USSR/Forestry - Forest Cultures. K-5

Abs Jour : Ref Zhur - Biol., No 5, 1958, 20162

Author : Sinnikov, A.S.

Inst : Arkhangel'sk Technical Forestry Institute.

Title : Several Forest Culture Production Problems Connected with Types of Clearing.

Orig Pub : Tr. Arkhang. lesotekhn. in-ta, 1957, 17, 159-171

Abstract : Preliminary stripping is suggested in pine culture production in connection with clearing types in Arkhangel'skaya Oblast'. Clearings with agaricaceae, beach grass, willow herb, long moss and heath are descrobed.
Agrotechnics of tilling, sowing and care are recommended for each type.

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33956
R/005/62/000/001/001/003
D014/D105

9,2520 (1003, 1040, 1154)

AUTHORS: Sinnreich, H., Engineer, and Albeanu, Doina, Engineer

TITLE: The negative feedback in transistor telephone amplifiers

PERIODICAL: Telecomunicatii, no. 1, 1962, 17 - 24

TEXT: The article deals with the problem of negative feedback in transistor telecommunication amplifiers. The authors consider the operation frequency of the transistor to be higher than the maximum frequency in the amplifier band, and treat only the configurations with common emitters. The transistor may be characterized by two small-signal parameters with a satisfactory accuracy. The first parameter is the shortcircuited-current amplification β, while the second parameter is the slope S, which is a little smaller than the S_o slope of the intrinsic transistor. In the first approximation, S may be considered to be independent of the frequency. The input resistance is

$$r_1 = \frac{u_1}{i_2}\,\frac{i_2}{i_1} = \frac{\beta}{S} \qquad (4)$$

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D014/D105

The negative feedback in transistor .....

and depends on the operating conditions and on every transistor separately. $\frac{\beta}{S}$ is identical with h_{11E} and is used in the entire article to simplify the calculations. The authors then briefly describe the following simple circuits with negative feedback: (1) series-series feedback with resistor; (2) parallel-parallel feedback with resistor; (3) combined series and parallel feedback with resistor; and (4) series-parallel feedback with transformer. These circuits are very simple but do not allow satisfactory stabilization. Very good performance, however, can be obtained with single-stage amplifiers with negative feedback by using two differential transformers, connected as shown in Fig. 4. Although the two transformers and the transistor connected to the feedback loop introduce a slope of 6 db/Oct each, the stability of the amplifier can easily be established. If the transistor and the transformers have the same maximum frequency, the critical gain is $T_M = 8$. To stabilize the amplification and the impedances, a value of 6 - 7 for T_M is sufficient in the majority of cases. The authors refer to two single-stage amplifier circuits with negative feedback and with two differential transformers, giving the necessary formulas.

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The negative feedback in transistor .....

In case of multistage amplifiers, the negative feedback with balanced resistive bridges should be applied. The output bridge should guarantee a maximum load power, and the input bridge a maximum noise. As an example, the authors describe an experimental three-stage amplifier for a low-gain repeater to be used in a 24-channel 12 - 108 kc telephone system. The calculation modi of simple circuits with negative feedback and the balancing and attenuating conditions of two differential transformers used in a single-stage amplifier with negative feedback are also presented. There are 10 figures and 11 references: 7 Soviet-bloc and 4 non-Soviet-bloc. The four references to English-language publications read as follows: H.L. Armstrong, "On the usefulness of transconductance as a transistor parameter", Proc. IRE, 47, 1959, p. 83-84; J.G. Thomason, "Linear Feedback Analysis", London, 1956, Pergamon Press, Chapt. 6; S.J. Mason, "Feedback Theory; Some properties of Signal Flow Graphs", Proc. IRE, 41, 1953, no. 9, pp. 1,144 - 1,156; S.J. Mason, "Further Properties of Signal Flow Graphs", Proc. IRE, 44, 1956, no. 7, pp. 920 - 930.

Card 3/4

SINNREICH, Heinrich, ing.

Signal diagrams. Telecommunicatii 8 no.6:259-270 S '64.

R/005/62/000/003/002/006
D014/D105

AUTHORS: Stefanescu, Sofronie, Engineer; Sinnreich, Heinrich, Engineer, and Georgescu, Doina, Engineer

TITLE: The ST-3 system of transistorized carrier currents with three channels

PERIODICAL: Telecomunicatii, no. 3, 1962, 100-107

TEXT: The article presents the transistorized three-channel ST-3 carrier current system to be used in open-wire telephone communications. The ST-3 system was developed by the "I.A.Tc." which produces the R.V.T. voice repeater and the single-channel ST-1 system in series and which also developed the 24-channel ST-24 system for cable operation. The ST-3 system can operate with two or four copper conductors by using a single modulation and a suppressed-carrier single side-band. The introduction of three additional telegraph channels was also made possible. The ST-3 voice-frequency band is 0.3 - 3.4 kc, the difference between the carrier frequencies 4 kc, the call frequency 2,280 cps, the pilot frequencies 4 and 32 kc, the frequency range of the system 4 - 32 kc, and the planned band for additional

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The ST-3 system of transistorized ... R/005/62/000/003/002/006
D014/D105

telegraph channels 3,550 - 3,700 cps. The ST-3 system meets the international CCITT recommendations. However, the recommended pilot frequencies of 16 and 110 kc and 31 and 110 kc could not be used due to their unusual values. The system permits an attenuation of 5.5 N. A detailed description of all parts of the system is given. There are 9 figures.

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L 45513-65

ACCESSION NR: AP5014653 RU/0005/64/008/006/0259/0270

AUTHOR: Simnreich, Heinrich (Engineer)

TITLE: Signal graphs

SOURCE: Telecomunicatii v. 8, no. 6, 1964, 259-270

TOPIC TAGS: electronic signal, electronic feedback, graphic technique

ABSTRACT: (Author's English summary modified): An introduction to the use of signal flow graphs in design. The general concepts are explained and the gain formula is derived; then the method is applied to linear analysis, and finally, feedback is defined in terms of graphs and a method is presented for the

SINNREICH, H., ing.

Optimum design of some repeaters with reaction transistors. Telecomunicatii 7 no.2:84-87 Mr-Ap '63.

BRESLER, S.Ye.; SINOCHKIN, Yu.D.; YEGOROV, A.I.; PERUMOV, D.A.

Ion-exchange resins based on zirconium. Radiokhimiia 1 no.5:507-513 '59. (MIRA 13:2)
(Zirconium) (Gums and resins)

L 55338-65 EWT(m)/EPF(n)-2/EWG(m)/EWT(t)/EWP(b) Pu-4 IJP(c) RWH/JD/WW/JG/GS/RM

ACCESSION NR: AT5015392 UR/0000/65/000/000/0140/0144
66.074.8 : 546.83.195

AUTHOR: Sinochkin, Yu. D.; Perumov, D. A.

TITLE: Zirconium-base ion exchangers. III. Zirconyl arsenate

SOURCE: AN SSSR. Otdeleniye obshchey i tekhnicheskoy khimii. Soosazhdeniye i adsorbtsiya radioaktivnykh elementov (Coprecipitation and adsorption of radioactive elements). Moscow, Izd-vo Nauka, 1965, 140-144

TOPIC TAGS: ion exchange, zirconyl arsenate, calcium magnesium exchange, cesium adsorption

ABSTRACT: A zirconyl arsenate ion exchanger was prepared by rapidly mixing concentrated solutions of zirconyl chloride and potassium arsenate, then washing and drying the gel obtained. The equivalent character of the adsorption was shown by using calcium - magnesium exchange as an example. Proof of the volume character of the adsorption was provided by the absence of changes in capacity when coarse and fine grains of zirconyl arsenate were used. The time required for equilibrium to be established was almost the same as in the case of organic adsorbents. The possibility of a selective separation of cesium from acid solutions containing divalent

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ACCESSION NR: AT5015392 O

and trivalent ions was checked under static conditions using Cs^{137} for the determination of the distribution of Cs between the solid and the liquid phase. It was found that the adsorption of cesium at low pH values was insensitive to the presence of divalent and trivalent ions in the solution Owing to individual differences in the dependence of the capacity on the pH for alkali metals, cesium can be concentrated on zirconyl arsenate in the presence of high concentrations of other alkali and polyvalent ions. Selectivity in adsorption is conveniently supplemented by selectivity in desorption. Orig. art. has: 4 figures and 1 table.

ASSOCIATION: None

SUBMITTED: 23Nov62 ENCL: 00 SUB CODE: IC, GC

NO REF SOV: 003 OTHER: 006

Card 2/2

10(3,4) PHASE I BOOK EXPLOITATION SOV/3193

Leningrad. Politekhnicheskiy institut imeni M.I. Kalinina

Trudy, no. 198] Tekhnicheskaya gidromekhanika (Industrial Hydromechanics) Moscow, Mashgiz, 1958. 220 p. Errata slip inserted. 1,500 copies printed.

Resp. Ed.: V.S. Zaimov, Doctor of Technical Sciences, Professor; Ed. of this book: L.G. Loytsyanskiy, Doctor of Physical and Mathematical Sciences, Professor; Managing Ed. for Literature on the Design and Operation of Machinery (Leningrad Division, Mashgiz): F.I. Fetisov, Engineer; Tech. Ed.: R.G. Pol'skaya.

