ACC NR: AP7006472 SOURCE CODE: UR/0415/66/000/004/0100/0102

AUTHOR: Andriyevich, V. V.; Mogilevskaya, S. Ye.; Nakhrov, S. T.; Starkov, G. P.

ORG: Eastern Scientific Research Mining Institute (VostNIGRI), Novokuznetsk (Vostochnyy nauchno-issledovatel'skiy gornorudnyy institut [VostNIGRI])

TITLE: On the relationship between the velocity of a longitudinal ultrasonic wave and the strength of rock and ore in the Sheregesh deposit (Gornaya Shoriya)

SOURCE: Fiziko-tekhnicheskiye problemy razrabotki poleznykh iskopayemykh, no. 4, 1966, 100-102

TOPIC TAGS: ultrasonic wave propagation, compressive strength, mining engineering

ABSTRACT: The article is a report on studies being conducted in the Geological Laboratory of the Eastern Scientific Research Mining Institute to establish the relationship between the velocity of longitudinal ultrasonic waves and the compressive strength of rock and ore. Limestone and porphyrite specimens from the Sheregesh deposit with a fairly constant mineralogical composition and consistent structural characteristics were studied together with skarns and ores. An IPA-59 seismoscope was used for determining the velocity of an ultrasonic wave in cylindrical specimens 100-160 mm long and 32-56 mm in diameter. Rochelle salt piezoelectric pickups with a natural oscillation frequency of 250 kc were used as emitter and receivers of ultra-

Card 1/2 UDC: 552.1:53(571.17)

ACC NR: AP7006472

sonic pulses. The specimens were then cut into cylinders with a height equal to the diameter and tested for uniaxial compression. The results show an increase in compressive strength with the velocity of the ultrasonic wave. The empirical formula relating ultrasonic velocity to strength for porphyrite is $v=1.16\sigma_{comp}+3760$. The corresponding formula for scarns with garnet predominant is $v=3.13\sigma_{comp}+460$. Orig. art. has: 2 figures, 1 table.

SUB CODE: 11, 20, 08/ SUBM DATE: 20Sep65/ ORIG REF: 002

Card 2/2

GIRENKO, P., Geroy Sotsialisticheskogo Truda; ANDRIYEVSKAYA, A.; TOLSTOV, A.

On Nizhniy Tagil construction sites. Stroitel' no.11: 2-13 N '59. (MIRA 13:3)

1. Upravlyayushchiy trestom Tagilstroy (for Girenko).
2. Spetsial'nyye korrespondenty zhurnala "Stroitel'" (for Andriyevskaya, Tolstov).
(Nizhniy Tagil--Construction industry)

MONASTYRSKIY, M.; ANDRIYEVSKAYA, A.

Work practices of the Bazstroi Trust. Stroitel' no.6:3-9 Je '60.

1. Upravlyayushchiy trestom Bazstroy (for Monastyrskiy). 2. Spetsial'nyy korrespondent zhurnala "Stroitel'" (for Andriyevskaya).
(Ural Mountain region--Apartment houses)

LYSENKO, N.; ANDRIYEVSKAYA, A.; TOLSTOV, A.

The capital of the Ukraine is being built. Stroitel' no.8:3-14 Ag '60. (MIRA 13:8)

1. Nachal'nik Glavkiyevstroya (for Lysenko). 2. Spetsial'nyye korrespondenty zhurnala "Stroitel'" (for Andriyevskaya, Tolstov). (Kiev--Construction industry)

ISAYEV, V.; ANDRIYEVSKAYA, A.

Technical progress guarantees success. Stroitel' no.11:3-4 N '60. (MIRA 13:11)

1. Nachal'nik Glavleningradstroya (for Isayev). 2. Spetsial'nyy korrespondent zhurnala "Stroitel'" (for Andriyevskaya).
(Leningrad--Construction industry)

MILOSLAVSKIY, S.; FLEYER, A.; ANDRIYEVSKAYA, A.

Objectives of the seven-year plan are being fulfilled ahead of time. Stroitel' no.10:3-8 O '60. (MIRA 13:9)

1. Glavnyy inzhener upravleniya stroitel'stva Dnepropetrovskogo sovnarkhoza (for Miloslavskiy). 2. Glavnyy tekhnolog upravleniya Dnepropetrovskogo sovnarkhoza (for Fleyer). 3. Spetsial'nyy korrespondent zhurnala "Stroitel'" (for Andriyevskaya).

(Dnepropetrovsk Province--Metallurgical furnaces)

GORYUNOV, A.T.; ANDRIYEVSKAYA, A.F.; ZHUKOVSKAYA, M.K.; SMIRNOV, B.K., otv.red.; FEVZNER, A.S., zav.red.izd-va; OSENKO, L.M., tekhn.red.

[Uniform time and pay standards for construction, assembly, and repair operations in 1960] Edinye normy i rastsenki na stroitel'nye, montazhnye i remontno-stroitel'nye raboty, 1960 g. Moskva, Gos.izd-vo lit-ry po stroit., arkhit. i stroit.materialam. Sbornik 20. [Construction and repair work] Remontno-stroitel'nye raboty. No.2. [Road construction] Dorozhnye raboty. 1960. 71 p. (MIRA 13:6)

1. Russia (1923- U.S.S.R.) Gosudarstvennyy komitet po delam stroitel'stva. 2. TSentral'naya normativno-issledovatel'skaya stantsiya (TsNIS) Ministerstva avtomobil'nogo transporta i shosseynykh dorog RSFSR (for Andriyevskaya, Zhukovskaya).

(Wages) (Road construction)

ANDRIYEVSKAYA, A.I.

1. POLOZHIY, A. V. - ANDRIYEVSKAYA, A. I.

2. USSR (600)

4. Weeds - Asino District

7. Weeds of Asino District (Tomsk Province) and measures for controling them. Trudy Tomsk.un. 1951

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

L 8573-65 EWT(m)/EPF(c)/EWP(j) Pc-4/Pr-4 ASD(a)-5/AFWL/ESD(dp)/ESD(t)/
RAEM(t) RM

ACCESSION NR: AP4044711 S/0062/64/000/008/1543/1545

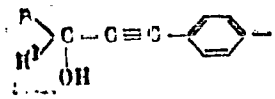
AUTHOR: Fisher, L. B.; Kotlyarevskiy, I. L.; Andriyevskaya, E. K. B

TITLE: Mannich reaction with p-diethynylbenzene derivatives

SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 8, 1964, 1543-1545

TOPIC TAGS: Mannich reaction, monohydric acetylenic alcohol, secondary amine, formaldehyde, polyethynylpolyarene, organic semiconductor

ABSTRACT: A study has shown the feasibility of using Mannich's method to condense monohydric acetylenic alcohols (I) with formaldehyde and secondary amines. This research is part of an investigation of the chemical properties of monomers for highly unsaturated polyethynylpolyarenes. The following alcohols were condensed with formaldehyde and a secondary amine (diethylamine or piperidive):

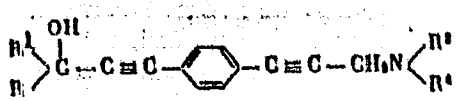


(Ia) R — R' = $(CH_2)_5$; (Ib) R = R' = CH_3; (Ic) R = R' = C_6H_5.

Card 1/3

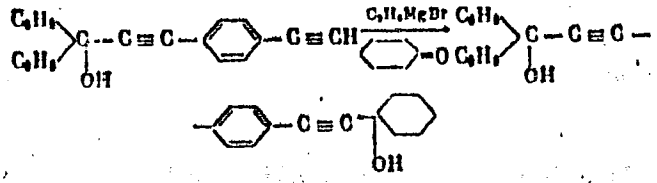
L 8573-64
ACCESSION NR: AP4044711

The following condensation products, acetylenic amino alcohols, were obtained:



(II) R — R' = $(CH_2)_5$; R'' = R''' = C_2H_5 (V) R — R' = $(CH_2)_5$; R'' = R''' = $(CH_2)_5$
(III) R = R' = CH_3; R'' = R''' = C_2H_5 (VI) R = R' = CH_3; R'' = R''' = $(CH_2)_5$
(IV) R = R' = C_6H_5; R'' = R''' = C_2H_5 (VII) R = R' = C_6H_5; R'' = R''' = $(CH_2)_5$.

In the presence of cuprous chloride the condensation proceeded 20 to 30 times as fast as in its absence and the yield was higher. The acetylenic alcohols I also readily undergo the Iotsich reaction. This was exemplified by the condensation of Ic with cyclohexanone in the presence of ethymagnesium bromide to form VIII:



(VIII).

Orig. art. has: 3 formulas.

Card 2/3

L 8573-65
ACCESSION NR: AP4044711

ASSOCIATION: Institut khimicheskoy kinetiki i goreniya Sibirskogo otdeleniya Akademii nauk SSSR (Institute of Chemical Kinetics and Combustion, Siberian Department, Academy of Sciences SSSR)

SUBMITTED: 21Jan64	ATD PRESS: 3096	ENCL: 00
SUB CODE: OC	NO REF SOV: 004	OTHER: 001

Card 3/3

L 12453-65 EWT(m)/EPF(c)/EPR/EWP(j)/T Pc-4/Pr-4/Ps-4 RPL/ASD(a)-5/AFWL/ESD(dp)/ESD(t) WW/JW/RM

ACCESSION NR: AP4047399 S/0062/64/000/010/1854/1860

B

AUTHOR: Kotlyarevskiy, I. L.; Terpugova, M. P.; Andriyevskaya, E. K.

TITLE: Highly unsaturated polymers. Communication 10. Polymers with azo groups in the backbone

SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 10, 1964, 1854-1860

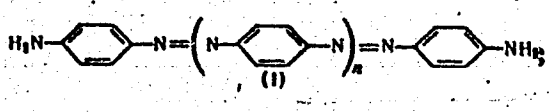
TOPIC TAGS: organic semiconductor, semiconducting polymer, unsaturated polymer

ABSTRACT: Oxidative polycondensation of a number of aromatic diamines has yielded highly unsaturated polymers and copolymers having alternating azo groups in the backbone. The following diamines were used: p-phenylenodiamine, benzidine, m-phenylenediamine, or chrysoidine alone; or m- and p-phenylenediamine; or benzediamine and m- or p-phenylenediamine; or chrysoidine and p-phenylenediamine or benzidine to form the copolymers. The polycondensation was carried out in the presence of pyridine and CuCl. The polymers and copolymers were of

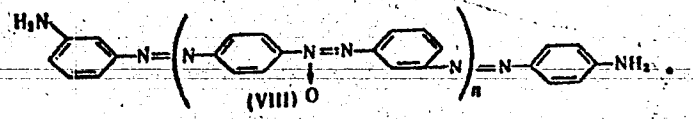
Card 1/3

L 12453-65
ACCESSION NR: AP4047399

the following types:



(I)



(VIII)

The polymer (I) from p-phenylenediamine was a dense, black, shiny solid, insoluble in organic solvents. I does not melt or change its appearance up to 500C and burns with difficulty. The polymer from benzidine was a brown substance which does not melt up to 500C. The polymer from m-phenylenediamine is a black bulky powder whose

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L 12453-65
ACCESSION NR: AP4047399

properties are otherwise similar to those of I. The properties of the copolymers are intermediate between those of the polymers. All polymers and copolymers, except the benzidine polymer and the benzidine—p-phenylenediamine copolymer, show catalytic activity and all give an EPR signal. Orig. art. has: 12 formulas and 1 table.

