans- [illegible] partial hydrolysis [illegible] trans-anti-trans mono-Me [illegible] which with CH_2N_2 gave 100% IV [illegible] Me ester of I with [illegible] acyl chloride with $(COCl)_2$ [illegible] gave a good yield of di-Me [illegible] with 20% NaOH gave [illegible] m. 108-9°, which [illegible] identified as the [illegible] Similarly trans-anti-trans-I mono-Me [illegible] which was saponified [illegible] with KOH to the free dicarboxylic acid, m. 212-16°. [illegible] (from [illegible] $Ni(CO)_4$) which with [illegible] Refluxing di-Me ester of cis-syn- [illegible] gave 80% [illegible] cis-anti-cis-I gave 78% [illegible] Similarly di-Me ester of [illegible] m. 202-3°, while di-Me ester of cis-syn- [illegible] gave about 20% [illegible] trans-I, m. 200-2°.

O. M. Kosolapoff

NAZAROV, I.N.; KUCHEROV, V.F.; ANDREYEV, V.M.

Research in the stereochemistry of cyclic compounds. Part 13. Synthesis and stereochemistry of isomeric decalin-1.2-dicarboxylic acids. Izv. AN SSSR. Otd.khim.nauk no.9:1091-1101 S '56. (MLRA 9:11)

1. Institut organicheskoy khimii imeni N.D.Zelinskogo Akademii nauk SSSR.
(Naphthalenedicarboxylic acid)



ANDREYEV, V.M.

[illegible]

NAZAROV I N [illegible]

[illegible]

ANDREYEV, V.M.

[illegible]

ANDREYEV, V.M.

YUGOSLAVIA/Organic Chemistry. Synthetic Organic Chemistry. G

Abs Jour: Ref Zhur-Khimiya, No 22, 73969.

Author : I.N. Nazarov, V.F. Kucherov, V.M. Andreyev, G.M. Segal'.

Inst :

Title : Upon the Spatial Directivity of Diene Condensations and Stereochemistry of Cyclic Carboxylic Acids.

Orig Pub: Croat. chem. acta, 1957, 29, No 3-4, 369-392.

Abstract: Trans-1,2-dimethylbutadiene-1,3 (I) was prepared by the dehydration of methylethylvinylcarbinol at 300 to 310° on $MgSO_4$, yield - 50 to 60%, boil. p. - 76.5 to 78°, $n^{20}D$ - 1.4515. Boiling (4 hours) 51.5 g of I with 56 g of malein anhydride in C_6H_6 resulted in anhydride (III) of cis-cis-3,4-dimethyl-Δ^4-cyclohexenedicarboxylic-1,2 acid (IV), yield - 56.5 g,

Card : 1/14

YUGOSLAVIA/Organic Chemistry. synthetic Organic Chemistry. G

Abs Jour: Ref Zhur-Khimiya, No 22, 73969.

melt. p. - 67 to 68° (from ether - petroleum ether). 17.3 g of IV, melt. p. 172 to 173° (dissociates, from water) was obtained from the mother liquor by saponification after separation of III. The boil. p. of dimethyl ester of IV (V) is 122 to 123°/5 mm, $n^{20}D$ = 1.4750, d_4^{20} = 1.0987. The thermal isomerization of III (210 to 215°, 4 hours, N_2 flow) in the presence of diethylaniline led to a mixture of substances, boil. p. - 186 to 188°/35 mm, $n^{20}D$ = 1.4950, from which cis-trans-3,4-dimethyl-Δ^4-cyclohexanedicarboxylic-1,2 acid (VI) was separated after saponification, yield - 60%, melt. p. - 160 to 161° (from water); anhydride of VI (VII), melt. p. - 46 to 47 (from petroleum ether); dimethyl ester of VI (VIII), boil. p. 116 to 117°/5 mm, $n^{20}D$ = 1.4730, d_4^{20} = 1.0921.

Card : 2/14

YUGOSLAVIA/Organic Chemistry. Synthetic Organic Chemistry. G

Abs Jour: Ref Zhur-Khimiya, No 22, 73969.

correspondingly. Cis-cis-1,4-lacto-3,4-dimethylcyclohexanecarboxylic-2 acid (XIII) was obtained by heating 5 g of IV (1 hour, 60°) in glacial CH_3-COOH saturated with HCl (gas), yield 3.4 g, melt. p. 186 to 187° (water), the melt. p. of the methyl ester thereof was 109 to 110° (from 70%-ual CH_3OH). Under these conditions, XII (0.9 g) undergoes a preliminary cycle conversion producing trans-cis-1,4-lacto-3,4-dimethylcyclohexane-carboxylic-2 acid (XIV) in the result of a following lactonization, yield 0.55 g, melt. p. 154 to 155° (from 20%-ual aqueous acetone). Methyl ester of XIV, melt. p. 57 to 58° (from petroleum ether + ether) produced XIII by isomerization with CH_3ONa and following saponification. Similarly,

Card : 4/14

YUGOSLAVIA/Organic Chemistry. Synthetic Organic Chemistry. G

Abs Jour: Ref Zhur-Khimiya, No 22, 73969.

selectively from the side opposite to COOH groups and led to cis-cis-cis-3,4-dimethylcyclohexanedicarboxylic-1,2 acid (XVI), yield 2 g, melt. p. 187 to 188° (dissociates, from 50%-ual acetone). 10 g of III was converted into 9.6 g of anhydride of XVI (XVII), boil. p. 145 to 146° /5 mm, n^{20}_D = 1.4835, d_4^{20} = 1.1435 in a similar way (but in C_6H_6). Boiling of 5.9 g of XVII in absolute CH_3OH led to 1-monomethyl ester of XVI, yield 4.25 g, melt. p. 110 to 111° (from 60%-ual CH_3OH), 1.5 g of which yielded 1.2 g of trans-cis-cis-3,4-dimethylcyclohexanedicarboxylic-1,2 acid (XVIII), melt. p. 183 to 184° (from water) by isomerization with CH_3ONa and following saponification; anhydride of XVIII, melting

Card : 6/14

YUGOSLAVIA/Organic Chemistry. Synthetic Organic Chemistry. G

Abs Jour: Ref Zhur-Khimiya, No 22, 73969.