PURPOSE: This book is intended for engineers working in the field of machine construction.

COVERAGE: This collection of articles contains the results of original work in the field of theoretical and applied hydroaerodynamics, completed in the aerodynamics laboratory of the LPI (Leningrad Polytechnic Institute) by members of the department of hydroaerodynamics and the department of theoretical mechanics. The book is divided into four parts. The first part contains studies of turbine steam-exhausts. The first article gives the results of a laboratory study on model-experiments on a test-stand and the general conclusions drawn therefrom. The second part contains articles on the theory of laminar and turbulent motion of a viscous fluid. The articles treat the hydrodynamic theory of friction in bearings and suspensions, boundary layers and jets, the initial part of a pipe in the presence of vortex, and the action of air under the action of a corona conductor. The articles in the third part belong to the field of applied hydrodynamics. One of the articles is a theoretical and experimental study of flow around the parts of a radar antenna. The second article contains the results of aerodynamical analyses of fish-net models. The fourth part of the book contains the results of laboratory experiments on establishing new methods of aerodynamical measurements (friction forces on the surface of a streamlined body, pressure distributions in nonstationary flows). References accompany individual articles.

SINOCHKINA, L. N.

Intermediate reactions of cyclohexylhydroperoxide, cyclohexanol, and cyclohexanone during the oxidation of cyclohexane in a glass reactor. I. V. Berezin, B. G. Dzantiev, N. F. Kazanskaya, L. N. Sinochkina, and N. M. Emanuel (M. V. Lomonosov State Univ., Moscow). *Zhur. Fiz. Khim.* 31, 554-12(1957); cf. *C.A.* 51, 17770f.—Successive reactions during oxidation of cyclohexane (I) with air in the liquid phase were reported in the previous article; the kinetic picture was, however, distorted by the large addn. of tagged cyclohexanol (II) and cyclohexanone (III). In the present article the tagged substances were added only 2.5-6 hrs. after the start of the reaction. Their total amt. did not exceed 5-7% of the corresponding component in the mixt. and did not affect accumulation kinetics of the reaction products. [illegible] app. and operation were left otherwise unchanged. [illegible] results confirmed the intermediate compd. [illegible]. The rates of conversion of I to II [illegible] of [illegible] of II to adipic acid (principally) were detd. [illegible] rate [illegible] and III [illegible] during the reaction [illegible] effects that require [illegible] II was formed during the reaction by [illegible]

SINODOVA, Ye P

The influence of alloying elements upon the nickel alloy hardness at high temperatures. M. B. Blanter, I. I. Kuznetsov, M. G. Dorinskii, and E. P. Sinodova. *Izvest. Akad. Nauk S.S.S.R., Otdel. Tekh. Nauk* 1956, No. 12, 88-95.—The hardness was detd. at 20–1100° of homogeneous solid solns. Ni-Cr, Ni-Mo, Ni-W, Ni-Ti, Ni-Co, and Ni-Al. The greatest max. hardness at high temps. was found with binary Ni alloys with Cr (10%), Mo (12%), W (11%), Ti (4%), and 1% Al. No higher concns. of W and Mo were tested. Co addn. had no marked effect upon hardness in concns. up to 5%. Mo raised the Ni hardness at 20–1100° the most, followed by Cr, Ti, and W. Al had the least effect. W. M. Sternberg

Moscow Aviation Inst

SOV/129-59-5-8/17

AUTHORS: Dr.Tech.Sci. M.G. Lozinskiy, and Engineer Ye.P Sinodova

TITLE: Investigation of the Temperature Dependence of the Hardness of Iron-Molybdenum and Nickel-Molybdenum Alloys (Issledovaniye temperaturnoy zavisimosti tverdosti zhelezomolibdenovykh i nikel'molibdenovykh splavov)

PERIODICAL: Metallovedeniye i Termicheskaya Obrabotka Metallov, 1959, Nr 5, pp 35-40 + 1 plate (USSR)

ABSTRACT: The results are described of investigations carried out in the Institute of Mechanical Engineering, Ac.Sc. USSR, (Institut Mashinovedeniya AN SSSR) relating to the study of iron-molybdenum and nickel-molybdenum alloys by means of short-duration and long-duration hardness measurements. The materials for the specimens were produced in a 50 kg capacity induction furnace. The iron-base alloys contained respectively 4% Mo (alloy 204) and 12% Mo (alloy 212). The nickel-base alloys were alloyed respectively with 7% Mo (alloy 307) and 25% Mo (alloy 325). As can be seen from the diagram (Fig 1) the alloys 204 and 307 remain in the entire temperature range single-phase alloys and do not become transformed. The alloys 212 and 325, which had higher molybdenum contents, are

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Investigation of the Temperature Dependence of the Hardness of Iron-Molybdenum and Nickel-Molybdenum Alloys

two-phase alloys in the state of equilibrium and after quenching from the single-phase range they are prone to dispersion hardening. The alloys 204 and 307 were investigated after vacuum annealing at 900°C for two hours followed by slow cooling in the furnace. The alloy 212 was investigated after quenching from 1200°C in oil; the alloy 325 was investigated after quenching in water from 900°C. By means of hardness measurements, the kinetics of ageing of the alloys 212 and 325 at various temperatures were studied. The influence of ageing on the microstructure of the alloy 212 can be followed from the microphotos reproduced in Fig 2 (plate). The results are described of the short-duration hardness measurements at 20 to 1000°C in vacuum for the alloys of the systems Fe-Mo and Ni-Mo (see graph, Fig 4). The duration of applying the indentor in each case was one minute. Data on the kinetics of ageing of experimental alloys in the temperature range of 300 to 1000 °C are graphed in Figs 5 and 6. The temperature dependence of the "long-duration" hardness, i.e. of the hardness values measured

SOV/129-59-5-8/17

Investigation of the Temperature Dependence of the Hardness of Iron-Molybdenum and Nickel-Molybdenum Alloys

with load application times of 30, 300 and 3000 secs, are given and discussed. It is shown that a concentration of the alloying element (molybdenum) which shifts the alloy from the single-phase range to the two-phase range, brings about a hardening in the entire investigated temperature range. In the range up to 700°C dispersion hardening takes place in two-phase alloys, as a result of which there will be a sharp increase in the hardness. Investigation of the long-duration hardness of nickel alloys containing 7 - 25% Mo has shown that for the ageing alloy 325 the hardness at 600 to 700 °C is higher than it is at 500°C and the difference between the values of the hardness measured with indentation durations of 30 and 3000 secs (which characterises the tendency to creep of the material) is approximately the same at 500, 600 and 700 °C. An increase to 800 - 900 °C in the temperatures of testing long-duration hardness of the alloy containing 25% Mo revealed that this alloy softens more intensively than an alloy containing 7% Mo. At 1000 °C nickel-base alloys showed the same degree of softening for various

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Investigation of the Temperature Dependence of the Hardness of Iron-Molybdenum and Nickel-Molybdenum Alloys

Mo contents and the character of the curve of the hardness versus duration of applying the indentation load is similar to that obtained in tests at 500 to 600 °C. The elastic properties of the alloys, which are characterised by the values of the modulus of elasticity, are little influenced by an increase in the molybdenum content (within the investigated limits) and with increasing test temperature the modulus of elasticity decreases monotically. The values of the logarithmic damping decrement of oscillations (internal friction) did not change in any of the investigated alloys up to 500°C. However, on increasing the heating temperature further the damping intensified sharply; in single-phase alloys

Investigation of the Temperature Dependence of the Hardness of Iron-Molybdenum and Nickel-Molybdenum Alloys

this process began at lower temperatures than in two-phase alloys.
There are 8 figures and 5 Soviet references.

ASSOCIATION: Institut Mashinovedeniya AN SSSR (Institute of Mechanical Engineering, Ac. Sc. USSR)

FEDOTOV, S.G.; NARTOVA, T.T.; SINODOVA, Ye.P.

Elastic properties of alloys of the titanium - aluminum system.
Dokl. AN SSSR 146 no.6:1377-1379 O '62. (MIRA 15:10)

1. Institut metallurgii im. A.A. Baykova. Predstavleno akademikom G.V. Kurdyumovym.
(Titanium-aluminum alloys)

L 19744-63 EWP(q)/EWT(m)/BDS AFFTC/ASD JD/JG
ACCESSION NR: AP3000916 S/0279/63/000/002/0141/0145

AUTHORS: Fedotov, S. G. ; Nartova, T. T. ; Sinodova, Ye. P. (Moscow)

TITLE: Elastic properties of Ti-Sn alloys

SOURCE: AN SSSR, Iz. otd. tekh. nauk. Metallurgiya i gornoye delo, no. 2, 1963, 141-145

TOPIC TAGS: Ti-Sn alloy, elastic properties

ABSTRACT: Elastic properties of alloys containing up to 25% (by weight) of Sn were studied. The elastic constants (Young's modulus, shear modulus, and Poisson ratio) were determined, and the characteristic Debye temperature of the alloys was calculated. It was established that alloys contain three phases that differ sharply in their elastic properties. The introduction of Sn into the alpha-solid Ti solution causes a minor decrease in the elastic constants (with a subsequent small increase as the alloys approach the saturation limit). The transition into the region of the binary phase (alpha + beta) is marked by a sudden decrease in the elasticity moduli. An intensive (almost linear) decrease in the elasticity constants in this region is observed with the increase in gamma-phase content. This continues up to the boundary of the homogeneous gamma-region of solid solutions on the Ti_3Sn

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L 19744-63
ACCESSION NR: AP3000916

0

base. The extremely high values of the elastic properties correspond to the compound Ti_3Sn. Elastic properties of the alloy with 2.5% of Sn decrease with the increase in temperature. The increase in Sn content lowers the rate of this decrease. The higher the Sn content, the higher are the values of the elastic properties of alloys at high temperatures. The elastic properties of a two-phase alloy with 25% of Sn do not vary significantly during heating. The increase in the heat resistance of the alpha-solid Ti solutions with the increase in Sn content is due to the increase in the force of interatomic bonds and in the stability of these bonds as compared to the bonds in pure Ti or in diluted solid solutions. Orig. art. has: 2 figures and 4 formulas.