ASSOCIATION: Institut khimicheskoy kinetiki i goreniya Sibirskogo otdeleniya Akademii nauk SSSR (Institute of Chemical Kinetics and Combustion, Siberian Branch, Academy of Sciences SSSR)

SUBMITTED: 05Jan63 ENCL: 00 SUB CODE: GC, OC

NO REF SOV: 002 OTHER: 003 ATD PRESS: 3127

Card 3/3

L 62709-65 EPF(c)/EPA(s)-2/EWA(h)/EWP(j)/EWP(k)/EWT(d)/EWT(l)/EWT(m)/EWP(h)/T/EWP(l)/EWA(d)/EWP(w)/EWP(v) Po-4/Pf-4/Pr-4/Ps-4/Pt-7/Peb EM/RM/JD

ACCESSION NR: AP5019030 UR/0286/65/000/012/0065/0066

666.189 22.002.5

AUTHOR: Gavrilov, I. K.; Filippov, D. A.; Strukov, V. M.; Blatov, V. S.; Shalimov, A. S.; Vul, N. I.; Ivanov, A. M.; Belyakov, V. V.; Frolov, R. A.; Khantsis, R. Z.; Andriyevskaya, V. D.; Zelenskiy, B. S.; Kuperman, A. M.; Dobrovol'skiy, A. K.; Dzherelliyevskiy, K. B.

TITLE: Winding machine. Class 32, No. 172009

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 12, 1965, 65-66

TOPIC TAGS: glass reinforced plastic, plastic filament, fiber glass, filament winding, winding machine, filament wound article

ABSTRACT: This Author Certificate introduces a machine for fabrication of glass-reinforced plastic articles by filament winding. The machine includes a drive with a reductor and a mandrel mounted on a rotating shaft. To fabricate spherical shapes the machine is equipped with profiled guides transmitting to the mandrel a tilting motion around the vertical axis simultaneously with a rotation around the axis (see Fig. 1 of the Enclosure). Orig. art. has: 1 figure. [ND]

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L 62709-65

ACCESSION NR: AP5019030

4

ASSOCIATION: Organizatsiya gosudarstvennogo komiteta po aviatsionnoy tekhnike SSSR (Organization of the State Committee on Aviation Engineering, SSSR) 44,55

SUBMITTED: 19May64 ENCL: 01 SUB CODE: MT, IE

NO REF SOV: 000 OTHER: 000 ATD PRESS: 4064

Card 2/3

ANDRIYEVSKAYA, L.D.; MEDNIKOV, B.M.

Role of deep-sea organisms in the nutrition of Oncorhynchus. Dokl. AN SSSR 109 no.2:387-388 Jl '56. (MLRA 9:10)

1. Kamchatskoye otdeleniye Vsesoyuznogo tikhookeanskogo nauchno-issledovatel'skogo instituta rybnogo khozyaystva i okeanografii. Predstavleno akademikom Ye.N. Pavlovskim.
(Salmon)

ANDRIYEVSKAYA, L.L.

Observations of Burnham's comet (1958 a) at the Engel'gardt Observatory. Astron.tsir. no.193:3-4 Jy '58. (MIRA 12:1)

1. Astronomicheskaya observatoriya im. V.P.Engel'gardta.
(Comets--1958)

ANDRIYEVSKIY, L. L.

PHASE I BOOK EXPLOITATION SOV/5575

Akademiya nauk SSSR. Astronomicheskiy sovet.

Byulleten' stantsiy opticheskogo nablyudeniya iskusstvennykh sputnikov Zemli, no. 6. (Bulletin of the Stations for Optical Observation of Artificial Earth Satellites, No. 6) Moscow, 1959. 23 p. 500 copies printed.

Sponsoring Agency: Astronomicheskiy sovet Akademii nauk SSSR.

Resp. Ed.: Ye. Z. Gindin; Secretary: O. A. Severnaya.

PURPOSE : This bulletin is intended for scientists and engineers concerned with optical tracking of artificial satellites.

COVERAGE : The bulletin contains 9 articles which present the results of satellite observations, and describe methods and specific equipment used for photographic observation of earth satellites. An appendix contains a listing of 84 Soviet satellite observation stations with station number. No personalities

Card 1/6

are mentioned. There are no references.

TABLE OF CONTENTS:

Card 4/6

16(1) SOV/21-59-5-2/25

AUTHOR: Andriyevskaya, M.G.

TITLE: A Common Perpendicular of Two Intersecting Lines in a Space of Lobachevskiy

PERIODICAL: Dopovidi Akademii nauk Ukrains'koi RSR, 1959, Nr 5, pp 465-467 (USSR)

ABSTRACT: Using Beltrami's interpretation, the author proves that two real intersecting lines "l" and "l' "" of a Lobachevskiy space have two common perpendiculars, a real and an ideal. In the text, the author makes reference to a sketch, but no sketch is given and, therefore, the mode of calculations lacks the proper clarity. There are 3 Soviet references.

ASSOCIATION: Kiyevskiy politekhnicheskiy institut (Kiyev Polytechnical Institute)

PRESENTED: By B.V. Gnedenko, Member of the AS UkrSSR

SUBMITTED: December 30, 1958

Card 1/1

ANDRIYEVSKAYA, M.G. [Andriievs'ka, M.G.]

A geometrical locus of points in a hyperbolic plane. Dop. AN URSR no.3:285-288 '60. (MIRA 13:7)

1. Kiyevskiy politekhnicheskiy institut. Predstavleno akademikom AN USSR B.V.Gnedenko [B.V.Hniedenko].
(Locus(Mathematics))

ANDRIYEVSKAYA, M.G. [Andriievs'ka, M.H.]

Classification of curves of the second order in a Lobachevskii surface on the basis of the theory of elementary divisors. Dop.AN URSR no.9:1158-1161 '60. (MIRA 13:10)

1. Kiyevskiy politekhnicheskiy institut. Predstavleno akademikom AN USSR B.V.Gnedenko.
(Curves, Plane)

ANDRIYEVSKAYA, Mariya Grigor'yevna; BALYASNAYA, A.Ye., red.; KHOKHANOVSKAYA, T.I., tekhn. red.

[Analytic geometry in Lobachevskii space] Analiticheskaia geometriia v prostranstve Lobachevskogo. Kiev, Izd-vo Kievskogo univ. 1963. 111 p. (MIRA 16:8)
(Geometry, Analytic)

ANDRIYEVSKAYA, N. Yu.

USSR / Zooparasitology - Helminths. G-2

Abs Jour : Ref Zhur - Biol., No 18, 1958, No. 81710

Author : Andrievskaya, N. Yu.
Inst : Odessa Univ.
Title : A Study of Helminthofauna of Domestic Fowl in the Odessa District

Orig Pub : Pratsi Odesk. un-tu, ser. biol., n., Tr. Odessk. un-ta, ser. biol. n., 1957, 147, No 8, 153-158

Abstract : In three years (1953-1955) of studying domestic fowl of 18 sectors, 20 species of pathogenic helminths were identified, the source of which is due to keeping of sick and healthy birds in the same place, and adult birds with the young.

Card 1/1

ANDRIYEVSKAYA, N.Yu., kand.biol.nauk

The goat moth Cossus cossus L. Priroda 49 no.5:43
My '60. (MIRA 13:5)

1. Odesskiy gosudarstvennyy universitet im. I.I.Mechnikova.
(Fruit trees--Diseases and pests)

FOKIN, Ye.P.; ANDRIYEVSKAYA, O.I.; RUSSKIKH, V.V.

1-Diethyl- and 1-dibutylaminoanthraquinones and thermal dealkylation of 1-diethylaminoanthraquinone. Izv. Sib. otd. AN SSSR no.7:103-106 '62. (MIRA 17:8)

1. Institut organicheskoy khimii Sibirskogo otdeleniya AN SSSR, Novosibirsk.

OZHEGOVA, V.Ye.; SINEL'NIKOVA, A.A.; ANDRIYEVSKAYA, S.A.

Materials on the fauna of the bodies of water in the inundated area of Kayrakum Reservoir. Trudy Inst. zool. i paraz. AN Tadzh. SSR no.26:5-17 '63 (MIRA 17:3)

1. Institut zoologii i parazitologii imeni akademika Ye.N. Pavlovskogo AN Tadzhikskoy SSR.

FRIDMAN, G.A.; ANDRIYEVSKAYA, T.M., inzhener.

Centrifugal and whirling purifiers; letter to the editors. Bum. Prom. 30 no.11:25 N '55. (MLRA 9:2)

1.Glavnyy inzhener Solikamskogo tsellyulozno-bumazhnogo kombinata (for Fridman)
(Solikamsk--Paper making machinery)

[redacted], E. A., PANFILOV, A. M., IVANOV, V. V., GOLOVA, T., and KHILOVA, P. G.

"Thermal degradation of polysaccarides," a paper presented at the 9th Congress on the Chemistry and Physics of High Polymers, 28 Jan-2 Feb 57, Moscow, Forest Research Inst.

B-3,084,395

L 23866-66 EWT(m)/EWP(j)/T IJP(c) WW/RM
ACC NR: AP6014409 SOURCE CODE: UR/0062/66/000/004/0713/0720

AUTHOR: Terpugova, M. P.; Kotlyarevskiy, I. L.; Andriyevskaya, E. K.

ORG: Institute of Chemical Kinetics and Combustion, Siberian Department of the Academy of Sciences SSSR (Institut khimicheskoy kinetiki i goreniya Sibirskogo otdeleniya Akademii nauk SSSR)

TITLE: Highly unsaturated polymers. Communication 15. Synthesis and some physical properties of polyazopolyarenes

SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 4, 1966, 713-720

TOPIC TAGS: organic semiconductor, semiconducting polymer, polyazopolyarene, oxidative polycondensation, electric property

ABSTRACT: New homo- and co-polymeric polyazopolyarenes have been prepared and their physical and electrical properties investigated. This work was part of a systematic study of the effect of the structure of highly unsaturated polymers on their properties. The polymers had the general formula,

$$H_2N—Ar—N(=N—Ar'—N=N—Ar—N)_n=N—Ar'—NH_2,$$

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L 23866-66
ACC NR: AP6014409

3

where Ar and Ar' may be identical or different. The homo- and co-polymers (listed in the source) were prepared by oxidative polycondensation of aromatic diamines in pyridine solution in the presence of CuCl. The diamines used were o-tolidine, bis(p-aminophenyl)methane, and 4,4'-diaminostilbene. In addition, o-phenylenediamine was used, which should not form straight-chain polymers, and (p-aminophenyl)acetylene, which should form polymers containing both azo and butadiyne groups in the backbone. Butadiyne groups should form cross-links on heating, thereby improving electrical conductivity. These diamines and (p-aminophenyl)acetylene were homopolymerized and copolymerized with each other and with p-phenylenediamine, benzidine, and chrysoidine. The polymer structures were confirmed by elemental analysis and IR spectroscopy, and showed an EPR signal. Elemental analysis and IR spectra revealed partial oxidation to form $\rightarrow N \rightarrow O$ bonds. Branched homo- and co-polymers were fusible and more soluble in chloroform, tetrahydrofuran, acetone, and dioxane than the infusible [straight-chain] polymers. The room temperature conductivity of all the polymers was low, 10^{-13} to 10^{-14} [illegible], but rose rapidly with temperature, reaching 10^{-8} to 10^{-7} mho/[illegible] of the polymers at 200—250C. Some of the polymers exhibited high activation energy for conduction, 2—3.5 ev. Orig. [illegible] 3 tables and 1 figure. [SM]

SUB CODE: 07, 11/ SUBM DATE: [illegible]63/ ORIG REF: 002/ OTH REF: 004
ATD PRESS: 4246
Card 2/2 dda

L 11260-66 (A) EWT(d)/EWT(m)/EWP(w)/EWP(v)/EWP(j)/T/EWP(k)/EVIA(h)/ETC(m) EM/WW/RM

ACC NR: AP5028475 SOURCE CODE: UR/0286/65/000/020/0056/0057

44,55 44,55 44,55 44,55 44,55

INVENTOR: Gavrilov, I. K.; Filippov, D. A.; Strukov, V. M.; Blatov, V. S.; Shalimov, A. S.; Vul, N. I.; Ivanov, A. M.; Belyakov, V. V.; Frolov, R. A.; Khantsis, R. Z.; Andrivevskaya, G. D.; Zelenskiy, E. S.; Kuperman, A. M.; Dobrovol'skiy, A. K. Dzhereliyevskiy, A. B.