dimethylcyclohexanedicarboxylic-1,2 acid (XXI acid), melt. p. 69 to 70° (from petroleum ether + ether), together with 0.35 g of XIX was produced by hydrogenation of 7.3 g of VII on Pt in C_6H_6. 1.3 g more of XX was produced from the residue after XIX and XXI separation and saponification. XXI was produced by hydrolizing the anhydride, melt. p. 113 to 114° (from 10%-ual acetone), it produced dimethyl ester with the boil. p. of 108 to 109°/3.5 mm, $n^{20}D = 1.4595$, and $d_4^{20} = 1.0722$. The latter (1.3 g)was converted by the action of CH_3ONa into trans-trans-trans-3,4-dimethylcyclohexanedicarboxylic-1,2 acid (XXII), melt. p. 158 to 159° (from water), which produced its anhydride of melt. p. 95 to 96° ((from ether + petroleum ether). The spatial direct-

Card : 8/14

YUGOSLAVIA/Organic Chemistry. Synthetic Organic Chemistry. G

Abs Jour: Ref Zhur-Khimiya, No 22, 73969.

ivity of oxidation of diene synthesis products with peracetic acid and osmic anhydride was also studied. Yhe oxidation of 5 g of syn-Δ^4-octalenecarboxylic-1-acid (XXIII) (-10°, 12 hours) with 90%-ual CH_3COOH in $CHCl_3$ resulted only in α-oxide (XXIV), yield 4.9 g melt. p. 125 to 126° (from ether), the configuration of which was proved in the following way. XXIV was converted into syn-1,10-lactodecalol-4 (XXV) by the action of HCl (gas) in C_6H_6 or by boiling in CH_3OH, the yield was quantitative,melt. p. 90 to 91° (from ether + petroleum ether, 1 : 1). Acetate of XXV, melt. p. 129 to 130°. Oxidation of 5 g of XXV with CrO_3 in CH_3COOH led to syn-1,10-lactodecalone-4 (XXVI), yield 4.5 g, melt. p. 108 to 110° (from acetone + ether, 1 : 1),; semicarbazone of XXVI, melt. p. 222 to 223°.

Card : 9/14

YUGOSLAVIA/Organic Chemistry. Synthetic Organic Chemistry. G

Abs Jour: Ref Zhur-Khimiya, No 22, 73969.

ether); semicarbazone of XXVIIIa, melt. p. 198 to 199° (from CH_3OH). XXIII (0.3 g) was isomerized into trans-syn-ketodecalincarboxylic-1 acid (0.2 g), melt. p. 85 to 86° (from ether + petroleum ether), by heating with 15%-ual HCl (acid (100°, 10 hours); methyl ester, melt. p. 90 to 91°. 3.9 g of α-oxide (XXX), melt. p. 136 to 137° (from ether + petroleum ether) was obtained by the action of 90%-ual CH_3COOOH on 5 g of anti-Δ^7-octalincarboxylic-1 acid (XXIX). Boiling of 0.7 g of XXX in aqueous dioxane in the presence of H_2SO_4 led to trans-trans-anti-4,10-dioxydecalincarboxylic-1 acid, yield 0.35 g, melt. p. 180 to 181° (from acetone + ether, 1 : 1); methyl ester, melt. p. 125 to 126° (from ether). The latter was converted into the known methyl ester

Card : 11/14

YUGOSLAVIA/Organic Chemistry. Synthetic Organic Chemistry. G

Abs Jour: Ref Zhur-Khimiya, No 22, 73969

of trans-anti-4-ketodecalincarboxylic-1 acid (XXXI), melt. p. 66 to 68°, by dehydration with $n\text{-}CH_3C_6H_4SO_3H$. 0.95 g of cis-trans-anti-4,10-dioxydecalincarboxylic-1 acid, melt. p. 190 to 1[illegible]1° (from acetone) was produced by hydroxylation of 1.3 g of XXIX with OsO_4, methyl ester of the product yielded XXXI at dehydration. Oxidation of 22.5 g of III with 82%-ual CH_3COOOH in $CHCl_3$ at 0° led to a mixture, from which 11.7 g of α-oxide (XXXII), melt. p. 140 to 142° (from acetone), and 6.1 g of β-oxide (XXXIII), melt. p. 137 to 138° (from acetone) were separated. The structure of the oxides was proved by the following conversions. 2.8 g of cis-cis-trans-cis-2,4-lacto-3,4-dimethyl-5-oxy-cyclohexanecarboxylic-1

Card : 12/14

KUCHEROV, V.F., doktor khim. nauk, sotrudnik, red.; RUDENKO, V.A., sotrudnik, red.; ~~ANDREYEV, V.M.~~, sotrudnik, red.; ONISHCHENKO, A.S., sotrudnik, red.; SEGAL, G.M., sotrudnik, red.; SATAROVA, M.V., red.; GRIBOVA, M.P., tekhn. red.

[Stereochemistry of cyclohexane derivatives; collection of articles] Stereokhimiia proizvodnykh tsiklogeksana; sbornik statei. Moskva, Izd-vo inostr. lit-ry, 1958. 329 p. [Translated from the English and French]. (MIRA 11:11)

1. Institut organicheskoy khimii im. N.D.Zelinskiy AN SSSR (for Kucherov, Rudenko, Andreyev, Onishchenko, Segal).
(Cyclohexane)
(Stereochemistry)

AUTHORS: Nazarov, I. N., Member, Academy of Sciences, USSR (Deceased), Kucherov, V. F., Andreyev, V. M., Segal', G. M. 20-119-5-29/59

TITLE: The Stereochemistry of the Diene-Condensation of 1-α-Acetoxyvinyl- Δ^1-Cyclohexene With Maleic Aldehyde (Stereokhimiya diyenovoy kondensatsii 1-α-atsetoksivinil-Δ^1-tsiklogeksena S maleinovym angidridom)

PERIODICAL: Doklady Akademii Nauk, SSSR, 1958, Vol. 119, Nr 5, pp. 945-948 (USSR)