ASSOCIATION: none

SUBMITTED: 23May62 DATE ACQ: 12Jun63 ENCL: 00

SUB CODE: ML NO REF SOV: 007 OTHER: 006

Card 2/2

L 56055-65 EWT(m)/EWP(w)/EPF(n)-2/EWA(d)/T/EWP(t)/EWP(h)/EWA(c) Pad/Pu-4
IJP(c) JD/HW/JG

ACCESSION NR: AP5010554 UR/0129/65/000/004/0026/0036
669.295.26'24'25'74:621.785.61

AUTHOR: Fedotov, S. G.; Sinodova, Ye. P.

TITLE: Characteristics of the martensite transformation in titanium alloys

SOURCE: Metallovedeniye i termicheskaya obrabotka metallov, no. 4, 1965, 26-36, and insert facing p. 40

TOPIC TAGS: martensite transformation, titanium alloy, alloy elasticity, hardened alloy, Young modulus, shear modulus, alloy phase transformation

ABSTRACT: The elastic properties of hardened alloys of titanium with eutectoid-forming elements were studied; in such alloys, metastable phases of similar structure are formed on hardening. Young's modulus and the shear modulus were determined by the dynamic method with an "Elastomat" instrument. Many similarities were observed in the general aspect of the change (with Ti content) in the elastic properties of alloys of the systems Ti-Cr, Ti-Mn, Ti-Fe, and Ti-Co, representing one type of interaction, and alloys of the systems Ti-Mo, Ti-V, Ti-Nb, etc., representing another type of interaction, but marked differences were seen in the change of properties on the first portion of the curves, which

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ACCESSION NR: AP5010554

corresponds to the formation of supersaturated α' solid solutions. The martensite transformation occurs in two stages: in the first, the $\beta \rightarrow \alpha$ transformation involves the formation of α' solid solutions of limiting concentration which is proportional to the solubility of the elements in α titanium. The second stage, which consists in the depletion of the primary supersaturated α' solid solutions, begins at the eutectoid temperature and ends at temperatures at which the displacements of atoms under hardening conditions become very difficult (300-400C). This second stage causes a decrease in the content of alloying elements present in the supersaturated α' solid solutions of titanium, and hence to self-tempering, which results in the restoration of Young's modulus and shear modulus and an increase in hardness. Orig. art. has: 3 figures and 1 table.

ASSOCIATION: Institut metallurgii im. A. A. Baykova (Institute of Metallurgy)

SUBMITTED: 00 ENCL: 00 SUB CODE: MM, SS

NO REF SOV: 005 OTHER: 005

Card 2/2

L 2663-66 EWT(m)/EWP(w)/T/EWP(t)/EWP(z)/EWP(b) IJP(c) JD/HW/JG/GS

ACCESSION NR: AT5023095 UR/0000/65/000/000/0152/0160

AUTHOR: Fedotov, S. G.; Sinodova, Ye. P.

TITLE: Elastic properties of the hardened alloys of titanium with eutectoid-forming elements -- chromium, manganese, iron, cobalt, and nickel

SOURCE: Problemy bol'shoy metallurgii i fizicheskoy khimii novykh splavov (Problems of large-scale metallurgy and physical chemistry of new alloys); k 100-letiyu so dnya rozhdeniya akademika M. A. Pavlova, Moscow, Izd-vo Nauka, 1965, 152-160

TOPIC TAGS: elastic modulus, phase diagram, titanium base alloy, chromium containing alloy, solid solution, metal hardening, eutectoid

ABSTRACT: The present work is a continuation of earlier investigations by the authors, with the difference that the factors investigated in this case were: the modulus of normal elasticity, modulus of rigidity, Poisson's ratio, logarithmic attenuation decrement, and Vickers hardness of hardened alloys of the Ti-Cr, Ti-Mn, Ti-Fe, Ti-Co, and Ti-Ni systems. A characteristic feature of alloys of

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ACCESSION NR: AT5023095

3

these systems is the formation of the metastable phases α', ω and β of a presumably identical nature and structure, during hardening. As in the two previous ivestigations, (S. G. Fedotov, O. K. Belousov, Dokl. AN SSSR, 150, 1, 77, 1963; 155, 6, 1387, 1964), elastic properties of the alloy specimens hardened by quenching from 1000°C were measured by the dynamic method with the aid of an Elastomat device. It was established that the different systems investigated display a common pattern of variation in the specified parameters, which is associated with the similarity of interaction between Ti and Cr, Fe, Mn, and Co. At first all the alloy elements depress the elastic properties to a different degree, and thereupon they cause an abrupt increase in these properties, which corresponds to the formation of the ω-phase. This maximum is again followed by a fall, due to the fixation of the metastable β-solid solutions. The general type and nature of variation in the elastic constants of alloys of the Ti-Cr, Ti-Mn, Ti-Fe, and Ti-Co systems, which represent one type of interaction, display much in common with those of the alloys of the Ti-Mo, Ti-V, Ti-Nb, and other systems, which represent another type of interaction. Despite this seeming similarity, there also exist definite differences in elastic properties, which the authors attribute to the different nature of the interaction of Ti with elements of these two groups, since

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the interaction of Ti with Cr, Mn, Fe, Co, and Ni is also characterized by the formation of broad (Mn, Fe, Co, Ni) or unlimited (Cr) ranges of β-solid solutions and extremely limited ranges of α-solid solutions: in alloys of these systems, by contrast with alloys of the systems formed by Ti with Mo, V, and Nb, the β-solid solution undergoes eutectoid decomposition, while the solubility of Cr and other elements of this group in α-Ti also increases with the fall in temperature to eutectoid temperature but, once a certain point is reached, it decreases again. Hence, it is suggested that martensite transformation in alloys with eutectoid-forming elements also takes place in two stages. The first stage of β→α— transformation occurs in the same way as in alloys of the Ti-Mo, Ti-V, and Ti-Nb systems. This is what they have in common. The second stage of the transformation process takes place only in alloys with eutectoid-forming elements; this is what differentiates the compared alloy groups. Here major significance is attached to the temperature of eutectoid transformation. The higher this temperature is, the greater, obviously, the extent to which the self-tempering of primary supersaturated α-solid solutions will occur and the more complete the recovery of elastic properties will be. Conversely, a lower temperature of eutectoid transformation in the system complicates the process of the self-tempering of supersaturated α-solid solutions forming during the hardening and hence contributes to the

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ACCESSION NR: AT5023095

fixation of the more supersaturated α-solid solutions with lower elastic constants. From this standpoint considered, the elastic properties of alloys of the Ti-Cr system directly point to a lower eutectoid temperature than that of the other systems investigated. Orig. art. has: 3 tables.

ASSOCIATION: none

SUBMITTED: 00 ENCL: 00 SUB CODE: SS, ME

NO REF SOV: 008 OTHER: 005

Card 4/4

L 34527-66 EWT(m)/EWP(w)/T/EWP(t)/ETI IJP(c) JD/HW/GD/JG

ACC NR: AT6012390 SOURCE CODE: UR/0000/65/000/000/0189/0197

AUTHORS: Fedotov, S. G.; Konstantinov, K. M.; Sinodova, Ye. P.

ORG: none

TITLE: Physical properties of binary alloys of titanium in the tempered state

SOURCE: Soveshchaniye po metallokhimii, metallovedeniyu i primeneniyu titana i yego splavov, 6th. Novyye issledovaniya titanovykh splavov (New research on titanium alloys); trudy soveshchaniya. Moscow, Izd-vo Nauka, 1965, 189-197

TOPIC TAGS: ~~metallurgy~~, titanium, titanium alloy, ~~elastic property~~, electric resistance, thermal property, metallurgic research, binary alloy, elasticity, tempering metal hardness

ABSTRACT: The concentration variation of elastic and electrical properties of titanium alloys, which are tempered from the β-region, is established. Two groups of titanium alloys were studied: alloys with molybdenum, vanadium, and niobium and alloys with chromium, manganese, iron, cobalt, and nickel. Specimens of these types were subjected to a series of sensitive tests for measuring their elastic properties and electrical resistance. The content of the alloying element played the role of the independent variable. Other observations were made of the variation of the microstructure of the alloys with content and temperature. It was established that the elastic and electrical properties are sensitive to the structuring of tempered

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L 36527-66

ACC NR: AT6012390

titanium alloys. The appearance of the ω-phase in the structure is accompanied by a decrease in the resistivity and an increase in the modulus of normal elasticity and the shear modulus. With increasing supersaturation of α and β hard mixtures there is an increase of electrical resistance and a decrease of E and G. In systems with eutectic dissociation of a hard mixture a self-tempering of supersaturated hard mixtures occurs for which the degree of self-tempering is higher with higher eutectic temperature; this phenomenon is reflected in values of the elastic properties. Orig. art. has: 3 figures.