44,55 44,55 44,55 44,55

76 B

ORG: none

TITLE: Method of fabricating fiberglass shells. Class 32, No. 175624

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 20, 1065, 56-57

TOPIC TAGS: shell, cylindrical shell, fiberglass shell, shell fabrication, fiberglass winding, solid fuel rocket, rocket case

ABSTRACT: This Author Certificate introduces a method of fabricating shells from fiberglass wound on a pattern which is then melted out or dissolved. To increase the strength of the shell, the winding is combined with the stretching of fiber by means of a fiber guide which rotates around the pattern. [DV]

SUB CODE: 11,19 SUBM DATE: 02Jul64/ ATD PRESS: 4171

HW

Card 1/1

GOLOVA, O.P.; ANDRIYEVSKAYA, Ye.A.; PAKHOMOV, A.M.; MERLIS, N.M.

Transformations of cellulose at high temperatures. Report No.3: On formation of levoglucosan from glucose. Izv.AN SSSR.Otd. khim.nauk no.3:389-391 Mr '57. (MLRA 10:5)

1.Institut organicheskoy khimii im. N.D. Zelinskogo Akademii nauk SSSR.

(Cellulose) (Levoglucosan)

ANDRIYEVSKAYA Ye.A.

AUTHORS: Golova, O.P., Pakhomov, A.M., Andriyevskaya, Ye.A. 62-12-18/20

TITLE: The Transformation of Cellulose at Increased Temperatures (Prevrashcheniya tsellyulozy pri povyshennykh temperaturakh) Information Nr 6. The Influence Exercised by the Addition of Levoglucosan in the Thermal Decomposition of Cellulose in the Vacuum (Soobshcheniye 6. Vliyaniye dobavki glyukozy na obrazovaniye levoglyukozana pri termoraspade tsellyulozy v vakuume).

PERIODICAL: Izvestiya AN SSSR Otdeleniye Khimicheskikh Nauk, 1957, Nr 12, pp. 1499-1500 (USSR)

ABSTRACT: Previously carried out investigations led to interesting observations concerning the influence exercised on the yield of levoglucosan, the physical structure of cellulose, and the length of the chain of their macromolecules [2]. These investigations gave the authors the idea of the specifically negative influence exercised by glucosan upon the process of the formation of levoglucosan. In order to check this assumption, the influence exercised by the addition of α - and β - glucose on the process of formation of levoglucosan was investigated. The presence of glucose in the thermal decay of cellulose decreases the yield of levoglucosan to 30%, compared to the yield from cellu-

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The Transformation of Cellulose at Increased Temperatures. Information Nr 6. The Influence Exercised by the Addition of Levoglucosan in the Thermal Decomposition of Cellulose in the Vacuum

62-12-18/20

lose of 55-60% at the same conditions. There are 1 figure and 2 Slavic references.

ASSOCIATION: Institute for Organic Chemistry AN USSR imeni N.D.Zelinskiy and Institute for Wood Products AN USSR (Institut organicheskoy khimii im. N.D.Zelinskogo Akademii nauk SSSR i Institut lesa Akademii nauk SSSR).

SUBMITTED: July 5, 1957

AVAILABLE: Library of Congress

Card 2/2 1. Cellulose-Transformations

GOLOVA, O.P.; PAKHOMOV, A.M.; ANDRIYEVSKAYA, Ye.A.

New data on the relation between the structure of polysaccharides (cellulose) and the trend of chemical reactions taking place in a thermal dissociation of these compounds. Dokl. AN SSSR 112 no.3: 430-432 Ja '57. (MLRA 10:4)

1. Institut organicheskoy khimii im. N.D. Zelinskogo Akademii nauk SSSR. Predstavleno akademikom V.A. Karginym.
(Polysaccharides) (Cellulose)

ANDRIYEVSKAYA, YE. A.

20-6-19/48

AUTHORS: Golova, O. P., Pakhomov, A. M., Andriyevskaya, Ye. A., Krylova, R.G.

TITLE: On the Mechanism of the Thermal Decomposition of Cellulose in a Vacuum and on the Formation of 1,6-Anhydro-1,5-Glucopyranose, a Levoglucosan (O mekhanizme termicheskogo raspada tsellyulozy v vakuume i obrazovanii 1,6-angidro-1,5-glyukopiranozy - levoglyukozana)

PERIODICAL: Doklady AN SSSR, 1957, Vol. 115, Nr 6, pp. 1122-1125 (USSR).

ABSTRACT: Hitherto there did not exist an unequivocal explanation for the formation mechanism of the substances last-mentioned in the title in thermal cellulose decompositions in a vacuum. It is true that this substance has an elementary composition of a structural-unit-member of cellulose, but it has a different hydroxyl position (at C_4 instead of C_6) and possesses 2 oxygen bridges instead of one 1 - 5, A formation mechanism of levoglucosan was suggested by Irvine and Oldham, namely through an intermediate stage of the cellulose hydrolysis as far as glucose and then a dehydration of the latter. Karrer confirmed this hypothesis by high levoglucosan yields from β - d-glucose. The above-mentioned reaction represents a special case of the thermal depolymerization of polysaccharides as far as the monomer. The authors thought it necessary to perform such investigations which are suitable to furnish data for the solution of principal problems. Such principal

Card 1/3

On the Mechanism of the Thermal Decomposition of Cellulose in a Vacuum and on the Formation of 1,6-Anhydro-1,5-Glucopyranose, a Levoglucosan. 20-6-19/48

the decomposition of the cellulose molecule on the 1,4-β-glucose bonds, as well as a subsequent isomerization of the resulting chain fragment into a levoglucosan molecule. The chief conclusion can be extended to the thermal decomposition of other polysaccharides, and probably also to other types of polymers.
There are 1 figure, 2 tables and 1 Slavic reference.

ASSOCIATION: Institute for Organic Chemistry AN USSR imeni N. D. Zelinskiy and Forestry Institute AN USSR (Institut organicheskoy khimii imeni N. D. Zelinskogo Akademii nauk - Institut lesa Akademii nauk SSSR.).

PRESENTED: By I. N. Nazarov, Academician, June 7, 1957

AVAILABLE: Library of Congress

Card 3/3

GOLOVA, O.P.; MAYAT, N.S.; ANDRIYEVSKAYA, Ye.A.

Oxidation mechanism of cellulose and of its approximate models by atmospheric oxygen. Vysokom. soed. 2 no. 3:337-340 Mr '60. (MIRA 13:11)

1. Institut lesa i drevesiny AN SSSR.
(Cellulose) (Oxidation) (Glucosides)

MERLIS, N.M. ; ANDRIYEVSKAYA, Ye.A.; VOLODINA, Z.V.; GOLOVA, O.P.

Formation of β-1,6-anhydroglucofuranose in the thermal decompositions of β-D-glucose in a vacuum. Zhur.ob.khim. 34 no.1:334-336 Ja '64. (MIRA 17:3)

L 2498-65 EWT(m)/EWP(j)/T RM

ACCESSION NR: AP5022611 UR/0190/65/007/009/1619/1625
661.728+678.01:54

AUTHORS: Golova, O. P.; Nosova, N. I.; Andriyevskaya, Ye. A.; Volkova, L. A.

TITLE: Mechanism of cellulose oxidation with atmospheric oxygen in an alkaline medium. New data on the relation between the physical structure of cellulose and the course of its degradation on oxidation by atmospheric oxygen in an alkaline medium

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 7, no. 9, 1965, 1619-1625

TOPIC TAGS: cellulose, oxidation, oxidative degradation, synthetic fiber, x ray diffraction

ABSTRACT: The rate of oxidative decomposition of cellulose in an alkaline medium was studied as a function of its physical structure (the number of the regions of orderly, compact structure and regions of disorderly structure). This work was performed as an amplification of the authors' earlier observations (Sb. Tsellyuloza i yeye proizvodnyye. Izd. AN SSSR, 1963, str. 110). These observations indicated that, when the effect of carbonyl groups upon the oxidative process is

Card 1/2

L 2498-66

ACCESSION NR: AP5022611

9

excluded, the decomposition of regenerated cellulose (I) is much more rapid (20-30%) than that of the natural cellulose (II) (6%). It was found by means of x-ray diffraction that the two celluloses, identical in their chemical structure, differ in their degree of order (the natural material having a considerably more orderly structure). Hydrolysis of I with 2% solution of HCl at 100C for 70 minutes increased the degree of order and reduced the rate of oxidative decomposition to 8%. Decrease of the orderliness in II by treating it with 12% solution of NaOH at OC resulted in weight losses of 12-18% upon oxidation. It was established that the oxidative decomposition occurs with participation of hydroxyl groups located in the disorderly region, and is accompanied by formation of peroxides. The authors express their gratitude to V. A. Kargin for his participation in evaluation of the results obtained and to V. I. Mayboroda for the specimens of high quality fiber. Orig. art. has: 2 tables and 2 figures.

ASSOCIATION: Institut vysokomolekulyarnykh soyedineniy, AN SSSR (Institute of High Molecular Compounds, AN SSSR)

SUBMITTED: 26Oct64 ENCL: 00 SUB CODE: OC, GC

NO REF SOV: 015 OTHER: 008

Card 2/2

GOLOVA, O.P.; NOSOVA, N.I.; ANDRIYEVSKAYA, Ye.A.; VOLKOVA, L.A.

Mechanism of cellulose oxidation by atmospheric oxygen in alkaline medium. New data on relation between the physical structure of cellulose and regularities of its degradation in the course of oxidation by atmospheric oxygen in alkaline medium. Vysokom. soed. 7 no.9:1619-1625 S '65.

(MIRA 18:10)

1. Institut vysokomolekulyarnykh soyedineniy AN SSSR.

ANDRIYEVSKAYA, Z. M.

"Silicosis in a Chromatic Mine and Its Countermeasures," Gig. i San., No.5, 1949.

Chair Labor Hygiene, Hosp. Therapeutic Clinic, Molotov Med. Inst.