ABSTRACT: The reaction mentioned in the title in boiling benzene (ref 1) yields a liquid adduct I, whose saponification by water leads to an 85 % yield of individual anti-cis-4-acetoxy-Δ^4-octaline-1,2-dicarboxylic acid II. Its configuration was proved. On the basis of the data obtained the conclusion was drawn that the above-mentioned liquid adduct I possesses an anti-cis-configuration and that the diene-configuration is under these conditions on the whole formed in contrast to the rule of the accumulation of unsaturatedness. It was then proven that the adduct is not individual and that it contains a small quantity of

Card 1/4

The Stereochemistry of the Diene-Condensation of 1-α-Acetoxyvinyl-Δ^1-Cyclohexene With Maleic Aldehyde

20-119-5-29/59

product with diazomethane, cis-glycol-XI-ether was isolated. The configuration of the latter corresponds to the addition of osmium anhydride from the side opposite to the carboxyl groups (ref 6). Thanks to the axial position of the tertiary hydroxyl group this glycol proved to be easily capable of dehydration on heating with p-toluene sulfo acid and yielded the above-described trans-syn-Δketodiether VII. As far as such a conversion does not immediately touch the centers of asymmetry in C_1, C_6 and C_9 and leads to a trans-addition of the cycles it must be stated that the keto ether produced on that occasion as the main reaction product really possesses a trans-syn-cis-configuration. The latter is a sufficiently unique confirmation of the configuration of Δ-ketoacid VI and its diether VII produced in a diene-synthesis. An experimental part with the usual data follows. There are 5 references, 3 of which are Soviet.

Card 3/4

ANDREYEV, V. M.

V. M. Andreyev and V. F. Kucherov, "Synthesis and Configuration of All Possible Isomers of 3,4-Dimethyl-Δ^4 -Octaline Carboxylic Acids."

report presented at the Symposium on Concepts of Conformation in Organic Chemistry which took place in Moscow at the IOKh AN SSSR (Institute of Organic Chemistry, AS USSR) from September 30 to October 2, 1958.

Izvestiya Akademii nauk SSSR, Otdeleniye khimicheskikh nauk, 1959, No. 3, 561-564.

GAYLORD, Norman G.; ANDREYEV, V.M. [translator]; RUDENKO, V.A.[translator];
SEGAL', G.M. [translator]; KOCHETKOV, N.K., red.

[Reduction with complex metal hydrides] Vosstanovlenie kompleksnymi gidridami metallov. Moskva, Izd-vo inostrannoi lit-ry, 1959. 912 p.
(MIRA 14:2)

(Reduction, Chemical) (Hydrides)

5 (3)

AUTHORS: Kucherov, V. F., Andreyev, V. M., Nazarov, I. N.

SOV/62-59-6-17/36

TITLE: Investigations in the Field of Stereochemistry of Cyclic Compounds (Issledovaniye v oblasti stereokhimii tsiklicheskikh soyedineniy). Communication 25. The Condensation of Trans-1,2-dimethylbutadiene With Maleic Anhydride. Synthesis and Configuration of Four Isomers of the 3,4-dimethyl-Δ^4-cyclohexane-1,2-dicarboxylic Acid (Soobshcheniye 25. Kondensatsiya trans-1,2-dimetilbutadiyena s maleinovym angidridom. Sintez i konfiguratsiya chetyrekh izomerov 3,4-dimetil-Δ^4-tsiklogeksen-1,2-dikarbonovoy kisloty)

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1959, Nr 6, pp 1058 - 1067 (USSR)

ABSTRACT: The synthesis of the diene condensation (see title) which with stereochemical selection forms the cis-cis-configuration (IV) was investigated. Up to now only the cis-cis-configuration could be obtained. By further heating and in the presence of diethylaniline (IV) may be transformed into the isomeric cis--trans-anhydride (VII). By means of saponification (VII) may

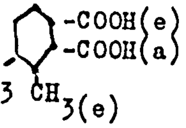
Card 1/4

Investigations in the Field of Stereochemistry of Cyclic Compounds. Communication 25. The Condensation of Trans-1,2-dimethylbutadiene With Maleic Anhydride. Synthesis and Configuration of Four Isomers of the 3,4-dimethyl-Δ^4-cyclohexane-1,2-dicarboxylic Acid

SOV/62-59-6-17/36

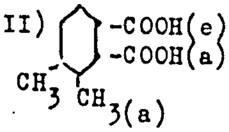
be transformed into the diaxially arranged carboxylic acid (VIII). The epimeric acid (V) corresponds to (VIII); the two latter ones form the corresponding diesters (VI and IX). In aqueous methanol (VI) could be transformed into a cis-cis-diester which by the action of sodium methylate isomerizes to the trans-trans-3,4-dimethyl-Δ^4-cyclohexane-1,2-dicarboxylic acid (XI). The last possible spatial isomer, the trans-cis-3,4-dimethyl-Δ^4-cyclohexane-1,2-dicarboxylic acid (XIV), is formed in an analogous way. Thus, all four spatial isomers which are possible were obtained:

(V)



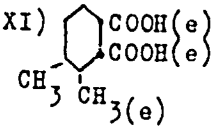
melting point 173°

(VIII)



melting point 161°

(XI)



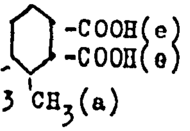
melting point 150°

Card 2/4

Investigations in the Field of Stereochemistry of Cyclic Compounds. Communication 25. The Condensation of Trans-1,2-dimethylbutadiene With Maleic Anhydride. Synthesis and Configuration of Four Isomers of the 3,4-dimethyl-Δ^4-cyclohexane-1,2-dicarboxylic Acid

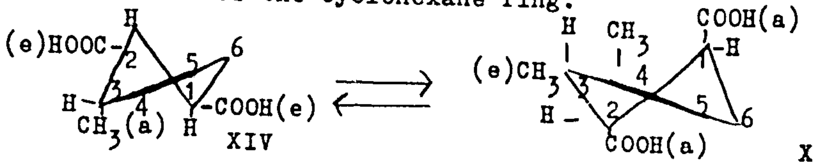
SOV/62-59-6-17/36

(XIV)



melting point 185°

The existing configuration was determined by means of lactonization of the different compounds. When studying the spatial orientation of the lactonization it could be observed that with the isomeric cis-trans- and trans-cis-acids (VII) and (XIV) also conversion forms take part, which are caused by repeated isomerization of the cyclohexane ring.