SUB CODE: 11/ SUBM DATE: 02Dec65/ ORIG REF: 013/ OTH REF: 010

Card 2/2 /LP

SHLYAKOV, E.N.; SINODSKAYA, V.A.; PASTUKHOV, B.N., red.; ANTONOV, B.N., red.; ZUYEVA, N.K., tekhn. red.

[Anthrax; organizational and methodological materials] Sibirskaia iazva; sbornik organizatsionno-metodicheskikh materialov. Pod obshchei red. B.N.Pastukhova. Moskva, Medgiz, 1962. 147 p. (MIRA 15:6)

(ANTHRAX)

L 55006-65 EWT(1)/FCC GM
ACCESSION NR: AR5014447 UR/0169/65/000/005/B109/B109
551.587(018):551.55

16
B

SOURCE: Ref. zh. Geofizika, Abs. 5B615

AUTHOR: Marchenko, A. S.; Galerkina, K. A.; Sinofeyeva, L. M.

TITLE: Some problems of wind statistics

CITED SOURCE: Tr. N.-i. in-ta aeroklimatol., vyp. 25, 1964, 104-123

TOPIC TAGS: climatology, aeroclimatology, wind component, wind velocity, wind vector

TRANSLATION: The authors analyze the accuracy of determinations of the numerical climatic characteristics of the wind by the approximate method of 8-direction grouping of observational data. The simplification is introduced because of the necessity for limiting the mass of information introduced into the computer. Two methods, precise and approximate, are used for computation of the climatic characteristics of the wind for January, April, July and October of 1950-1959 for three stations to a height of 16 km. It is demonstrated that the 8-direction grouping ensures a high accuracy of the absolute value and direction of the mean

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L 55006-65
ACCESSION NR: AR5014447 0

resultant vector and the mean scaler wind velocity but leads to systematic errors in determination of the dispersions of the zonal and meridional wind components, the wind vector and wind velocity. Correction formulas are proposed. Bibliography of 6 items. Yu. Spiridonova.

SUB CODE: ES ENCL: 00

Card 2/2

KAVUN, N. D.; [illegible], N. A.; SINOGEYKIN, S. A.

Gums and Resins

Work methods of stakhanovite oleoresin melter. Der. i lesokhim. prom. 1, No. 9, 1952.

Monthly List of Russian Accessions, Library of Congress, June 1953. Uncl.

ACCESSION NR: AP4018072 S/0080/64/037/002/0429/0433

AUTHORS: Petrov, K.A.; Nifant'yev, E.Ye.; Ly*senko, T.N.; Sinogeykina, L.P.

TITLE: Synthesis of certain derivatives of phenylphosphonic acid

SOURCE: Zhurnal prikladnoy khimii, v. 37, no. 2, 1964, 429-433

TOPIC TAGS: phenylphosphonate, synthesis, phosgenation, phenylphosphonic acid ester

ABSTRACT: The synthesis of phenylphosphonates by the following procedure:

$$C_6H_6 \xrightarrow[AlCl_3]{PCl_3} C_6H_5PCl_2 \cdot AlCl_3 \xrightarrow{SO_2Cl_2} C_6H_5POCl_2 \cdot AlCl_3 \xrightarrow{ROH} \rightarrow C_6H_5PO(OR)_2 \cdot AlCl_3 \xrightarrow{H_2O} C_6H_5PO(OR)_2.$$

and the subsequent phosgenation:

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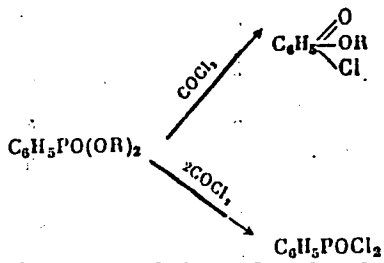
ACCESSION NR: AP4018072



were investigated. The dibuty, dihexyl, di-2-ethylhexyl and diphenyl esters of phenylphosphonic acid were prepared according to the first equation by reacting a mixture of phenyldichlorophosphine and $AlCl_3$ with SO_2Cl_2, removing the excess SO_2Cl_2, and then reacting with the appropriate alcohol. The monobutyl, hexyl and octyl esters were prepared by reacting in absolute ether the dichloranhydride of phenylphosphonic acid (i) with the appropriate alcohol and pyridine. The butyl and isoamyl esters of diethylamidophenylphosphonic acid were prepared by reacting in absolute ether a misture of I, the appropriate alcohol and triethylamine, and then diethylamine. Phosgenation of the diethyl ester of phenylphosphonic acid at 40-50C gives the monochloranhydride of the monoethyl ester of phenylphosphonic acid; at 120-130C, I is formed almost quantitatively. Phosgenation

Card 2/3

ACCESSION NR: AP4018072

at the lower temperature of the monohexyl ester gives the monochloranhydride of the monohexyl ester of phenylphosphonic acid. Orig. art. has: 1 table and 3 equations.

ASSOCIATION: None

SUBMITTED: 23Jun62 DATE ACQ: 19Mar64 ENCL: 00

SUB CODE: CH NR REF SOV: 002 OTHER: 004

Card 3/3

PETROV, K.A.; BAKSOVA, R.A.; KHORKHOYANU, I. V.; SINOGEYKINA, L.P.; SKUDINA, T.V.

Properties of phosphinic acid anhydrides. Part 1: Monoalkyl(aryl) phosphonates. Zhur. ob. khim. 35 no.4:723-728 Ap '65.
(MIRA 18:5)

SINOGL, Zdenek

Photometric determination of phosphorus in high-alloy steel after distilling off the chromylchloride. Hut listy 16 no.6:435-438 Je '61.

1. Smeralovy zavody, Brno.

SINOIMERI, Skender

A case of melanosarcoma of the ciliary body and choroid. Bul. univ. shtet. Tirane[Mjek] 3:65-69 '62.

(MELANOMA) (CHOROID NEOPLASMS)
(EYE NEOPLASMS)

SINOIMERI, Skender

Surgical therapy of paralytic strabismus. Bul. univ. shtet. Tirane [Mjek] 2:76-79 '63.

1. Spitali i Pergjithshem Ushtarak.

SINOPAL'NIKOV, K.G., kand.tekhn.nauk

Determination of the best size for a field of excavation. Izv. vys.ucheb. zav.; gor. zhur. no.5:10-14 1960. (MIRA 14:3)

1. Permskiy gornyy institut, Rekomendovana kafedroy razrabotki mestorozhdeniy poleznykh iskopayemykh.
(Mining engineering)

[illegible]HOPAL'NIKOV, [illegible]

Introducti[illegible] [illegible] mechanical [illegible] mining in [illegible] steep hard-coal [illegible]. Biul. tekh.-ekon. [illegible] [illegible]-issl. inst. [illegible] [illegible] inform. [illegible]

(MIRA 17:[illegible])

ROZOV, B. V., inzh.; SINOPAL'NIKOV, K. G., dotsent; SALDIN, P. A., gornyy tekhnik

Blasting method of coal mining without the presence of miners in the Kizel Basin coal mines. Ugol' 37 no.10:6-9 O '62. (MIRA 15:10)

1. Nachal'nik Gosudarstvennogo tresta ugol'nykh predpriyatiy Kizelovskogo rayona (for Rozov). 2. Permskiy politekhnicheskiy institut (for Sinopal'nikov, Saldin).

(Kizel Basin—Coal mines and mining) (Blasting)

SINOPAL'NIKOV, K.G., kand.tekhn.nauk

Using long boreholes to raise the operating efficiency of wire line saws. Izv.vys.ucheb.zav.; gor.zhur. 7 no.2:49-50 '64. (MIRA 17:3)

1. Permskiy politekhnicheskiy institut. Rekomendovana kafedroy razrabotki mestorozhdeniy poleznykh iskopayemykh.

RZHONDKOVSKIY, R.P., dotsent; SINOPAL'NIKOV, K.G., dotsent; SAKHAROV, N.M.; GRIN'KO, N.K.; ZAKHAROV, Ye.P.; KHADZHIKOV, R.N.; LESNYKH, V.A.

Problems of orogeny. Ugol' 40 no.12:19-24 D '65.
(MIRA 18:12)

1. Gornyy fakul'tet Permskogo politekhnicheskogo instituta. (for Rzhondkovskiy, Sinopal'nikov). 2. Kadiyevskiy gorodskoy komitet Kommunisticheskoy partii Ukrainy (for Sakharov). 3. Kombinat Luganskugol' (for Grin'ko, Zakharov). 4. Kadiyevskiy filial Kommunarskogo gorno-metallurgicheskogo instituta (for Khadzhikov, Lesnykh).