A. [illegible]KAYA, Zel., doktor.

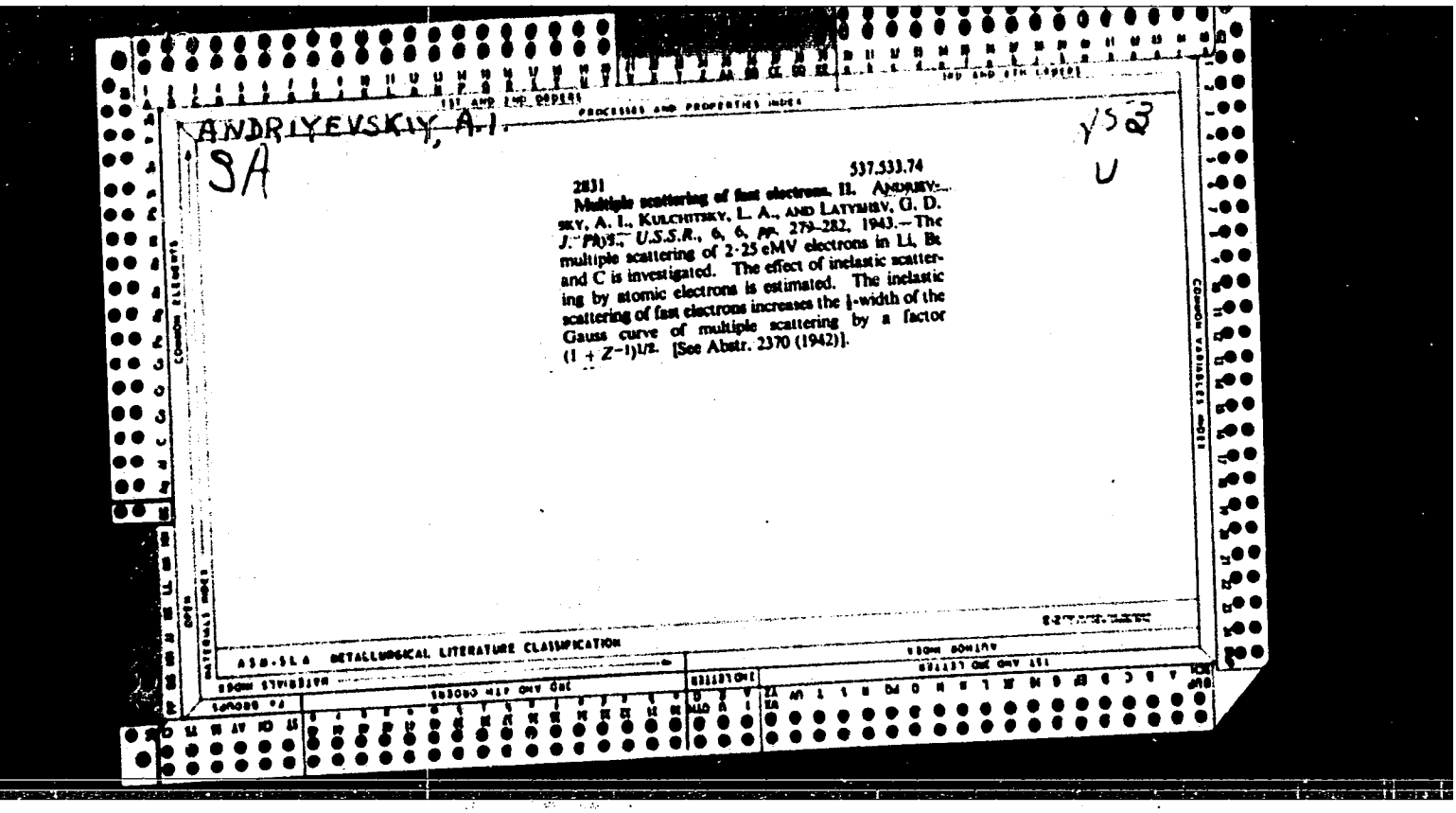
Treatment of pneumokoniosis with [illegible] solutions. Ter'ba i sil. [illegible] (MIRA 18:1)

1. Kafedra gospital'noy terapii Permskogo meditsinskogo institu-ta.

ANDRIYEVSKIY, A.I., MIKHAYLOVSKIY,V.N., and SHUMILOVSKIY,N.N.

"Temperature Measurements in the Soil and Drilled Wells" Nauch Zap. in-ta Mashinoved. i Avtomatiki An Ukr SSR, 3, 1954, 31-38

Attempt is made to find the location and temperature of the heat source if the temperature varies periodically. A special formula is derived for computing the amplitude and period of temperature variation, the thermal conductivity and other values. The history of geothermalstudiesin heUSSR is briefly described. (RZHFiz, No 10, 1955)



ANDRIYEVSKIY, A.I.

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2831

Multiple scattering of fast electrons. II. ANDRIYEVSKY, A. I., KULCHITSKY, L. A., AND LATYSHEV, G. D. *J. Phys., U.S.S.R.*, 6, 6, pp. 279–282, 1943.—The multiple scattering of 2·25 eMV electrons in Li, Be and C is investigated. The effect of inelastic scattering by atomic electrons is estimated. The inelastic scattering of fast electrons increases the $\frac{1}{2}$-width of the Gauss curve of multiple scattering by a factor $(1 + Z^{-1})^{1/2}$. [See Abstr. 2370 (1942)].

A 50-51 A METALLURGICAL LITERATURE CLASSIFICATION

ANDRIYEVSKIY, A. I.

236T97

PA 236T97

USSR/Physics - Semiconductors Nov 52

"Certain Problems of the Kinetics of Oxidation Process in Copper and of the Growth of Cuprous Oxide Crystals," A. I. Andriyevskiy and M. T. Mishchenko

"Zhur Tekh Fiz" Vol 22, No 11, pp 1713-1717

State that, despite the large volume of experimental works on semiconductors, certain gaps exist in the knowledge of the structure of the cuprous oxide layer, its composition, mechanism of crystal growth, etc. Discuss temp variation during conversion of CuO to Cu_2O, crystal growth, distribution of impurities in the Cu_2 layer, and spectra of contact layer.

236T97.

236T97

ANDRIYEVSKIY, A. I.

USSR.

Electron diffraction by gas molecules. A. I. Andriyevskii and I. V. Kutovoi (Polytech. Inst., Leningrad). *Doklady Akad. Nauk. S.S.S.R.* 82, 225-8 (1952). In the cathode sputtering of a metal, the electrons leaving the cathode are diffracted by the metal atoms surrounding the cathode. The diffraction patterns of Cu and Cd in air were obtained in this way. The electron diagrams which were obtained showed that the diffraction was due to gas mols. of Cu_2O and of CdO.CdO. J. Rovtar Leach

Dissertation: "Investigation of the Structural Characteristics of the Polycrystalline Layer of Copper-Oxide Cells and the Development of a New Method of Obtaining Them." [Short summary given.] Dr Tech Sci, Inst of Automatics and Telemechanics, Acad Sci USSR, Oct-Dec 1953. (Vestnik Akademii Nauk, Moscow, No 4, Apr 54)

SO: SUM 243, 19 Oct 1954

ANDRIYEVSKIY, A I.

USSR

The study of cuprous oxide electrodes by light-interference methods. A. I. Andrievskii and M. T. Mishchenko. *Zhur. Tekh. Fiz.* 23, 1161-7(1953).—The external surface of Cu_2O monocrystal was studied with a microinterferometer. The external facets are not in the same plane and are inclined at different angles.
J. Rovtar Leach

BB

ANDRIYEVSKY, A.I.

4

(2)

5617 On the Infrared Sensitivity of Copper-Oxide Photocells Prepared Under Reduced Pressure in the Field of a High-Frequency Induction Heater. A. I. Andrievsky and A. L. Ivanchyov. *National Science Foundation Translation*, no. 35, July 1953, 3 p. (Original in *Doklady Akademii Nauk SSSR*, v. 89, 1953, p. 245.)

Studies of process of oxidation of Cu under reduced pressure showed that, depending on pressure, high-frequency gas discharge has quite an appreciable effect on oxidation process. Graphs.

11/19/54

I

ANDRIYEVSKIY, A.L.

The infrared sensitivity of copper oxide photocells prepared under reduced pressure in the field of a high-frequency induction heater. A. L. Andrievskii and A. L. Ryashev (Polytech. Inst., Lvov). *Doklady Akad. Nauk S.S.S.R.* 89, 245–7(1953)(Engl. translation issued as *U.S. Atomic Energy Comm.* NSF-tr-35, 1–3(1953)).—Photosensitive layers as Cu_2O were obtained in a reversible way by heating properly cleaned copper disks in a quartz tube *in vacuo* within 3–5 sec. to the oxidation temp. by placing the tube in the heating coil of a high-frequency generator (3 megacycles). Air pressure (400–500 mm. Hg) was then admitted to form a layer of Cu_2O on the Cu. By lowering the pressure to 20–50 mm. Hg the layer could be reduced again. Very rapid lowering of the pressure to 10^{-3} mm. Hg and subsequent cooling preserved the photosensitive oxide layer. An alternative method of prepg. photocells consisted in the oxidation of the Cu under atm. pressure in a field of high-frequency currents followed by cooling in distd. water. The spectral characteristics of some photocells so obtained are given. By scanning the surface of the cell with a pencil of monochromatic light it was shown that a whole family of spectral characteristics could be obtained, corresponding to surface regions of varying compn. Their superposition gave the integral sensitivity of the photocell. The type of spectral characteristic is detd. by the degree of reduction of the Cu_2O layer. The least reduced sections show a weak front surface effect in the green and a medium back surface effect in the red or infrared. The most reduced sections show a strong front surface effect in the green (518 mμ) and a medium front surface effect in the infrared (780 mμ).

Rudolf Nitsche

10

ANDRIYEVSKIY, A. I.

THE ELECTRICAL CONDUCTIVITY OF CUPROUS OXIDE. A. I. [Andriyevsky] Andrievskii, V. I. Voloshchenko, and M. T. Mishchenko. Translated from Doklady Akad. Nauk S.S.S.R. 90, 521-3 (1953). 3p (NSF-tr-90)

The basic elements in the polycrystalline structure of a Cu_2O layer are the crystalline grains, the intercrystalline layer, and the contact layer that separates the Cu_2O from the Cu. The role of these individual elements in the electrical conductivity of the Cu_2O layer was investigated. Samples of the oxide with different grain sizes were prepared by varying the oxidation time, varying the temperature of the oxidizing atmosphere, and by using Cu plates of different initial thicknesses. Since the conductivity varied inversely with the size of the grains, it was determined that the intercrystalline layer plays an important part in the conductivity. The specific conductivity of the Cu_2O layer is proportional to the number of grains per unit of surface area of the sample. (J.S.R.)

Neuclear Science Abstr. Vol. 8 January 15, 1954 Physics

11-9-54 mk

ANDRIYEVSKIY, A.I.