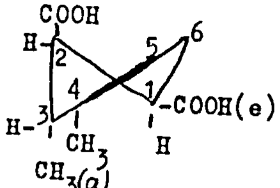


XIV

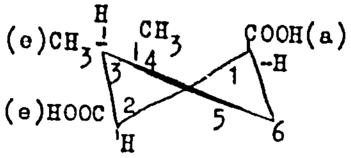
XIV(a)

Card 3/4

Investigations in the Field of Stereochemistry of Cyclic Compounds. Communication 25. The Condensation of Trans-1,2-dimethylbutadiene With Maleic Anhydride. Synthesis and Configuration of Four Isomers of the 3,4-dimethyl-Δ^4-cyclohexane-1,2-dicarboxylic Acid SOV/62-59-6-17/36



VIII



VIII,a

In the experimental part the different condensation- and isomerization processes are described in detail.

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

SUBMITTED: September 24, 1957

Card 4/4

5 (3)

AUTHORS: Kucherov, V. F., Andreyev, V. M., Nazarov, I. N. SOV/62-59-7-14/38

TITLE: Investigation in the Field of the Stereochemistry of Cyclic Compounds (Issledovaniye v oblasti stereokhimii tsiklicheskikh soyedineniy). Communication 26. Synthesis and Configuration of Six Stereoisomers of the 3,4-Dimethylcyclohexane-1,2-dicarboxylic Acid (Soobshcheniye 26. Sintez i konfiguratsiya shesti stereoizomerov 3,4-dimetiltsiklogeksan-1,2-dikarbonovoy kisloty)

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1959, Nr 7, pp 1244 - 1252 (USSR)

ABSTRACT: In the present paper the spatial orientation of the catalytic hydration of the anhydrides of the cis-cis- and the cis-trans-3,4-dimethyl-Δ^4-cyclohexene-1,2-dicarboxylic acid (I) and (XIX) used for the synthesis of the stereoisomeric 3,4-dimethylcyclohexane-1,2-dicarboxylic acid is investigated. In the case of the derivatives of the cis-cis-trans-series (I), (II), and (V) the hydration proceeded with respect to space, the hydrogen was affiliated to the side opposed to that screened by carboxyl

Card 1/3

Investigation in the Field of the Stereochemistry SOV/62-59-7-14/38
of Cyclic Compounds. Communication 26. Synthesis and
Configuration of Six Stereoisomers of the 3,4-Dimethylcyclohexane-1,2-
dicarboxylic Acid

groups. This led to the corresponding derivatives of the cis-cis-cis-3,4-dimethylcyclohexane-1,2-dicarboxylic acid. The cis-trans-anhydride is in contrast to the cis-cis-anhydride (I) not hydrated with respect to space, since the screening effect of the carboxyl group is less distinctly marked in the latter. It produces therefore both possible stereoisomers, the cis-trans-trans- and the cis-trans-cis-anhydrides (XX) and(XV). Furthermore, 6 stereoisomers (of 8 possible) of the 3,4-dimethylcyclohexane-1,2-dicarboxylic acid (III), (X), (XIII), (XVI), (XX), and (XXIII) were obtained by catalytic hydration on sodium methylate and thermal transformation. The configurations and structures of these stereoisomers were proved by the internal transformations and the consideration of the model of the molecule. There are 4 Soviet references.

Investigation in the Field of the Stereochemistry of Cyclic Compounds. Communication 26. Synthesis and Configuration of Six Stereoisomers of the 3,4-Dimethylcyclohexane-1,2-dicarboxylic Acid SOV/62-59-7-14/38

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

SUBMITTED: September 24, 1957

Card 3/3

5 (3)

AUTHORS: Kucherov, V. F., Andreyev, V. M., Nazarov, I. N. SOV/62-59-7-16/38

TITLE: Investigation in the Field of the Stereochemistry of Cyclic Compounds (Issledovaniye v oblasti stereokhimii tsiklicheskikh soyedineniy). Communication 30. Synthesis of the Cis-cis-trans- and Trans-cis-trans-3,4-dimethylcyclohexane-1,2-dicarboxylic Acids (Soobshcheniye 30. Sintez Tsis-tsis-trans- i trans-tsis-trans-3,4-dimetiltsiklogeksan-1,2-dikarbonovykh kislot)

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1959, Nr 7, pp 1262 - 1269 (USSR)

ABSTRACT: In a previous paper (Ref 1) the authors could not obtain the stereoisomeric compounds (I) and (II) mentioned in the title by the method used by them. Their synthesis succeeded later by means of a series of new stereospecific transformations. These stereospecific transformations are investigated in the present paper by means of peracetic acid. The stereochemical oxidation of the anhydride of the cis-cis-3,4-dimethyl-Δ^1-octaline-1,2-dicarboxylic acid (III) served as an example. It could be

Card 1/3

Investigation in the Field of the Stereochemistry of Cyclic Compounds. Communication 30. Synthesis of the Cis-cis-trans- and Trans-cis-trans-3,4-dimethylcyclohexane-1,2-dicarboxylic Acids

SOV/62-59-7-16/38

proved that this reaction proceeds in both spatial directions possible with the formation of the isomeric α- and β-oxides (IV) and (V). The configuration of (IV) and (V) was proved by a series of chemical transformations. Furthermore, the authors succeeded in producing the required substance (I) the configuration of which was proved by the transformation of its diester (XVI) into the earlier described trans-trans-trans-acid (XVII), by the reduction of the 5-keto-γ-lactonic acid (XII) according to Klemmensen. The trans-cis-trans configuration (II) which was also required was obtained by the investigation of the partial saponification of the cis-trans-cis-diester (XXI) and the isomerization of the mixture of the corresponding semiesters (XXII and XXIII). Thus, the 8 possible stereoisomers of the 3,4-dimethylcyclohexane-1,2-dicarboxylic acid were obtained the configuration and transformation of which correspond to the general conceptions of conformation analysis. The transformation schemes are given. The syntheses and transformations are described in the experimental part,

Card 2/3

Investigation in the Field of the Stereochemistry of Cyclic Compounds. Communication 30. Synthesis of the Cis-cis-trans- and Trans-cis-trans-3,4-dimethylcyclohexane-1,2-dicarboxylic Acids SOV/62-59-7-16/38

There are 6 Soviet references.