SINOPAL'NIKOV, V.A.; FYKHMANS, E.F.

Radius of the cutting-edge rounding of hard-alloy cutting tools.
Stan. i instr. 36 no.6:35-37 Je '65. (MIRA 18:8)

SINOPAL'NIKOV, V.A.

Cutting forces exerted in machining with a minor cut depth.
Stan.i instr. 33 no.5:34-35 My '62. (MIRA 15:5)
(Metal cutting)

BERKOVICH, Mikhail Yakovlevich; SINOPLIS, Leonid Aleksandrovich; KHLEBNIKOV, Nikolay Vasil'yevich; ROSHCHIN, P.F., red.; IGAYEVA, V.V., ved. red.

[Preventing and eliminating accidents in structural drilling] Preduprezhdenie i likvidatsiia avarii v strukturno-poiskovom burenii. Moskva, Izd-vo "Nedra," 1964. 178 p. (MIRA 17:7)

SINOROV, V. F., (SFTI)

"The experiments which confirm the existence of the surface acceptor level and the surface conductivity in compounds of the type A^{III} B^{IV}."

Report presented at a Conference on Solid Dielectrics and Semiconductors, Tomsk Polytechnical Inst., 3-8 Feb. 58.
(Elektrichestvo, '58, No. 7, 83-86)

SINOTIN, V.I., inzh.

Increasing the effectiveness of ejection by the use of ejection girders in hydroelectric power stations with penstocks. Izv. VNIIG 59:187-192 '58. (MIRA 13:7)
(Hydroelectric power stations)

SINOTIN, V. I.

Cand Tech Sci - (diss) "Limited dam-less water enclosure." Leningrad, 1961. 17 pp with diagrams; (Ministry of Higher and Secondary Specialist Education RSFSR, Leningrad Polytechnic Inst imeni M. I. Kalinin); 220 copies; free; (KL, 7-61 sup, 245)

SINOTOV, I-M.

3600

RADIOTEKHNIKA

Vol. 11, No. 2, 1956

I. M. SINOTOV, IA. I. FET: To the estimate of the selective properties of resonant systems

Abstract: A method is analyzed of estimating the selective properties of resonant systems based on the comparison of the relative power of the noise spectrum oscillation and the relative power of the useful spectrum oscillation. A comparative estimate of [illegible] resonant systems is given. It is shown that [illegible] other criteria leads to erroneous conclusions.

SINOTOV, N.M., inzhener.

New type of dock, the carrier dock. Mor.flot 7 no.5:30-37 My '47. (MLRA 9:5)

(Docks)

USSR/Docks Jun 1947
Dry docks

"The 'Mother-Dock' (Conclusion)," N. M. Sinotov, 4 pp

"Morskoy Flot" Vol VII, No 6

Discusses the "mother-dock," inside which are placed smaller "pontoon docks." Gives advantages, disadvantages and general particulars of the dock group, choice of main measurements of pontoon docks and mother-dock. Tables of descriptive data given.

12T53

SINOTOVA, YE. N.

B-7

USSR / Isotopes.

Abs Jour : Ref Zhur - Khimiya, No 8, 1957, 26039

Author : V.D. Nefedov, Ye.N. Sinotova, V.I. Katsapov
Title : Enrichment of Radioactive Isotopes of Mercury

Orig Pub : Zh. fiz. khimii, 1956, 30, No 8, 1867 - 1870

Abstract : The enrichment method of isomers $Hg^{197}m2$ (I) and Hg^{197} (II) prepared by the reaction (n, γ) was developed. $(C_2H_5)_2Hg$ (III) free of traces of Br was purified by a repeated distillation in vacuum and irradiated 5 hours by thermal neutrons; first 1 ml of saturated $MnSO_4$ (IV) solution in acetone (V) and, after that, the solution of 0.1 g of $NaMnO_4$ (VI) in 4 ml of V were added to 125 g of the irradiated III; the excess of VI was reduced by adding the saturated solution of IV in V; the precipitate of MnO_2 adsorbed I and II liberated from III in consequence of the recoil at the emission γ -quanta of capture; the contents

Card : 1/2

NEFEDOV, V.D.; SINOTOVA, Ye.N.; PROLOV, N.Ya.

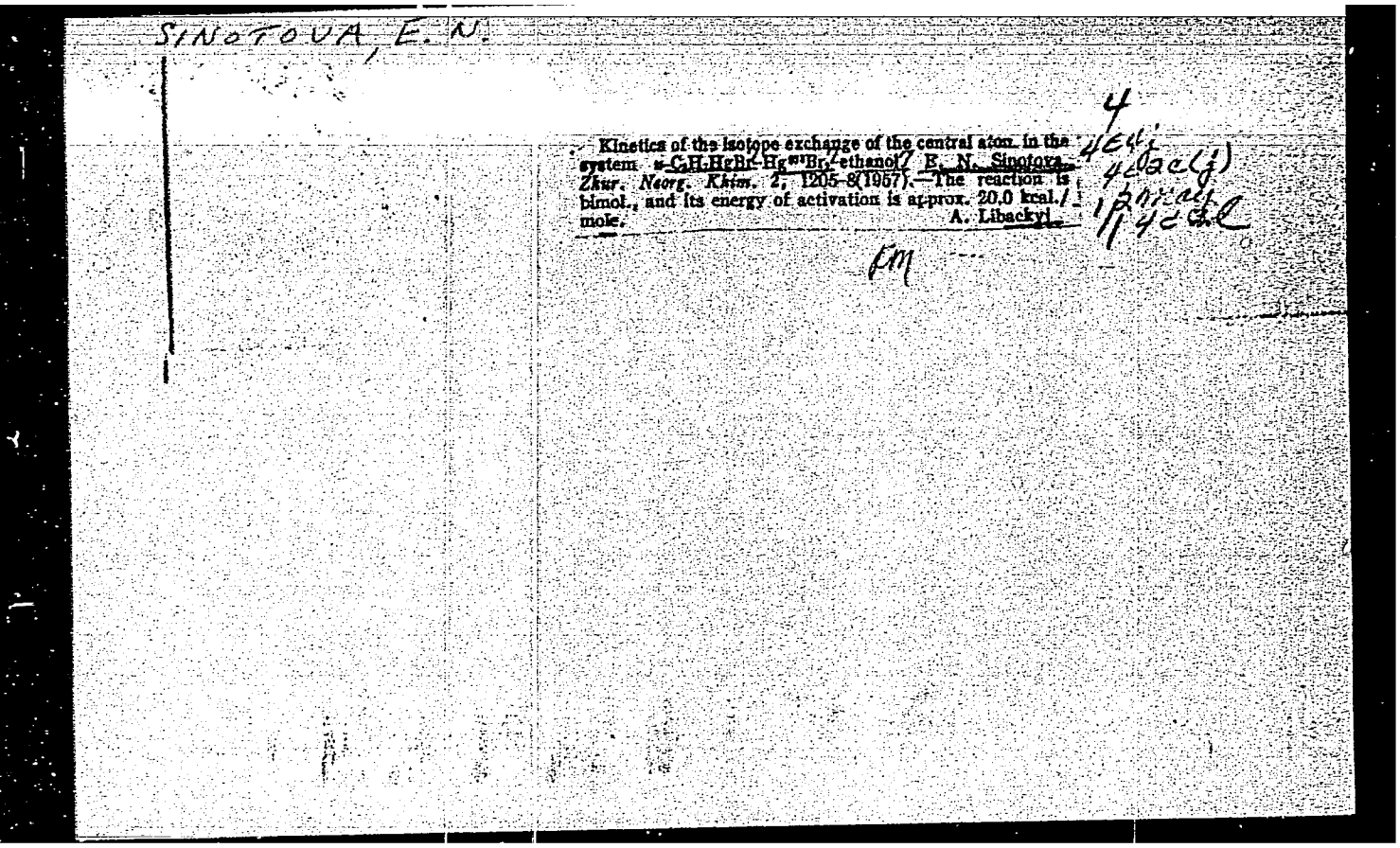
A study of isotopic exchange of mercury in the system CH_3HgBr--$HgBrC_2H_5$. Zhur. fiz. khim. 30 no.10:2356-2360 O '56. (MLRA 10:4)

1. Leningradskiy gosudarstvennyy universitet.
(Mercury--Isotopes)

SINOTOVA, YE. N., Master Chem Sci —(diss) "Investigating the liberation of mercury from its organic derivatives by the isotopic exchange and emission of radioactive isotopes and isomers." Leningrad, 1957, 12 pp, (Leningrad University Im. Zhdanov A.A.), 100 copies. (KL, No 40, 1957, 90)

NEFEDOV, V.D.; SINOTOVA, Ye.N.

Isotopic exchange of peripheric atoms in the homologous series of saltlike aliphatic derivatives of mercury. Zhur. neorg. khim. 2 no.5:1162-1163 My '57. (MLRA 10:8)
(Chemical bonds) (Mercury organic compounds)



SINOTOVA, E. N.

Kinetics of the isotope exchange of the central atom in the system σ-C_6H_5HgBr-$Hg^{203}Br_2$-ethanol? E. N. Sinotova. *Zhur. Neorg. Khim.* 2, 1205-8(1957).—The reaction is bimol., and its energy of activation is approx. 20.0 kcal./mole. A. Libackyi

SINGTOVA, YE. N.