Distr: 4Eh3

The electrical conductivity of cuprous oxide. A. I. Andrievskii and V. I. Voloshchenko. *Nauch. Zapiski, Chem. Sel'skokhoz. Inst.* 4, 272 (1954); *Referat. Zhur. Khim.* 1956, Abstr. No. 24061. A Cu plate 0.2 mm thick is thoroughly oxidized in air at 1020° for 1 hr. and is held for 18 hrs. longer at the same conditions. The sp. cond. of the Cu_2O decreases from $\sim 9 \times 10^{-1}$ to 1×10^{-1} ohm^{-1} cm^{-1} in the first 6 hrs. and decreases slowly after that. The curve σ–time has a slight max. at ~ 6 hrs. The growth of σ is ascribed to the growth of the grains and the increase of common contact surfaces through which diffuses the current carrier—the superstoichiometric oxygen (Ioffe, *C.A.* 46, 3820h). The existence of the max. is ascribed to the passage of ingredients from the center of the plate, collected there within the grains because of the oxidation from both sides. σ in a direction parallel to the surface plate is ~ 3 times as great as in the perpendicular direction; this is attributed to the distribution of the grains in the Cu_2O layer.

N. Vasneff

USSR.

The nature and properties of intercrystalline layers in cuprous oxide. A. I. Andrievskii and M. T. Mishchenko. *Zhur. Tekh. Fiz.* 24, 34–40(1954).—It is argued that the intercryst. layers in Cu_2O are amorphous and fairly fluid even at 1000° (Cu_2O m. 1232°). The intercryst. layers appear on photomicrographs as protruding peaks. Up to 800° the resistance of these layers to rupture is the same as of the crystals; above 800° their resistance is progressively smaller than that of crystals. At 1020° the cohesion of the grains is very small and rupture occurs along the boundary. Two consecutive layers of Cu_2O show different rupture patterns; this indicates that the interlayer films are in the same condition as intercryst. material.

S. Pakswer

ANDRIYEVSKII, A. I.

FD-565

USSR/Physics - Contact layer

Card 1/1 : Pub. 153 - 5/28

Author : Andriyevskiy, A. I., and Mishchenko, M. T.

Title : The contact layer of curpous oxide

Periodical : Zhur. tekh. fiz. 24, 818-825, May 1954

Abstract : Concludes that the electrical conductivity of the substance close to the contact layer is significantly higher than that of the basic part of Cu_2O. This explains the fact that the conductivity along a cuprous oxide specimen made by open two-side oxidation of copper plates is three times greater than the conductivity across its layer, as earlier reported by the authors (DAN SSSR, 90, 4, 1953).

Institution : --

Submitted : June 31, 1953

ANDRIYEVSKIY, I. T.

USSR/Physical Chemistry - Crystals, B-5

Abst Journal: Referat Zhur - Khimiya, No 1, 1957, 262

Author: Andriyevskiy, [illegible] and Tryet'yak, I. D.

Institution: Lvov Polytechnical Institute

Title: Temperature Dependence of the Electrical Conductivity of the Cu_2O-Ni_2O_3 System

Original Periodical: Dokl. L'vovsk. politekhn. in-ta, 1955, Vol 1, No 2, 13-18

Abstract: The temperature dependence of the conductivity σ of samples obtained by sintering a mixture of 25% Ni_2O_3 and 75% Cu_2O was investigated. The linear function of $lg\sigma = f(1/T)$ shows 2 breaks -- one at 140° and one at 230°. The energy of activation in the region below 140° is 0.7 ev; in the region 140-230°, 0.907 ev; and in the region 230-300°, 1.106 ev. The material is composed for utilization in the construction of thermistors.

Card 1/1

[illegible] and polycrystals have very close values. A break is observed in the graph $lg\sigma = f(1/T)$ only when $E > 0.14$ ev.

Card 1/1 APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000101420014-8

Andriyevskiy, A. I.

Category : USSR/Electricity - Semiconductors G-3

Abs Jour : Ref Zhur - Fizika, No 2, 1957, No 4194

Author : Andriyevskiy, A.I., Shchevelev, M.I.
Title : On the Capacitance of the Barrier Layer of Cuprous Oxide Rectifiers.

Orig Pub : Dokl. L'vovsk. politekhn. in-ta, 1955, 1, No 2, 27-29

Abstract : An investigation was made of the dependence of the capacitance C and the resistance R of the barrier of cuprous oxide rectifiers on the oxidation temperature. For this purpose, rectifiers were prepared at different temperatures. The values of C and R of the prepared rectifiers were measured with an a-c bridge at a negative bias of 0.5 volts on the rectifier. It turned out that at oxidation temperatures of 960 to 1026°, R and C increase with the temperature. C has a maximum value at 1026° and diminishes in the interval from 1062 to 1040°. On the other hand, R begins to grow more steeply at 1026° than in the interval from 160 to 1026° a certain amount of CuO always forms during the oxidation, and this substance is unstable at 1026°. The purest layer of Cu_2O is obtained at even higher temperatures.

It is concluded that rectifiers should be manufactured at maximum temperatures and at maximum heating speeds.

Card : 1/1

Andriyevskiy, A. I.

112-2-4274

TRANSLATION FROM: Referativnyy zhurnal, Elektrotekhnika, 1957, Nr 2, p. 247 (USSR)

AUTHORS: Andriyevskiy, A. I., Shchevelev, M. I.

TITLE: The Problem of the Capacity-to-Impressed-Voltage Relationship of Copper Oxide Rectifiers (K voprosu zavisimosti yemkosti mednozakisnykh vypryamiteley ot prilozhennogo napryazheniya)

PERIODICAL: Dokl. L'vovsk. politekhn. in-ta, 1955, 1, Nr 2, pp. 34-37

ABSTRACT: The capacity was measured of copper oxide rectifiers fabricated by the "oven" method from MO brand copper at oxidation temperature 1,020° and annealing temperature 550°. The capacity of the rectifier at different bias voltages was determined from given bridge measurements. The rectifier was a Schottky-Deychman single-mesh equivalent circuit. Capacity measurements at a frequency of 1,000 cps and with bias voltage applied in the reverse direction are given. The measurements were made on three rectifiers 16 mm in diameter; oxidation time, 12 min., and annealing time 0, 4 and 12 min. As the voltage in-

Card 1/2

ANDRIYEVSKIY, A.I.

E-5

Category : USSR/Solid State Physics - Phase Transformation in Solid Bodies

Abs Jour : Ref Zhur - Fizika, No 2, 1957 No 3862

Author : Andriyevskiy, A.I., Mishchenko, M.T.
Title : On the Features of Growth of Cuprous Oxide Crystals at High Temperature

Orig Pub : Dokl. L'vovsk. politechn. in-ta, 1955, 1, No 2, 38-42

Abstract : Report on the results of an investigation of the features of the growth of cuprous oxide crystals on the surface of a copper plate in an oxidizing medium at high temperature. Based on microscopic investigations of the structure of the layer of cuprous oxide on the copper plate at various durations of oxidation, the authors reach the conclusion that the growth of the grains of the cuprous oxide layer represents a combination of a gradual increase in the mass of the product with rapid jump-like transitions from the fine-grain to a coarser-grain structure, occurring as a result of the periodic recrystallization acts. Results are reported on the observation of the interference pattern on the surface of a cuprous oxide layer, explaining the character of the variation of the form of the profile of the new and old boundaries between the grains after recrystallization.

Card : 1/1

SOV/112-57-5-11737

Translation from: Referativnyy zhurnal. Elektrotekhnika, 1957, Nr 5, p 318 (USSR)

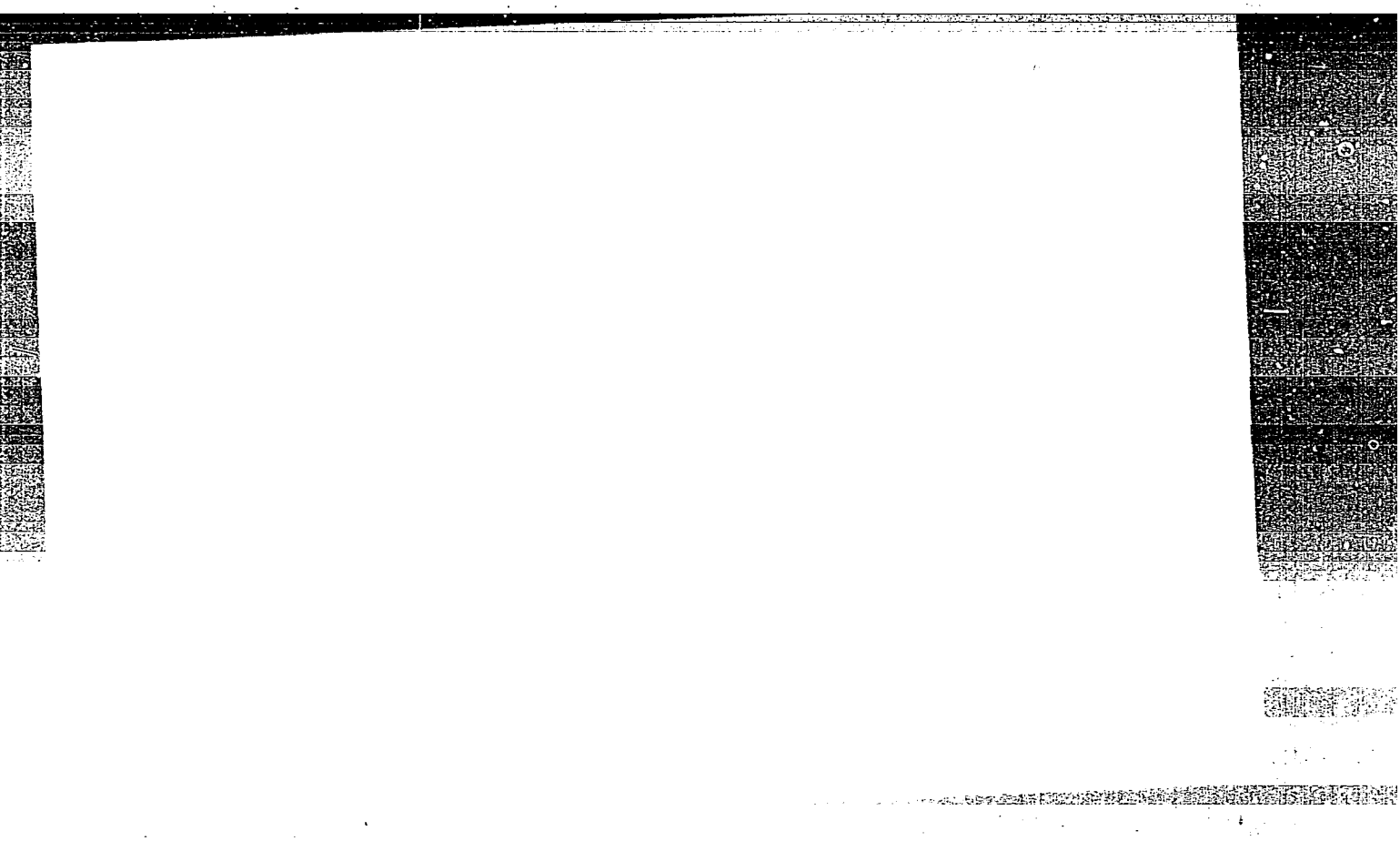
AUTHOR: Andriyevskiy, A. I., Sandulova, A. V.