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

SUBMITTED: October 16, 1957

Card 3/3

5 (3)

AUTHORS: Nazarov, I. N. (Deceased), Andreyev, V. M., Torgov, I. V. SOV/79-29-3-8/61

TITLE: Diene Synthesis With the Participation of Trans-α-dihydromuconic Acid (Diyenovyy sintez s uchastiyem trans-α-digidromukonovoy kisloty)

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 3, pp 775-778 (USSR)

ABSTRACT: The authors continued their earlier work (Ref 1), concerning cyclic compounds, with a trans-arrangement of the cycles and they further condensed dienes with α,β-unsaturated dicarboxylic acids, of such a structure that the forming cyclic dicarboxylic acids could be transformed into the corresponding transindanone derivatives by subsequent cyclization (Scheme 2). This scheme would offer the possibility of avoiding the complicated and multiple-stage way, per reference 2, which has hitherto been followed in such cases. The condensation of dimethyl ester of trans-α-dihydromuconic acid [(butene-1-dicarboxyl-1,4 acid (I))] was carried out with butadiene and 1-vinyl-Δ'-cyclohexene. In the first case transdiester (II) formed at 210°, the structure of which was proven according to scheme 3 by conversion into the acid (III) (Ref 3). In the same way, the

Card 1/2

SOV/79-29-3-8/61

Diene Synthesis With the Participation of Trans-α-dihydromuconic Acid

condensation of compound (I) with vinyl cyclohexene led to transdiester (IV) which, owing to the migration of the double bond into the o-position between the cycles, could not be hydrogenated with catalysts. The saponification of diester (IV) yielded the corresponding acid, which was proven according to scheme 4. Also the acid (VI), a homologue of dihydromuconic acid, was synthesized according to scheme 5; it could, however, not be condensed with divinyl. There are 5 references, 1 of which is Soviet.

ASSOCIATION: Institut organicheskoy khimii Akademii nauk SSSR (Institute of Organic Chemistry of the Academy of Sciences, USSR)

SUBMITTED: October 20, 1958

Card 2/2

S/062/60/000/010/021/031/XX
B002/B060

AUTHORS: Kucherov, V. F., Andreyev, V. M., and Lysanchuk, L. K.

TITLE: Study in the Field of Stereochemistry of Cyclic Compounds. Report 33. Stereochemistry and Some Conversions of the Adduct of 1-Vinyl-6-methoxy-3,4-dihydronaphthalene With Maleic Anhydride

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1960, No. 10, pp. 1796-1803

TEXT: The adduct (II) of 1-vinyl-6-methoxy-3,4-dihydronaphthalene (I) with maleic anhydride, the corresponding acid (III), and the diester (IV) have a cis-syn-configuration. The compounds of this series are readily converted by the action of hydrogen chloride into the corresponding isomers (V), (VI), (VII) which contain the double bond between the rings. Catalytic hydrogenation of the two series of isomers was investigated, and the resulting products (VIII) and (IX) were found to have cis-syn-cis-configuration. The diesters (IV) and (VI) were isomerized with sodium methylate, and the

Card 1/5

Study in the Field of Stereochemistry of Cyclic Compounds. Report 33. Stereochemistry and Some Conversions of the Adduct of 1-Vinyl-6-methoxy-3,4-dihydronaphthalene With Maleic Anhydride

S/062/60/000/010/021/031/XX
B002/B060

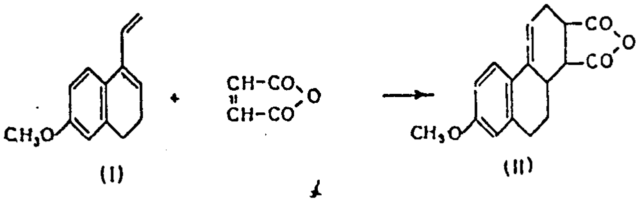
corresponding trans-acids (X) and (XIII) were obtained. There are 10 references: 5 Soviet, 3 US, 1 German, and 1 Swiss.