8

Production of indium-113m without a carrier from tin irradiated with neutrons by using metalloorganic compds. [illegible] D. Nefedov, G. P. Lerner, E. N. Sinotova and M. [illegible] A. [illegible] State Univ. [illegible] grad. [illegible]

[illegible] was obtained by shaking an ether [illegible] from the triphenyl chloride by extg. 3 times with pure ether, the elimination of ether by [illegible] with H_2S. The analysis indicated [illegible] yield, which proved a quant. sepn. if the exptl. errors were considered. W. M. Sternberg

SINOTOVA, Ye. N.

AUTHORS: Murin, A. N., Nefedov, V. D., Sinotova, Ye. N., 78-1-33/43
Larionov, O. V.

TITLE: The Separation of the Nuclear Isomers of Tellurium, Mercury and Tin (Razdeleniye yadernykh izomerov tellura, rtuti i olova)

PERIODICAL: Zhurnal Neorganicheskoy Khimii, 1958, Vol. 3, Nr 1, pp. 181-183 (USSR)

ABSTRACT: After giving a review of the separation methods of the nuclear isomers of tellurium (references 1,2) and after their discussion the authors chose dimethyl-dinitrate of tellurium as the initial compound for the separation of the nuclear isomers of T^{127}. It must be expected that the transition to an intermediate level will occur by means of an internal conversion and for this reason will be accompanied by a disturbance of the chemical binding of tellurium in the initial compound. Therefore a considerable portion of the nuclei of Te^{127} will be present as most simple anorganic forms in the ground state in the preparation dimethyl-dinitrate of tellurium. Te^{127} in its ground state was isolated

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by means of the adsorption of these anorganic forms by ferric hydroxide. The extraction with isopropylether from 9 n HCl was intended for the removal of the an isotropic carriers, that is to say, iron. From the decay curve of the lowest isolated isomer (figure 1) follows, that only one tellurium isotope was existent, which had a half life of 9'3 hours. This testified to the presence of only the lowest isomer in the preparation. The yield of Te^{127} was determined to 80%, if it was accumulated in crystals, and to 94%, if it was accumulated in a solution. The latter value is in good correspondence with the known fact, that the isomeric transition in Te^{127} is converted to practically 100%. This implies, that the initial molecule is destroyed by every process of isomeric transition, which is accompanied by an internal conversion. The yield is somewhat lower, if accumulation takes place in crystals. The isolated radioactive Te^{127} predominantly takes its four-valent form and only 6 % of it take the six-valent one. This method possesses several advantages in comparison to the ones known hitherto (reference 1). If mercury is irradiated with neutrons according

The Separation of the Nuclear Isomers of Tellurium, Mercury and Tin

to the reactions (n,γ) and (n, 2n), radioactive isotopes are formed: Hg^{197}, Hg^{199}, Hg^{203} and Hg^{205}. Because at least six days elapsed until the separation was performed it can be assumed, that in the synthesized initial preparation - mercury diethyl only Hg^{203}, Hg^{197m} and Hg^{197} were present. From the investigations of the Laboratory for Radiochemistry of the University Leningrad (reference 3-6) it results, that the complete aliphatic mercury derivatives may undergo an irreversible destruction of the chemical bondings on isomeric transitions. The isolation of Hg^{197} in the ground level was performed by means of adsorption on manganese dioxide. The separation from the carrier can be achieved by methods, which are based on the volatility of mercury and its derivatives. The separation of the nuclear isomers as such can be determined from a comparison of the curves of decreasing activity of the mercury preparations (figure 2). When tin is irrariated by thermal neutrons, radioactive nuclei are formed: Sn^{113} (yields In^{113m}, Sn^{117m} and Sn^{119m} by decay). From the three latter ones stable isotopes are produced by an isomeric transmutation: Sn^{117} and Sn^{119}, Sn^{121}, Sn^{123} and Sn^{125} were isolated in the ground

The Separation of the Nuclear of Tellurium, Mercury and Tin

state from a benzene solution of stannic tetraphenyl by way of extraction. Because of the fact, that the isomers Sn^{123} and Sn^{125} have no genetic inter-relation, Sn^{121} and In^{113m} will pass over into the water layer during the extraction. For this reason the activity measurement was started after the lapse of from 10-12 half life periods of In^{113m} (T = 105 minutes). The decay curve of Sn^{121} is represented by figure 3. The accumulation of Sn^{121} with time was examined (figure 4) for the purpose of proving the genetic relation between Sn^{121} in ground state and Sn^{121m}. The method described here may be considered the most universal. It makes furthermore possible to isolate the nuclei in a low isomeric state without carriers.
There are 4 figures, and 6 references, 4 of which are Slavic.

SUBMITTED: June 18, 1957

AVAILABLE: Library of Congress

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5(4), 21(5)

AUTHORS: Nefedov, V. D., Sinotova, Ye. N.

SOV/76-32-10-23/39

TITLE: The Separation of the Nuclear Isomers Hg^{195} and Hg^{197} (Razdeleniye yadernykh izomerov Hg^{195} i Hg^{197})

PERIODICAL: Zhurnal fizicheskoy khimii, 1958, Vol 32, Nr 10, pp 2392 - 2397 (USSR)

ABSTRACT: The true principle of the chemical changes in the isomer transition was first explained by Segre, Halford, Seaborg, Cooper (Khel'ford, Siborg, Kuper) (Refs 15,16), and was experimentally proved as well (Ref 17). In the present case the separation of the genetically combined isomers of the mercury Hg^{195} and Hg^{195m}, as well as Hg^{197} and Hg^{197m}_2 is investigated. The initial mixture of the chemically pure metallic mercury was produced in the uranium reactor. The preparation of the radioactive diethyl mercury was obtained from the irradiated mercury by way of $HgCl_2$, using the Grignard (Grin'yar) reagent. To separate the Hg^{197} the diethyl mercury was diluted with acetone (1:3), and a $KMnO_4$ solution

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as well as 2 drops of a 30% H_2O_2 solution were added. The deposit was filtered, washed and dried in vacuum. The activity of the preparations obtained by the decay of radioactive diethyl mercury mainly consists of the Hg^{203} isotopes that have a long life, and only to a small part of those of Hg^{197}. The separation process of the nuclear isomers was therefore carried out under conditions for the maximum accumulation of Hg^{197} isomers (t_{max} = 54,5 hours). The experimental results after the separation of the nuclear isomers showed that only short-life activities of Hg^{195} and Hg^{197} isotopes are present, as well as the unexpected isomer Hg^{195}. The presence of Hg^{195} in the preparations is explained by its formation from Hg^{195m} (T= 40 hours) in the irradiation of mercury in the reactor according to the reaction $Hg^{196}(n,2n)Hg^{195m}$. Chemical methods additionally proved that the activities observed were to be explained by the mercury isotopes.

The authors thank Professor A.N.Murin. There are 3 figures and 70 references, 17 of which are Soviet.

The Separation of the Nuclear Isomers Hg^{195} and Hg^{197} SOV/76-32-10-23/39

ASSOCIATION: Leningradskiy gosudarstvennyy universitet imeni A.A.Zhdanova
(Leningrad State University imeni A.A.Zhdanov)

SUBMITTED: May 15, 1957

Card 3/3

NEFEDOV, V.D.; SINOTOVA, Ye.N.; SMIRNOV, V.M.; TOROPOVA, M.A.

Enrichment of radiophosphorus by means of triphenylphosphine oxide. Radiokhimiia 1 no.2:236-238 '59. (MIRA 12:8)
(Phosphorus--Isotopes) (Phosphine oxide)

SINOTOVA, Ye.N.; VOBETSKIY, M.F.; LOGINOV, Yu.N.; YEVTIKHEYEV, L.N.

Exchange of phenyl groups in organomercury and organomagnesium compounds. Radiokhimiia 1 no.6:687-690 '59.
(MIRA 13:4)

(Mercury organic compounds) (Magnesium organic compounds)
(Carbon--Isotopes)

SIN: IC VII, 40 M

PHASE I BOOK EXPLOITATION SOV/5404

Murin, A. N., V. D. Nefedov, and V. P. Shvedov, eds.

Radiokhimiya i khimiya yadernykh protsessov (Radiochemistry and the Chemistry of Nuclear Processes) Leningrad, Goskhimizdat, 1960. 784 p. Errata slip inserted. 13,000 copies printed.

Ed.: F. Yu. Rachinskiy; Tech. Ed.: Ye. Ya. Erlikh.

PURPOSE : This textbook is intended for students of physical chemistry or radiochemistry at universities and schools of higher education. It may also serve as a handbook for scientific workers and technical personnel in the radiochemical industries and other related branches.

COVERAGE: The textbook deals with problems in modern radiochemistry, including adsorption, cocrystallization, isotope exchange in radioactive elements, the chemistry of nuclear processes, and methods of preparing radioactive isotopes and labeled compounds. Special attention has been given to chemical processes caused by radioactive transformations and radiation. In the main the book was compiled by person-

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nel of the Radiochemistry Department, Leningradskiy gosudarstvennyy universitet imeni A. A. Zhdanova (Leningrad State University imeni A. A. Zhdanov), and the Department of the Technology of Artificial Radioactive Isotopes, Leningradskiy tekhnologicheskiy institut imeni Lensoveta (Leningrad Technological Institute imeni Lensovet). No personalities are mentioned. References accompany individual chapters.