TITLE: Changes in Static Voltage-Current Characteristics of Cuprous-Oxide Rectifiers Depending on Silver and Oxygen Electrolytically Introduced into the Rectifiers (Izmeneniya staticheskikh vol'tampernykh kharakteristik mednozakisnykh elementov v zavisimosti ot vvedennykh v nikh posredstvom elektroliza serebra i kisloroda)

PERIODICAL: Dokl. L'vovsk. politekhn. in-ta, 1955, Vol 1, Nr 2, pp 43-47

ABSTRACT: Effect of excess-oxygen and silver admixtures on the forward and backward resistances of cuprous-oxide rectifiers was studied. The rectifier elements were prepared by oxidizing copper foil in the air at 1,020°C for 20 minutes. Surplus oxygen was introduced either by an additional anode oxidizing of the elements in a K_2SO_4 solution or by annealing at 600°C. Silver was admixed electrolytically. Voltage-current characteristics of such rectifiers

Card 1/2



APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000101420014-8"

ANDRIYEVSKIY, A.I.

Electrical conductivity of cuprous oxide. A. I. Andrievskii, V. I. Voloshchenko, and M. T. Mishchenko [illegible] Zhur. Tekh. Fiz. 25, 2422 [illegible] 1955 [illegible] Cu_2O plates were prepd. by complete oxidation [illegible] at temps. 950°, 1000°, and 10[illegible]° and cooling them [illegible] vapor superheated to 250°. The cond. was measured along the surface and perpendicular to it. The specific [illegible] the cond. of intercryst. spaces [illegible] of the crystals. The [illegible] increased [illegible] present in the [illegible] vacuum is decreased [illegible] cryst. samples smallest in single crystals. This indicates the presence of exc[illegible]

S. [illegible]

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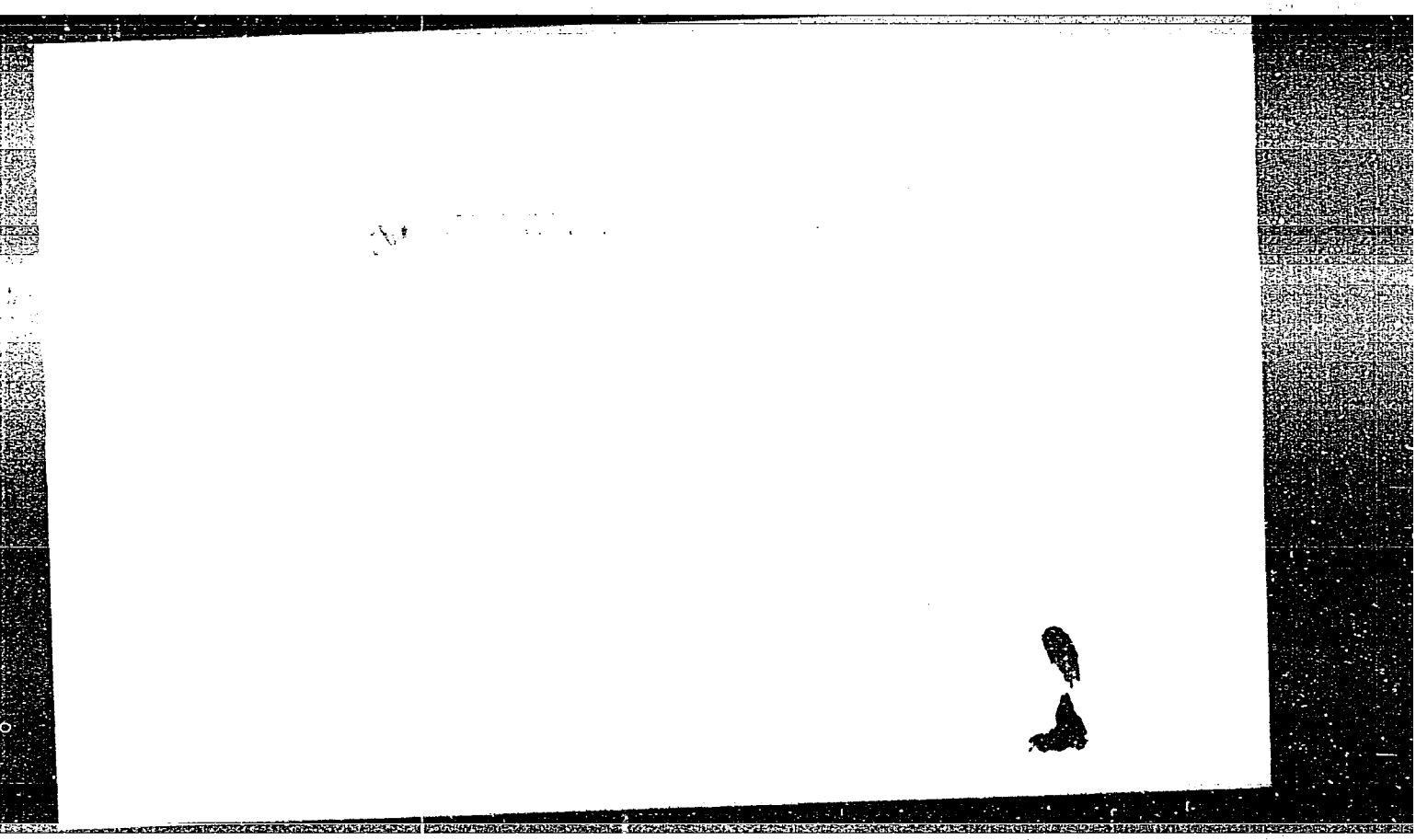