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

SUBMITTED: May 13, 1959

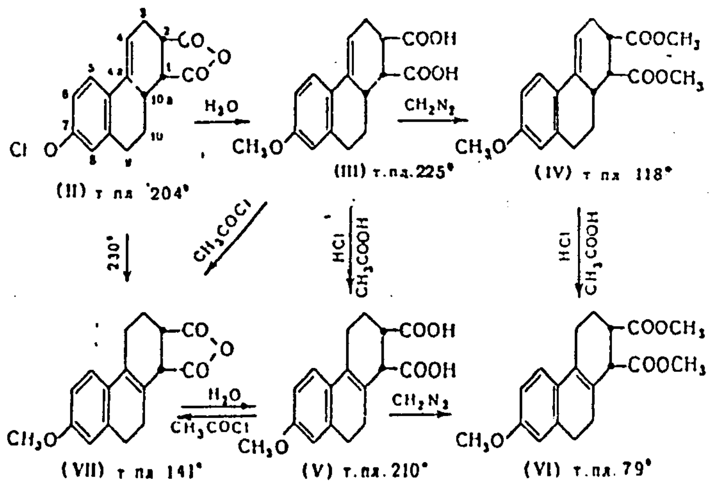
Card 2/5

S/062/60/000/010/021/031/XX
B002/B060



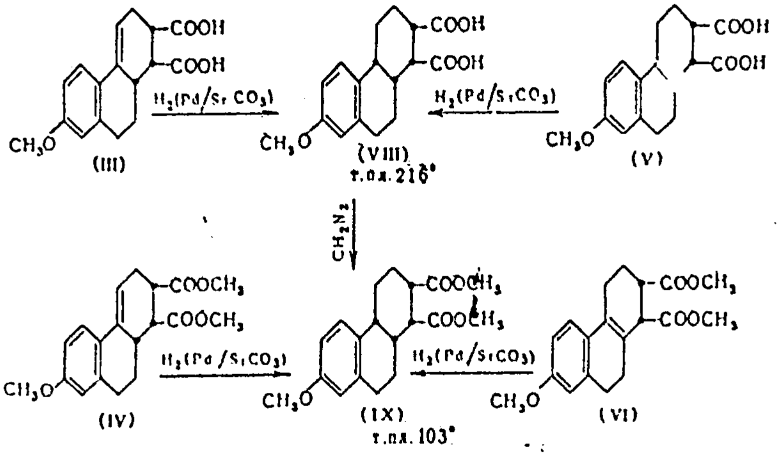
Card 3/5

S/062/60/000/010/021/031/XX
B002/B060



Card 4/5

S/062/60/000/010/021/031/XX
B002/B060



Card 5/5

S/062/60/000/010/022/031/XX
B002/B060

AUTHORS: Andreyev, V. M., Lysanchuk, L. K., Kucherov, V. F.

TITLE: Study in the Field of Stereochemistry of Cyclic Compounds. Report 34. Conversion of Semiesters of Tricyclic Dicarboxylic Acids, and Configuration of Cis-syn-7-methoxy-1,2,3,9,10,10a-hexahydrophenanthrene-1,2-dicarboxylic Acid

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1960, No. 10, pp. 1804-1809

✓

TEXT: The authors attempted to prove that in cis-syn diester (I) the carbomethoxyl group is axial at C_1, and for this purpose they studied the isomerization of the corresponding acid esters with the carbomethoxyl group at C_1 or C_2. Acid ester (III) was prepared by action of sodium methylate upon the cis-syn anhydride, acid ester (IV) by partial saponification of cis-syn diester (I). On treatment with diazo methane, (III) and (IV) again yielded the initial substance (I). The configuration of semiesters (III) and (IV) was proved by performing their hydrogenation to the saturated

Card 1/6

Study in the Field of Stereochemistry of Cyclic Compounds. Report 34. Conversion of Semiesters of Tricyclic Dicarboxylic Acids, and Configuration of Cis-syn-7-methoxy-1,2,3,9,10,10a-hexahydrophenanthrene-1,2-dicarboxylic Acid

S/062/60/000/010/022/031/XX
B002/B060

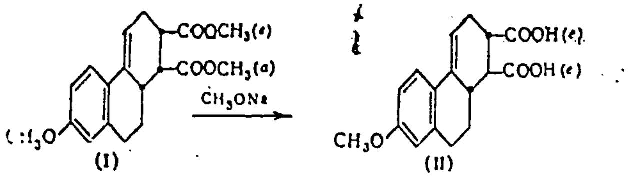
semiesters (VI) and (VII). Semiester (VI) was decomposed over the acid chloride (VIII) and thioester (IX) to (X) by desulfurization and reduction, to γ-lactone (XI) by cyclization, and to 1-methyl-7-methoxy phenanthrene by dehydrogenation. The structure of (IV) also came about in this way. (III) yields the cis-syn acid (XIII) on treatment with sodium methylate, (IV) the trans-anti acid (II). The behavior of cis-syn-7-methoxy-1,2,3,9,10,10a-hexahydrophenanthrene-1,2-dicarboxylic acid can be understood when basing upon these investigations. This compound was found in forms A and B; A is able to isomerize on the carboxyl group C_1 to form the trans-anti acid (II). In contrast therewith, form A is not able to isomerize on the carboxyl group at C_2. As only semiester (IV) is able to isomerize with the carbomethoxyl group at C_1, acid (XIII) is chiefly found in conversion form A, which, from the energetic viewpoint, is of greater advantage. There are 8 references: 2 Soviet, 4 Swiss, 3 US, and 2 British.

Card 2/6

In the Field of Stereochemistry of Cyclic S/062/60/000/010/022/031/XX
Report 14. Conversion of Semiesters B002/B060
Cyclic Dicarboxylic Acids, and Configuration
cis-syn-7-methoxy-1,2,3,9,10,10a-
hydrophenanthrene-1,2-dicarboxylic Acid

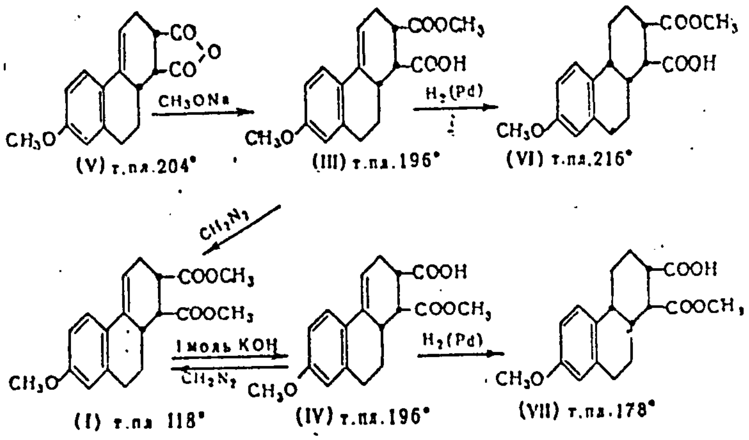
ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR (Institute of Organic Chemistry imeni N. D. Zelinskiy of the Academy of Sciences USSR)