TABLE OF CONTENTS:

S/186/60/002/005/013/017
A051/A127

AUTHORS: Belyayev, B. N.; Van-Yun-Yuy, Sinotova, Ye. N.; Nemet, L.; Khalkin, V. A.

TITLE: Separation of astatine from lead, bismuth and thorium, irradiated with protons of 660 MEV energy

PERIODICAL: Radiokhimiya, v. 2, no. 5, 1960, 603 - 613

TEXT: The purpose of this article was to develop a quantitative method for separating radio-chemically pure astatine from irradiated lead, bismuth and thorium, with fast protons, which would be easily reproduced and would yield about 60 % astatine from the irradiated targets with a yield tolerance of ± 5 %. Development of such a method is hampered by the insufficient knowledge of the chemical properties of At. In order to establish the quantitative method for At separation with good reproducibility of the results the authors claim that it is necessary to investigate the behavior of the element at each stage of purification. This was accomplished on radio-chemically pure At, separated out from thorium as an indicator. The behavior of At was checked by the gamma-emission, which, in turn, was

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Separation of astatine from lead, ...

recorded by a MC-11 (MS-11) counter. Reference is made to the work of Neuman H.M. (Ref. 14: J. Inorg. Nucl. Chem., 4, 5/6, 349, 1957) where a complete description is given of a method for the extraction of At. The authors obtained an improved method, using diluted HCl solutions (Figure 1). Extraction of At increases in the presence of nitric acid. Small quantities of HF which have been added to the dissolved thorium in nitric acid has no effect at all on the extraction of At. The most convenient method for extracting At from an alkaline solution of sodium stannite after re-extraction is said to be the co-precipitation of the element with metallic tellurium from an acidified solution of stannite with HCl. Kurchatov, B. V., Mekhedov V. N. et al. (Ref. 1: ZhETF, 35, 1 (7), 1958) give a complete description of the method. Co-precipitation of At from HCl solutions with tellurium helps not only to concentrate the At and eliminate the large quantities of salts present in the solution, but also to conduct an effective purification from Sb, Os, Tl and J. Experiments showed that the presence of small quantitites of tellurium in the H_2SO_4 solution (~10 mg) considerably spoiled the conditions of distillation of At. The recommended method developed by the authors is described as follows: Based on data of the behavior of At at each stage of purification it was suggested to dissolve 1 gr. of metallic

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Separation of astatine from lead, ...

bismuth irradiated with 660 Mev energy protons on the internal beam of the synchrocyclotron, in 5 ml of concentrated nitric acid, while heating it in a flask with a reversible cooler; 40 ml of 8 M HCl, saturated with chlorine, were added to the nitric acid solution. The extraction was carried out with 60 ml of diisopropyl ether in an extractor equipped with a mechanical mixer. The organic layer was twice washed with 15 ml of 8 M HCl. The At was extracted from the ether with 40 ml of 0.1 M solution of sodium stannite in 2 M NaOH. 10 - 15 mg of sodium tellurite 2 - 3 mg of lanthane ($LaCl_3$) and 1 - 2 mg of sodium chloroaurate were added to the alkaline solution. The solution was separated from the residue by filtration through a glass filter No. 4. The precipitation of the tellurium with the sodium stannite was repeated twice. The alkaline filter was acidified with 20 ml of concentrated HCl, containing about 0.2 mg of Te to 1 ml. The precipitation of the Te from the acidic solution was carried out with intensive mixing. After coagulation of the residue, 5 mg of Te was added twice. The Te residue, containing At, was separated from the solution by centrifuging, washed with a 6M HCl and dissolved in a few drops of nitric acid. 20 ml of 6 M HCl were added to the obtained solution, and the Te was precipitated with stannous chloride. After coagulation of the precipitate, the preci-

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Separation of astatine from lead, ...

pitation of the Te was repeated (5 mg). The formed residue was centrifuged, washed with concentrated HCl and dissolved in 5 ml of 8 M HCl while passing through a gaseous chlorine. The At was separated from the Te by extracting it in to diisopropyl ether. The ether layer (about 6 ml) was washed twice with 1.5 - 2 ml of 8 M HCl and the At was re-extracted with water (twice with 5 ml each time). After extraction a solution was obtained of radiochemically pure At, about 0.01 M according to HCl, containing traces of the diluent. When extracting At formed from lead, the method is more complicated, necessitating first the elimination of lead chloride, which precipitates when HCl is added to the nitric acid. The gamma-spectra of At were studied on a scintillation spectrometer. Findings agree well with data of Strominger D., Hollander, J. M., Seaborg G. T. (Ref. 16: Rev. Modern Phys. 30, 2, 799, 1958.) on gamma-emission of At^{208}, At^{209} and At^{210}. When measuring the At preparations formed from the lead, in addition to the known gamma-lines, 3 lines were found (660 kev with T $\simeq$ 5 hours, 165 kev and 32 kev) which, according to literature data, cannot be attributed to isotopes of At. The total intensity of these lines is about 10 % of the intensity of the entire specimen. The determination of the half-lives of

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A051/A127

Separation of astatine from lead, ...

the various isotopes of At was carried out with sufficient accuracy only for samples formed from thorium. It was impossible to produce radiochemically pure At from lead. In checking the reproducibility of results of the given method it was noted that comparitively large amounts of At loss (up to 50 %) was connected mostly with the incomplete extraction of the At in the various stages of purification. However, it is pointed out that these losses can be avoided by acidifying the alkaline solution of the stannite, containing At with HCl, to which small quantities of Te have been added. Here it is assumed that owing to the competition of adsorption of At on Te, the adsorption of the element by the walls of the glass vessel is excluded. The favourable reproduction of results of the yields makes this suggested method applicable for the determination of absolute cross-sections of At formation in various nuclear reactions. There are 6 figures, 3 tables and 16 references: 5 Soviet-bloc, 11 non-Soviet-bloc. The four recent English language publications read as follows: M. Lefort, C. Simonoff, X. Farrago, C. r., 248,219, 1959; E. K. Hyde, J. Chem. Educ. 36, 1, 15, 1959; H. M. Neuman, J.Inorg. Nucl. Chem., 4, 5/6, 349, 1957; D. Strominger, J. M. Hollander, G. T. Seaborg, Rev. Modern Phys., 30, 2, 799, 1958.

Card 5/5

S/186/60/002/006/021/026
A051/A129

AUTHORS: Nefedov, V. D.; Sinotova, Ye. N.; Trenin, V. D.

TITLE: A study of the isotope exchange in the system $Bi^*(C_6H_5)_3$ - $Bi(C_6H_5)_3Cl_2$ - alcohol.

PERIODICAL: Radiokhimiya, v. 2, no. 6., 1960, 739 - 742

TEXT: The kinetics of isotope exchange was investigated and the reaction rate constants of this exchange were determined, as well as the order of reaction and energy of activation. The exchange kinetics were studied in order to obtain a clearer understanding of the behavior of radioactive bismuth forms in the exchange during the beta-decay processes of the natural bismuth isotopes. The initial compounds were obtained according to methods described in Ref. 4 (K. A. Kocheshkov, A. P. Skoldinov, Sintet. metody v oblasti metallorgan. soyedineniy sur'my i vismuts.(Synthetical methods in the field of metallorganic antimony and bismuth compounds) Izd. AN SSSR, M.-L., 8, 1947). The solubility of bismuth triphenyl and bismuth triphenyldichloride in alcohol at various temperatures was investigated in order to determine the conditions of separation of

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the exchanging compounds. The isotope exchange in the given system was studied according to the method described by the author (Ref. 1: V. D. Nefedov; Tao Syao-en, Zhurn. Pekinsk. univ., 4, 383, 1959). The experimental results showed that the reaction of isotope exchange in the given system is of the first order with respect to each of the components. The reaction rate constants were calculated from the formula:

$$K = \frac{-2.3 \lg (1 - F)}{(a + b)\, t},$$

where F is the degree of exchange, a - the concentration of $Bi^*(C_2H_5)_3$ or $Bi(C^{14}C_5H_5)_3$ (in M), b - the concentration of $Bi(C_6H_5)_3Cl_2$ (in M), t - the time of exchange (in hours). The activation energy was found to be equal to 15.900 cal/mole. The investigated compounds were regarded as pseudoatoms and their derivative (Ref. 5: R. Garzuly, L. Grimm. Organometalle. Sammlung chem. techn. Vortraege, 29. Stuttgart, 1927). From this stand point one of the compounds participating in the exchange ($Bi(C_6H_5)_3$) is regarded as a pseudoatom of mercury, and the other ($Bi(C_6H_5)_3Cl_2$) as its salt. Thus, the investigated case of isotope exchange is considered to be a true solution of a pseudometal and its salt. An

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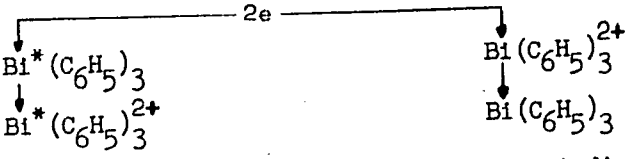
assumption is made that the isotope exchange in the given system has an electronic nature, whereby the electrons shift according to the scheme:



I ensures the isotope exchange of Bi amongst the studied chemical forms. The low value of the activation energy is also thought to signify the presence of an electronic exchange. The use of doubly-labelled compounds can serve to solve the nature of the exchange mechanism in the given system and others similar to it. A comparison of the kinetic characteristics of the isotope exchange in the systems $Sb(C_6H_5)_3$ - $Sb(C_6H_5)_3Cl_2$ - alcohol and $Bi(C_6H_5)_3$ - $Bi(C_6H_5)_3Cl_2$ - alcohol led to the conclusion that the isotope exchange in these two systems have similar rates of reaction. The cause of the similarity in the kinetics of exchange in the two systems is thought to be due to similar values of the bond energies of the 5s-electrons in the pseudoatom $Sb(C_6H_5)_3$ and that of the 6s-electrons of the

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pseudoatom $Bi(C_6H_5)_3$. A study of other similar systems, such as $As(C_6H_5)_3$ - - $As(C_6H_5)_3Cl_2$, is recommended in order to clarify this question. There are 4 tables, 4 figures and 5 references: 4 Soviet-bloc and 1 non-Soviet-bloc.