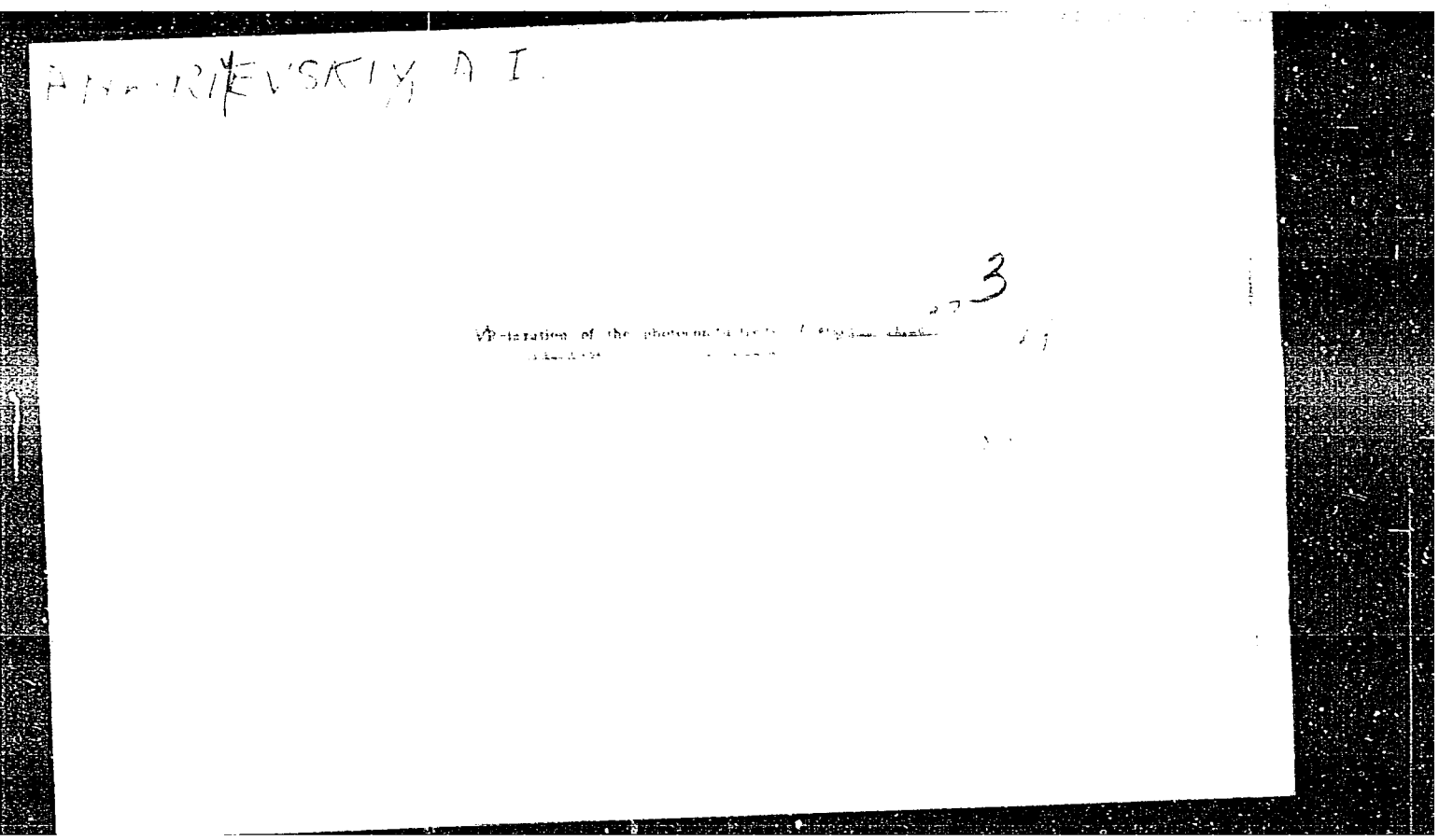

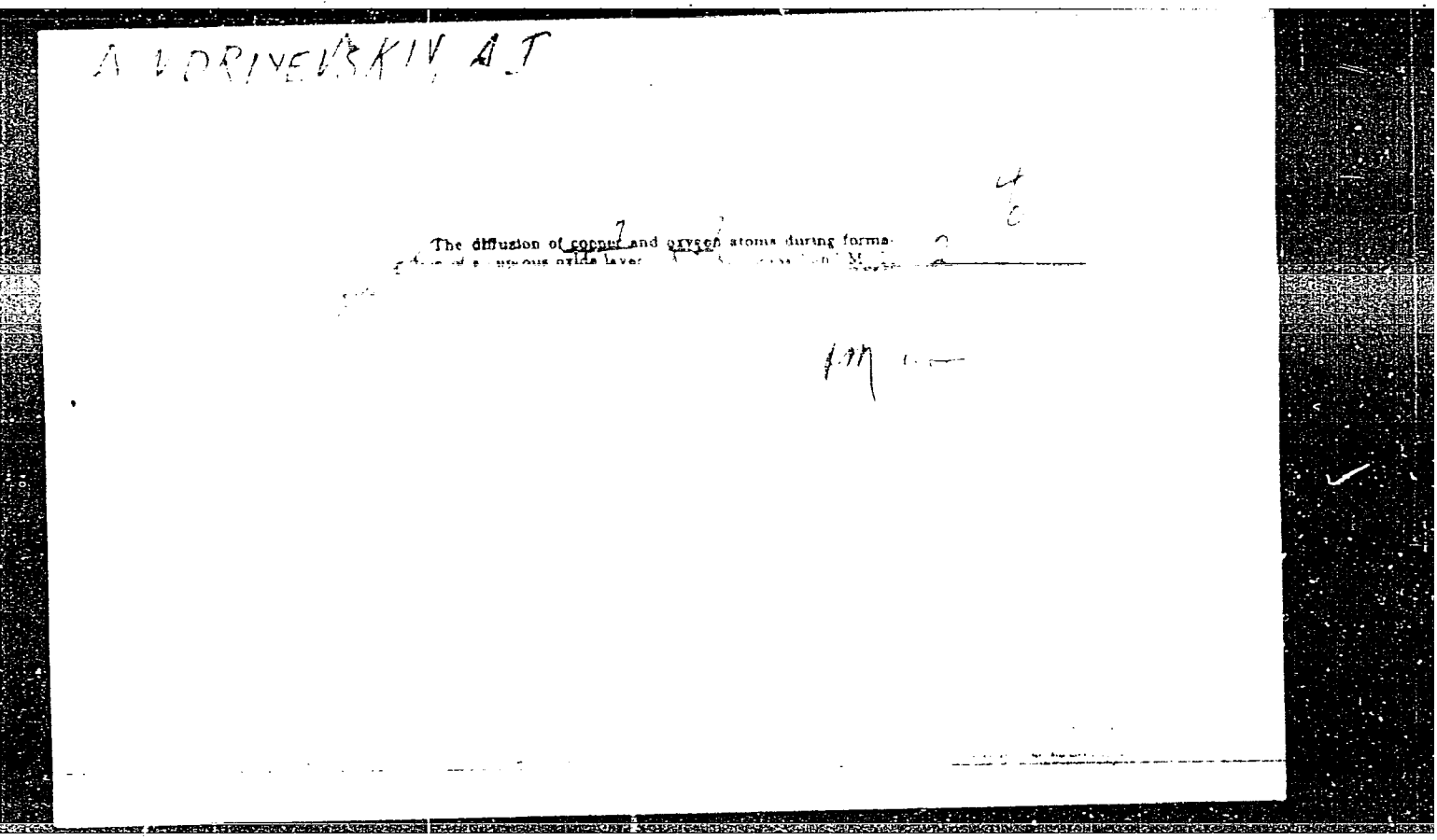

A. I. DRIYEVSKIY A.T.

The diffusion of copper and oxygen atoms during forma-

Andriyevskiy, A.I.

G-3

Category : USSR/Electricity - Semiconductors

Abs Jour : Ref Zhur - Fizika, No 2, 1957, No 4191

Author : Andriyevskiy, A.I., Sandulova, A.V., Shchevelev, M.I.
Title : Effects of Artificially Introduced-Impurities on the Capacitance of Copper-Oxide Rectifiers.

Orig Pub : Dokl. L'vovsk. politekhn. in-ta, 1956, 1, No 2, 9-12

Abstract : The capacitance C and the resistance R of copper-oxide rectifiers were determined by measurement with an a-c bridge. Using electrolysis, impurities of silver or oxygen were introduced into the tested specimens. It turned out that introducing silver for a time ranging from several tens of seconds to a minute lowers C and R of the barrier layer to very samll values. If one now adds O_2 to these specimens for several minutes, the previous values of C and R of the barrier layer are restored. These phenomena are explained by the fact that the added silver, disturbing the stoichiometry of the barrier layer, behaves like a metallic impurity, while the added oxygen atoms, which combine with the silver atoms, form molecules of silver oxide, and thus restore the stoichiometry and the initial properties of the rectifiers.

Card : 1/1

[redacted]-copper by precipitation from a solution or was introduced electrolytically into the copper. The diffusion of the impurity took place simultaneously with the formation of the oxide layer in an electric tubular furnace (1020 -- 1050° C).
(2) The impurity was diffused from a quenching bath into

Card 1/3

G-3

USSR/Electricity - Semiconductors

Abs Jour : Ref Zhur - Fizika, No 1, 1958, 1336

Cu_2O as it was cooled.
(3) The impurity was precipitated electrolytically on mono- and poly-crystalline specimens of Cu_2O, and the diffusion was investigated at 1000° C. The distribution of the diffused impurity in a layer of Cu_2O was determined from the activity of polished thin layers.
The following coefficients of diffusions were found:

$D(P^{32}) = 2.1 \times 10^{-8}$ cm^2/sec (1020° C); $D(Au^{198}) = 1.03 \times 10^{-9}$ cm^2/sec (1000° C); $D(I^{131}) = 8.0 \times 10^{-9}$ cm^2/sec (1020° C); $D(S^{35}) = 0.89 \times 10^{8}$ cm^2/sec (1000° C).

It is shown that the diffusion of silver, sulphur, and phosphors takes place in the same manner in single crystals and in polycrystals of Cu_2O.
An investigation was made of the influence of impurities

ANDRIYEVSKIY, A. I.

USSR/Processes and Equipment for Chemical Industries - Control and Measuring Devices. Automatic Regulation, K-2

Abst Journal: Referat Zhur - Khimiya, No 19, 1956, 64004

Author: Andriyevskiy, A. I., Karelin, N. N.

Institution: None

Title: Measurement of Viscosity of Nontransparent Liquids

Original Periodical: Priborostroyeniye, 1956, No 4, 24-25, 29

Abstract: Described is an instrument for measuring the viscosity of nontransparent liquids, which operates by the method of determination of the rate of fall of a solid sphere. To determine the position of the ball in the tube filled with the liquid being tested an induction method is proposed with the use of a ferromagnetic ball, which does not require complex equipment or considerable expenditure of time. Measurement accuracy by the induction method is not inferior to that of visual observations. It is noted that the described unit can be utilized for automatic recording of changes in the viscosity of the

Card 1/2

ANDRIYEVSKIY, M. I.

5

The diffusion of copper and oxygen atoms during formation of a cuprous oxide layer. A. I. Andrievskii and M. T. Mishchenko. *Zhur. Tekh. Fiz.* 26, 430-8(1956).—When Cu cylinders are completely oxidized, large Cu_2O crystals grow from the outside in, and the center contains smaller crystals, because in the process of oxidation the impurities are pushed back towards the center. At oxidation temps. below 1020° the diffusion of O through the Cu_2O layer formed is predominant, and some small cracks and holes are formed owing to the smaller d. of Cu_2O. Above 1020° large voids are formed owing to predominant diffusion of Cu to the exterior through the Cu_2O layer. S. Pakswer

2

Andriyevskiy, A.I.

USSR / Morphology of Crystals. Crystallization. E-7

Abs Jour : Ref Zhur - Fizika, No 4, 1957, No 9373

Author : Andriyevskiy, A.I., Mishchenko, M.I.
Inst : L'vov Polytechnic Institute
Title : Concerning the Mechanism of the Growth of Crystals of Cuprous Oxide at High Temperature.

Orig Pub : Dokl. AN SSSR, 1956, 107, No 1, 81-83

Abstract : A study is made of the process of the growth and recrystallization of Cu_2O crystals. For this purpose, periodic photographs are taken of the surface of the same portion of the cuprous-oxide layer, maintained in an air-oxidizing medium at high temperature. The photographs were compared with photographs of the same portion after etching. It was established that the recrystallization takes place in the region where the smallest grains are located. With this, no new recrystallization centers are formed, and the mass of the va-

Card : 1/2

ANDRIYEVSKIY, A.I.

USSR/Electricity - Semiconductors G-3

Abs Jour : Ref Zhur - Fizika, No 3, 1957, No 7048

Author : Andriyevskiy, A.I., Zhurevlov, V.A.
Inst : L'vov Polytechnic Institute, L'vov
Title : Relaxation of Photoconductivity of Tin Dioxide

Orig Pub : Dokl. AN SSSR, 1956, 108, No 1, 43-46

Abstract : An investigation was made of the photoconductivity of tin dioxide with large relaxation time (10 -- 10^3 sec). Specimens were obtained by oxidizing films of tin, evaporated in vacuum for several hours at 170°. Upon illumination, the resistance of the specimen was diminished by 2 -- 2.5 times. The processes of the buildup of the photocurrent of tin dioxide can be represented by several exponents with different time constants; the number of these exponents increase and the numerical value of each exponent diminishes with increasing light intensity. It is shown that the reduction in the photocurrent after being exposed to high intensity light can be described by several hyperbolas, whose shapes depend on the intensity of the light, and the final stage of the reduction is exponential; after illumination by low intensity

Card : 1/2

ANDRIYEVSKIY, A.I.

USSR/Electricity - Semiconductors G-3

Abs Jour : Ref Zhur - Fizika, No 1, 1958, 1374

Author : Andriyevskiy, A.I., Karelin, N.N.
Inst :
Title : Concerning the Problem of the Temperature Coefficient of Resistance of Single Crystals and Polycrystalline Specimens of Cuprous Oxide.

Orig Pub : Dokl. L'vovsk. politekhn. in-ta, 1957, 2, No 1, 19-22

Abstract : The temperature coefficient of resistance of Cu_2O (α) was studied with a polycrystalline and monocrystalline specimen, obtained by prolonged calcination of a plate of copper in air at 1030°. It was established, that the average value of α in the interval 15 -- 50° fluctuates in the range 0.0053 -- 0.032 deg^{-1}. For polycrystalline and single-crystal specimens, obtained from a single plate, also has nearly equal values. The measurements have shown that α diminishes with the temperature for

Card 1/2

SOV/115-58-6-32/43

AUTHORS: Andriyevskiy, A.I., Karelin, N.N., Yuskevich, Yu.G.

TITLE: A Device for Automatic Determination of Viscosity of Cloudy Liquids (Pribor dlya avtomaticheskogo opredeleniya vyazkosti neprozrachnykh zhidkostey)

PERIODICAL: Izmeritel'naya tekhnika, 1958, Nr 6, pp 80-82 (USSR)

ABSTRACT: A reliable method for measuring the viscosity of liquids is the Stokes method, which is based on measuring the falling speed of solid balls in the tested liquid. This method may also be applied in not-transparent liquids, if ferromagnetic balls and inductive measuring is used [Ref 1, 2, 3]. Such a device consists of two coils with two windings (Figure 1). To indicate the passing of the ferromagnetic ball through the upper or lower coil, a vibration galvanometer or an electronic-optical indicator, e.g. the tube 6Ye5S, may be used. The circuit diagram of such a device is given in Figure 1; its block diagram in Figure 2. From the secondary winding of the transformer the voltage passes to the demodulator (4) which transforms it into impulses corresponding to the

Card 1/2

A Device for the Automatic Determination of the Viscosity of Cloudy Liquids

passage time of the balls. The time diagram is shown in Figure 3. The device may be fed by any power transformer, e. g. ELS-2, giving an anode voltage of 250 v. There are 2 diagrams, 1 graph and 3 Soviet references.

SOV/143-58-10-20/24

AUTHORS: Andriyevskiy, A.I., Antanovich, A.V., Bogatyrev, N.A., Glushchenko, I.P., Gubenko, T.P., Zamora, Ye.F., Karandeyev, K.B., Lukin, V.I., Lukin, N.I., Maksimovich, N.G., Mozer, V.F., Petrenko, S.I., Papernyy, Ye.A., Privalova, K.A., Sitnitskiy, Yu.I., Stasikov, Ya.T., Shchepankevich, B.P., Chuchman, T.S., Yagello, I.M., Brilinskiy, B.M., and others

TITLE: G.Ye. Krushel', Deceased

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Energetika, 1958, Nr 10, p 147 (USSR)

ABSTRACT: This is an obituary of Doctor of Technical Sciences, Professor Georgiy Yevgen'yevich Krushel' of the L'vovskiy politekhnicheskiy institute (L'vov Polytechnic Institute). Krushel' was born in Moscow in 1912 as the son of an engineer. He died on July 20, 1958 because of an accident. He graduated in 1931 from the "Proftekhshkola". While working in the industry, G. Ye. Krushel' studied at the Khar'kovskiy mekhaniko-mashinostroitel'nyy institut (Khar'kov Institute of

Card 1/3

extensively prime movers for the feed pumps of high-power boiler-turbine units. Besides research work, Krushel' devoted his attention to the training of engineers in his field. The Soviet Union lost one of its foremost scientists. There is 1 photograph.