SUBMITTED: May 13, 1959



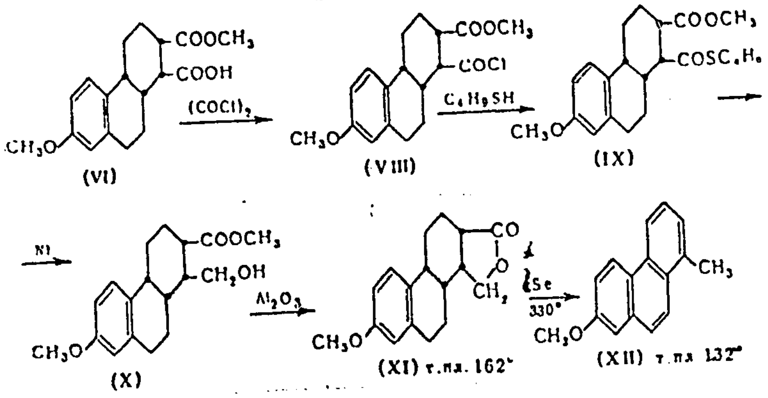
Card 3/6

S/062/60/000/010/022/031/XX
B002/B060



Card 4/6

S/062/60/000/010/022/031/XX
B002/B060



Card 5/6

S/062/60/000/010/022/031/XX
B002/B060

Все полученные фенантреновые производные по температурам плавления совпадают с соответствующими производными 1-метилфенантрена [6—8], и это совершенно однозначно подтверждает, что в исходном предельном цис-син-цис-полуэфире (VI), а следовательно и в цис-син-полуэфире (III), имеется свободная карбоксильная группа при C_1. Как было показано выше, второй цис-син-полуэфир (IV) является только структурным изомером полуэфира (III) и, следовательно, имеет свободную карбоксильную группу при C_2.

Card 6/6

KUCHEROV, V.F.; LYSANCHUK, L.K.; ANDREYEV, V.M.

Stereochemistry of cyclic compounds. Report No.35: Synthesis and configuration of the isomers of 7-methoxy-1,2,3,4,4a,9,10,10a-octahydro-1,2-phenanthrenedicraboxylic acid having cis-linked rings. Izv. AN SSSR.Otd. khim. nauk no.11:2003-2008 N '60. (MIRA 13:11)

1. Institut organicheskoy khimii im.N.D.Zelinskogo AN SSSR.
(Phenanthrenedicarboxylic acid)

NAZAROV, Ivan Nikolayevich [1906-1957]; TORGOV, I.V., doktor khim.nauk, otv.red.; ANDREYEV, V.M., kand.khim.nauk, red.; GURVICH, I.A., kand.khim.nauk, red.; SHVETSOV, N.I., kand.khim.nauk, red.; YANOVSKAYA, L.A., kand.khim.nauk, red.; RUDENKO, V.A., red.izd-va; POLYAKOVA, T.V., tekhn.red.

[Selected works] Izbrannye trudy. Moskva, Izd-vo Akad.nauk SSSR, 1961. 690 p. (MIRA 14:4)
(Chemistry, Organic)

ANDREYEV, V.M.; SEGAL', G.M.; KUCHEROV, V.F.

Stereochemistry of cyclic compounds. Report No.41: Synthesis of geometric isomers of 7-methoxyhexahydro (and octahydro) phenanthrene- 1,2-dicarboxylic acids. Izv. AN SSSR. Otd.khim. nauk no.8:1475-1482 Ag '61. (MIRA 14:8)

1. Institut organicheskoy khimii im. N.D. Zelinskogo AN SSSR.
(Phenanthrenedicarboxylic acid)

ANDREYEV, V.M.; KUCHEROV, V.F.

Stereochemistry of cyclic compounds. Report No.42: Synthesis and catalytic hydrogeneation of 7-methoxy-1,2-bis-hydroxymethylhexahydrophenanthrenes. Izv. AN SSSR. Otd.khim.nauk no.9:1636-1640 S '61. (MIRA 14:9)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.
(Phenanthrene)

KUCHEROV, V. F.; ANDREYEV, V. M.; LYSANCHUK, L. K.

"Synthesis of geometrical isomers of 7-methoxyhydrophenanthrenecarboxylic acids and the stereochemistry of their reactions."

report submitted for the IUPAC 2nd International Symposium on the Chemistry of Natural Products, Prague Czech., 27 Aug - 2 Sep 62

ANDREYEV, V.M.; LYSANCHUK, L.K.; KUCHEROV, V.F.

Stereochemistry of cyclic compounds. Report No.47: Some laws governing the oxidation of cis-syn-7-methoxy-1,2,3,9,10,10a-hexahydrophenanthrene-1,2-dicarboxylic acid and its dimethyl ester with peracetic acid. Izv. AN SSSR Otd.khim.nauk no.1:90-96 Ja '62.
(MIRA 15:1)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.
(Cyclic compounds) (Acids, Organic) (Stereochemistry)

KUCHEROV, V.F.; LYSANCHUK, L.K.; ANDREYEV, V.M.

Stereochemistry of cyclic compounds. Report No.48: Oxidation of anhydride of cis-syn-7-methoxy-1,2,3,9,10,10a-hexahydrophenanthrene-1,2-dicarboxylic acid with peracetic acid, and chemical transformations of products obtained. Izv. AN SSSR Otd.khim.nauk no.1:96-106 Ja '62. (MIRA 15:1)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.
(Cyclic compounds) (Stereochemistry) (Acids, Organic)

BARMIN, V.V.; BYSHEVA, G.K.; TUMANOV, G.K.; AGAPKIN, I.I.; VESELOV, M.A.; ANDREYEV, V.M.; GOL'DIN, L.L.; LUZIN, V.N.; RADKEVICH, I.A.; SOKOLOVSKIY, V.V.; STADNIKOV, A.G.

Study and correction of ~~the~~ horizontal component of the magnetic field in a proton synchrotron on low densities. Prib. i tekh. eksp. 7 no.4:223-229 Jl-Ag '62. (MIRA 16:4)

1. Institut teoreticheskoy i eksperimental'noy fiziki Gosudarstvennogo komiteta po ispol'zovaniyu atomnoy energii SSSR.
(Magnetic measurements) (Synchrotron)

S/076/62/036/001/005/0[illegible]7
B101/B102

AUTHOR: Andreyev, V. M.