SUBMITTED: September 19, 1959.

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NEFEDOV, V.D.; NORSEYEV, Yu.V.; SAVLEVICH, Kh.; SINOTOVA, Ye.N.; TOROPOVA, M.A.; KHALKIN, V.A.

Synthesis of some heteroorganic derivatives of polyvalent astatine. Dokl.AN SSSR 144 no.4:806-809 Je '62. (MIRA 15:5)

1. Leningradskiy gosudarstvennyy universitet im. A.A.Zhdanova. Predstavleno akademikom A.N.Nesmeyanovym.
(Astatine)

VOBETSKY, M.; NEFEDOV, V.D.; SINOTOVA, Ye.N.

Thin-layer chromatography of certain heteroorganic compounds. Zhur.ob.khim. 33 no.12:4023-4024 D '63. (MIRA 17:3)

VOBETSKY, M.; NEFEDOV, V.D.; SINOTOVA, Ye.N.

Study of the chromatographic behavior of some organotellurium compounds in thin layers of aluminum oxide. Zhur. ob. khim. 35 no.9:1684-1687 S '65. (MIRA 18:10)

1. Leningradskiy gosudarstvennyy universitet.

NEFEDOV, V.D.; VOBETSKY, M.; SINOTOVA, Ye.N.; BORAK, Y.

Isomeric effects during the β-decay of RaE in the o-, m-, p-tolyl derivatives of bismuth. Radiokhimiia 7 no.5:627-6.8 '65. (MIRA 18:10)

SINOVIC, M.

"The railroad junction at Zagreb in the true light."

p. 27 (Zeleznice) Vol. 13 no. 10, Oct. 1957
Belgrade, Yugoslavia

SO: Monthly Index of East European Accessions (EEAI) LC. Vol. 7, no. 4, April 1958

VLODAVETS, M.L.; GOL'BERT, K.A.; ODINOKOV, V.N.; SINOVICH, I.D.

Chromatographic determination of acrolein dimer in a reaction mixture. Zav.lab. 28 no.2:145-146 '62. (MIRA 15:3)

1. Nauchno-issledovatel'skiy institut sinteticheskikh spirtov i organicheskikh produktov.
(Acrolein) (Pyran) (Chromatographic analysis)

FEDOROVA, V.V.; PAVLOV, G.P.; SINOVICH, I.D.

Preparation of 1,2,6-hexanetriol from acrolein. Neftekhimiia 3 no.2:259-266 Mr-Ap '63. (MIRA 16:5)

1. Nauchno-issledovatel'skiy institut sinteticheskikh spirtov i organicheskikh produktov.
(Hexanetriol) (Acrolein)

FEDOROVA, V.M.; SINOVICH, I.L.

Separating dihydroperoxide from the oxidation products of m-diisopropyl-benzene. Neftekhimiia 4 no.5:772-776 S-O '64. (MIRA 18:1)

1. Nauchno-issledovatel'skiy institut sinteticheskikh spirtov i organicheskikh produktov.

SLASTEN, N.F.; SINOVICH, I.I.

Case of subcutaneous myiasis in a 7-year-old child. Pediatriia no.5: 86-88 S-O '54. (MLRA 7:12)

1. Iz kliniki detskikh bolezney Khabarovskogo meditsinskogo instituta i Khabarovskoy krayevoy malyariynoy stantsii.
(MYIASIS, in infant and child, subcutaneous)

SINOVICH, L.I.

Hexachloroethane therapy of experimental clonorchiasis in cats. Med.paraz. i paraz. bol. 25 no.4:296-297 O-D '56. (MLRA 10:1)

1. Iz kafedry biologii Khabarovskogo meditsinskogo instituta (dir. instituta - dotsent S.K.Nechepayev, zav. kafedroy - dotsent A.V. Maslov) i iz Krayevoy protivomalyariynoy stantsii (zav. stantsiyey E.A.Piotrovich)

(THEMATODE INFECTIONS, experimental,
clonorchiasis, eff. of hexachloroethane (Rus))
(ANTHELMINTICS, effects,
hexachloroethane on exper. clonorchiasis (Rus))

Sinovich, L.I.

SINOVICH, L.I.

Helminth infections in some areas of Kamchatka and the Sea of Okhotsk coast. Med.paraz. i paraz.bol.supplement to no.1:72 '57. (MIRA 11:1)

1. Iz kafedry biologii Khabarovskogo meditsinskogo instituta i iz Khabarovskoy krayevoy protivomalyariynoy stantsii.
(SOVIET FAR EAST--WORMS, INTESTINAL AND PARASITIC)

AUTHOR : USSR

[illegible] :

Zh. Biol., No. 1959, No. 10345

AUTHOR : Sinovich, L. I., Yalymova, Ye. I.
INST. : Khabarovsk Medical Institute
TITLE : The Problem of the Helminthic Fauna of Dogs of Certain Areas in the Far East

ORIG. PUB. : Tr. Khabarovskogo med. in-ta, 1957, Collection 15, 269-271

ABSTRACT : Of 53 dogs autopsied in Khabarovsk in 1953 helminths were found in 69-73%. Dipilidium caninum, Mesocestoides lineatus, Taenia hydatigera, Metagonimus yokogawai, Toxocara canis and others were most common among the 8 species of helminths recorded. Helminthic infestation of dogs in Kamchatka was found to amount to diphyllobothriasis and toxotrematosis.

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SINOVICH, L.I.

Helminth infections of the population of Takhta District, Lower Amur Province. L.I. Sinovich. Med. paraz. i paraz. bol. 27 no.2:217 Mr-Ap '58 (MIRA 11:5)

1. Iz parazitologicheskogo otdeleniya Khabarovskoy krayevoy sanitarno-epidemiologicheskoy stantsii i kafedry biologii i parazitologii Khabarovskogo gosudarstvennogo meditsinskogo instituta.
(TAKHTA DISTRICT (KHABAROVSK TERRITORY)--WORMS, INTESTINAL AND PARASITIC)

SINOVICH, L. I.

"Nanophyetosis in the Soviet Far East."

Tenth Conference on Parasitological Problems and Diseases with Natural Reservoirs, 22-29 October 1959, Vol. II, Publishing House of Academy of Sciences, USSR, Moscow-Leningrad, 1959.

Khabarovsk Medical Institute of Retional Sanitation-Epidemiological Station

PLOTNIKOV, N.N.; SINOVICH, L.I.

Experimental therapy of clonorchiasis with hexachloro-p-xylol; preliminary report. Med.paraz. i paraz.bol. 33 no.3:301-302 My-Je '64. (MIRA 18:2)

1. Institut meditsinskoy parazitologii i tropicheskoy meditsiny imeni Martsinovskogo Ministerstva zdravookhraneniya SSSR, Moskva i Khabarovskiy institut epidemiologii i mikrobiologii.

USSR / Pharmacology, Toxicology. Analeptics. V

Abs Jour: Ref Zhur-Biol., No 18, 1958, 85134.

Author : ~~Sinovich, V. A.,~~ Akhmerova, Z. V.
Inst : Not given.
Title : The Influence of Chinese Lemon on the Visual Functions in Normal and Pathological States.

Orig Pub: In the collection, Materialy k izuch. zhen'shenya i limonnika, No 3, Leningrad, 1958, 177-180.

Abstract: Studies were made of the influence of ground lemon seeds (L) given orally in a dose of 3 gm, on visual acuity and on the visual field. 20 normal subjects and 26 patients with pathology of the visual apparatus were studied. The visual acuity was tested with the Shevelev chart, and the visual field was measured on a projection perimeter under constant artificial illumination. In the majority of cases

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USSR / Pharmacology, Toxicology. Analeptics. V

Abs Jour: Ref Zhur-Biol., No 18, 1958, 85134.

Abstract: L caused an increase in visual acuity and in the size of the visual field both in normal subjects and in patients with myopic chorioretinitis, pigment degeneration of the retina, and atrophy of the ophthalmic nerve. -- V. V. Berezhinskaya.

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