TITLE: Critical phenomena in open systems

PERIODICAL: Zhurnal fizicheskoy khimii, v. 36, no 1, 1962, 42-52

TEXT: The biological phenomenon of "epigenetic homeostasis" has been treated quantitatively and it has been proven that for any chemical system there exist conditions under which several steady states are present simultaneously. A wavelike surface with "valleys" representing steady states and with "water divides" for non-steady states is suggested as a model. The steady state acquired by a system depends on the initial state, on a change in parameters changing the position of the steady state, and on a slight change of the parameters, which results in a loss of stability. For the steady state of the oxidation kinetics of a hydrocarbon in a continuous system in the presence of an inhibitor one obtains $-k_3p + k_2n - vp = 0$; $a + 2k_3p - k_1ni - \varepsilon n^2 - vn = 0$; $-k_1ni + vi_0 - vi = 0$ (15), where n = concentration of peroxide radicals, p = concentration of peroxide,

Card 1/4

S/076/62/036/001/005/017
B101/B102

Critical phenomena in open systems

and i = concentration of inhibitor Elimination of p and i furnishes $n^3 - (1/\varepsilon)[2k_2k_3/(k_3 + v) - v - v\varepsilon/k_i]n^2 + (v/\varepsilon k_i)[k_1i_0 - 2k_2k_3/(k_3 + v) + v - \alpha k_1/v]n - \alpha v/\varepsilon k_i = 0$. If the factors are substituted by a_1, a_2, a_3 this equation can be reduced to $n^3 + a_1n^2 + a_2n + a_3 = 0$ The condition that all the roots of this equation be real reads $a_1^2 > 3a_2$; $a^2a_2^2 - 4a_1^3a_3 - 4a_2^3 + 18a_1a_2a_3 - 27a_3^2 > 0$; $a_1 < 0$; $a_2 > 0$ These conditions can be satisfied, as proved by the substitution of certain values in (5). For $\varepsilon \neq 0$ and $i_0 \neq i$ the following relation is in general valid: $i_0 = (\bar{n}/v + 1/k_i)[2k_2k_3/(k_3 + n) - v - \varepsilon\bar{n} + \alpha/\bar{n}]$. When α tends to zero there occurs a range of i_0 with three solutions if the condition $(1/v)[2k_2k_3/(k_3 + v) - v] > \varepsilon/k_i$ is fulfilled Similarly, the relation $V = v_0\exp\lambda t$ is derived for the open system of a liquid phase contacting the surroundings through diffusion and having a varying volume This means there are several steady states with different rates of growth Systems of

Card 2/4

S/076/62/036/001/005/017
B101/B102

Critical phenomena in open systems

the same kind can therefore exist in one and the same medium in different alternate stable steady states. Such parallel variations are found with biological systems, such as Escherichia coli ML30 (Ref. 20, see below) and others. The question is discussed as to whether the transition from normal to cancer cells is caused, not by mutation, but by a transition to another stable state with the same genes. In this case, sufficiently strong effects acting on the system must bring about a transition in the same direction. This might be a means of re-forming malignant cells into normal ones. Ya. B. Zel'dovich and N. N. Semenov are mentioned. D. G. Knorre and N. M. Emanuel' are thanked for discussions. There are 4 figures and 23 references: 10 Soviet and 13 non-Soviet. The four most recent references to English-language publications read as follows: D. L. Nanney. Microbiology, developmental genetics and evolution. Am. Naturalist, 94, no. 875, 1960; A. Campbell. Autocatalytic particles and steady states. Nature, 186, no. 4720, 256, 1960; T. M. Sonneborn. The gene and cell differentiation. Proc. Nat. Ac. Sci. USA, 46, no. 2, 149, 1960; Ref. 20: M. Cohn, K. Horibata. Inhibition by glucose of the induced synthesis of the β-galactosideenzyme system of E. coli. J. Bacteriology, 78, no. [illegible], 601, 1959.

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Card 3/4

Critical phenomena in open systems

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ASSOCIATION: Akademiya nauk SSSR, Institut khimicheskoy fiziki (Academy of Sciences USSR, Institute of Chemical Physics)

SUBMITTED: May 26, 1961

Card 4/4

LYSANCHUK, L.K.; ANDREYEV, V.M.; KUCHEROV, V.F.

Stereochemistry of cyclic compounds. Report No.52: Regularities in the addition of hypobromous acid to dimethyl-cis-syn-7-methoxy-1,2,3,9,10,10a-hexahydrophenanthrene-1,2-dicarboxylate. Izv. AN SSSR. Otd.khim. nauk no.4:706-715 Ap '63. (MIRA 16:3)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.
(Hypobromous acid) (Cyclic compounds) (Stereochemistry)

PELEVINA, I.I.; ANDREYEV, V.M.; LIPCHINA, L.P.; EMANUEL', N.M.

Kinetic characteristics of the activity suppression in enzymes of the succinic oxidase system by the inhibitors of radical processes. Dokl. AN SSSR 148 no.6:1408-1411 F '63. (MIRA 16:3)

1. Institut khimicheskoy fiziki AN SSSR. 2. Chlen-korrespondent AN SSSR (for Emanuel').

(Enzymes) (Inhibition (Chemistry))

KUCHEROV, V.F.; KAZARYAN, S.A.; ANDREYEV, V.M.

Stereochemistry of cyclic compounds. Report No.57: Spacial and steric course of diene condensation of 1-vinyl-Δ^1-cyclohexene with ethyl pseudo-β-formyl acrylate. Izv. AN SSSR. Ser. khim. no.11:1996-2002 N '63.

Stereochemistry of cyclic compounds. Report No.58: Some transformations of isomeric 2-formyldecalin-1-carboxylic acids under conditions of the Knoevenagel reaction. Ibid.:2003-2007 (MIRA 17:1)

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

ACCESSION NR: AP4015110 S/0136/64/000/002/0048/0051

AUTHORS: Shigina, L. N.; Andreyev, V. M.

TITLE: Hydrolysis of germanium tetrachloride

SOURCE: Tsvetny*ye metally*, no. 2, 1964, 48-51

TOPIC TAGS: germanium tetrachloride, hydrolysis, hydrolysis rate, hydrolysis condition , germanium dioxide crystallization

ABSTRACT: The effect of temperature, reagent ratio, method of hydrolysis, and agitation, on the degree of germanium tetrachloride hydrolysis including additional recovery of slurry after hydrolysis with and without agitation was investigated. It was observed that the degree of hydrolysis increases during the first 1-2 hours, and that the temperature determines the hydrolysis constant. Generally it was found that the process rate increases at lower temperatures of about 200 and that crystallization of germanium dioxide is more rapid at the low temperatures. The temperature range investigated was from -2 to +490 and it was concluded that the lower the temperature the

Card 1/2