Effect of Barrier Layer Photoconductivity on the Spectral Distribution of the Photovoltaic Effect

type M0). The position of this maximum is not independent of the nature of the chemical admixture and of the thickness of the copper oxide layer. In order to establish the role played by light filtration in the copper oxide layer of photoelectric cells exhibiting this third maximum the absorption spectrum of the Cu_2O layer was studied. This yielded no evidence indicating any essential changes in comparison to ordinary copper oxide layers. The principal factor determining the formation of copper oxide photoelectric cells exhibiting the third maximum of sensitivity is the oxidation temperature. Such photoelements are only produced if the copper is oxidized at temperatures above 1025°C (at normal atmospheric pressure). The maxima of sensitivity of photovoltaic cells are either due to maxima of the internal photoelectric effect or to maxima of photoconductivity. They are termed first order and second order maxima, respectively. It is believed that this phenomenon is due to imperfections in the barrier layer in copper oxide photoelectric cells. The internal photoeffect in photovoltaic cells plays a double role: 1) Light absorption results in the production of mobile current carriers

Effect of Barrier Layer Photoconductivity on the Spectral Distribution of the Photovoltaic Effect

the diffusion of which generates the current in the external circuit of the photoelectric cell. The external current increases with the production of current carriers by light absorption. 2) The internal photoeffect reduces the resistance of the barrier layer (leaking resistance) and thus reduces the current in the external circuit. Hence the photoconductivity plays a negative role in the generation of the photovoltaic effect. In order to obtain photoelements with a great output it is required to compose stratified elements from different semiconductors. The information available permit, assuming the occurrence of the maximum of sensitivity of second order in the spectral characteristic of the photovoltaic effect in the case of an imperfect barrier layer. This may be expected not only with copper oxide but also with other semiconductors with two spectral ranges of photoconductivity which are little apart and which are separated by a pronounced minimum. There are 6 figures and 6 references, 5 of which are Soviet.

Card 3/4

SOV/57-2 -2-17/51

Effect ... arrier Layer hotoconductivity on the Spectr... tribution of the ...otovoltaic Effect

ASSOCIATION: L'vovskiy politekhnicheskiy institut
(L'vov Polytechnical Institute)

Card 4/4

24.7100

SOV/58-59-12-27425

Translation from: Referativnyy zhurnal. Fizika, 1959, Nr 12, p 133 (USSR)

AUTHORS: Andriyevskiy, A.I., Nabitovich, I.D.

TITLE: On the Crystallization and Structure of Selenium in Thin Layers

PERIODICAL: Nauchn. zap. L'vovskogo politekhn. in-t, 1958, Nr 57, pp 82 - 92

ABSTRACT: An electronographical investigation of crystallization in 600 - 800 Å thick Se films (F), both for those free of any sub-layers, as well as for those covered on both sides with a film of cellulose nitrate varnish, was carried out. The F was obtained by dusting of amorphous red Se in a vacuum. No diffraction picture is observed right after the F dusting. After heating at 25°C for five hours, 4 haloes appear on the electronograms. At 35 to 40°C, the free F crystallize into an α -monoclinic modification, at 65° - into a β -monoclinic modification, and at 150 - 160° a new modification is formed with a face-centered cubic

Card 1/2

24.7600

SOV/58-59-12-27737

Translation from: Referativnyy zhurnal, Fizika, 1959, Nr 12, pp 176 - 177 (USSR)

AUTHORS: Andriyevskiy, A.I., Karelin, N.N., Mishchenko, M.T.

TITLE: The Effects of Thermal Processing of Copper Oxide Plates on the Nature of the Temperature Relationship to Their Electroconductivity

PERIODICAL: Nauchn. zap. L'vovsk. politekhn. in-t, 1958, Nr 57, pp 98 - 105

ABSTRACT: The temperature relationship to the electro-conductivity (σ) of Cu_2O plates, which were subjected to various means of preliminary thermal processing, was investigated within a temperature range of -170 to +700°C. A graph is given, showing the relationship lg versus 1/T for three samples, subjected to different thermal treatment. The most clear-cut effect on the σ (T) relationship caused by the nature of the thermal processing, was found to be in the -70 to +350°C range, i.e., at the change-over from the admixture conductivity to the natural one. For samples, annealed in air at T = 500°C, the lower border-line of this region begins at T = 70°C, for samples annealed in air at T = 1120°C, - at room

Card 1/2

SOV/58-59-12-27758

24.7700

Translation from: Referativnyy zhurnal. Fizika, 1959, Nr 12, p 180 (USSR)

AUTHORS: Andriyevskiy, A.I., Karelin, N.N., Rvachev, A.L.

TITLE: On the Photoelectric Properties of Copper Oxide Single Crystals

PERIODICAL: Nauchn. zap. L'vovsk. politekhn. in-t, 1958, Nr 57, pp 133-137

ABSTRACT: A comparative study of the mono- and poly-crystalline samples of Cu_2O, as to their photoelectric properties, is made. The Cu_2O single crystals were found to have the same properties as the polycrystals, made of the same plate. Some differences were noted only in the spectral distribution of photoconductivity, σ, photoelectric fatigue and in the inertness of the photocurrent. The curves of the spectral distribution of σ, within the wavelength range $\lambda = 500 \div 1000$ mμ, show that in the case of the polycrystals there is only a slight drop in the sensitivity in the 800 m μ range. The possible reason for this difference might be due to the fact that the polycrystals have a higher concentration of foreign admixtures than the corresponding single crystals. It is shown that the fatigue of the crystals is some-

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On the Photoelectric Properties of Copper Oxide Single Crystals

what lower than that of the corresponding polycrystals, but is greater than that of the polycrystals after the latter have been heated. Oscillograms of the photocurrent are submitted, which were obtained by illumination with monochromatic Π-type pulses of light at various wave lengths. The photo-current of poly- and single crystals consists of low- and high-inertia components, whereby the high-inertia component has a higher value in the single crystal, which is especially apparent in the strong absorption band (λ = 610 mμ).

Yu.S.K.

Card 2/2

S/137/61/000/011/100/123
A060/A101

AUTHORS: Andriyevskiy, A. I., Nabitovich, I. D.

TITLE: On the problem of oxidation of thin copper layers in an air environment

PERIODICAL: Referativnyy zhurnal. Metallurgiya, no. 11, 1961, 45, abstract 11I301 ("Dokl. L'vovsk. politekhn. in-ta", 1958 (1959), 3, no. 1 - 2, Fizika, 23 - 26)

TEXT: An investigation was carried out upon the oxidation in layers of Cu with thickness of 900 - 1,000 Å at 20 - 250°C. The specimens were prepared by sublimation in vacuum (~10^{-4} mm of mercury) of electrolytic Cu upon cellulose-nitrate varnish films. Electronograms were taken by a penetrating pencil of electrons. The specimens were heated up in a thermostat. At a temperature of ~40°C the small crystals sintered and the circles in the electronogram became more pronounced. In the interval 80 - 90°C the Cu was transformed into a cuprous oxide and, beginning with 170 - 180°C into a cupric oxide. From 200 to 250°C the cupric

Card 1/2

84155

9.4360

S/112/59/000/013/049/067
A002/A001

Translation from: Referativnyy zhurnal, Elektrotekhnika, 1959, No. 13, p. 232, # 27845

AUTHORS: Andriyevskiy, A.I., Dereberya, N.A., Sandulova, A.V.

TITLE: The Effects of Temperature and Annealing Time on the Change of Electric Characteristics of Cuprous Oxide Elements During Aging

PERIODICAL: Nauchn. zap. Ukr. poligr. in-t, 1958, Vol. 12, No. 1, pp. 69-75

TEXT: In the manufacturing process, cuprous oxide rectifiers are placed for some time into an annealing furnace after having been in an oxidation furnace. The effects of temperature and annealing time on the resistance and the rectification factor have been investigated. The optimum annealing temperature is 500-600°C. The annealing time depends essentially on the inverse resistance of the elements. The barrier layer is formed by cooling from the oxidation temperature of 1,000°C to the annealing temperature. In this case, the best condition is a cooling time equal to the annealing time.

B. A. G.

Translator's note: This is the full translation of the original Russian abstract.

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84565

S/112/60/000/016/003/003
A005/A001

9.4300 (1035, 1138, 1143)

Translation from: Referativnyy zhurnal, Elektrotekhnika, 1960, No. 16, p. 31, # 5.8741

AUTHORS: Andriyevskiy, A. I., Tret'yak, I. D.

TITLE: Temperature Dependences of Semiconductor Thermo-Resistances of Binary Oxide Systems

PERIODICAL: V. sb.: Poluprovodnik. termosoprotivleniya. Moscow-Leningrad, Gosenergoizdat, 1959, pp. 82-95

TEXT: The temperature behavior was investigated of semiconductor thermo-resistances produced on the base of the systems BeO - Cu_2O; MgO - Cu_2O; CaO - Cu_2O; ZnO - Cu_2O; MnO_2 - Cu_2O; and NiO_3 - Cu_2O. It is found out that the specimens of the ZnO - Cu_2O system have the specific resistance up to several thousand megohm at room temperature and a large value of the constant B (in the expression of the temperature dependence of resistance in $R = A_e^{B/T}$) in the temperature range from the room temperature up to 550°C, as well as a large negative transconductance of the volt-ampere-characteristic. The specimens of

Card 1/2

38164
S/058/62/000/004/061/160
A058/A101

9,4160

AUTHORS: Andriyevskiy, A. I., Rvachev, A. L.

TITLE: Concerning the mechanism of the formation of spectral-sensitivity maxima in valve phototubes

PERIODICAL: Referativnyy zhurnal, Fizika, no. 4, 1962, 23, abstract 4G188 (V sb. "Fotoelektr. i optich. yavleniya v poluprovodnikakh". Kiev, AN USSR, 1959, 323-329)

TEXT: It was established that cuprous-oxide, back-firing phototubes have not just two sensitivity maxima (at 630 and 800 mμ), but also a third one at 655 mμ. The position of the third maximum does not depend on the nature of the chemical impurity. With increase in the thickness of the Cu_2O layer, the sensitivity decreases in the region of the first maximum (630 mμ) but increases in the region of the third, the first being shifted to the long-wavelength side while the position of the third does not change. The principal factor leading to the formation of phototubes with three maxima is the oxidation temperature of the Cu (it must be above 1,025°C).

[Abstracter's note: Complete translation]

Card 1/1

ANDRIYEVSKIY, A.I.

24(4) PHASE I BOOK EXPLOITATION SOV/3140

Akademiya nauk Ukrainskoy SSR. Institut fiziki

Fotoelektricheskiye i opticheskiye yavleniya v poluprovodnikakh; trudy Pervogo vsesoyuznogo soveshchaniya po fotoelektricheskim i opticheskim yavleniyam v poluprovodnikakh, Kiyev, 20-26 noyabrya 1957 g. (Photoelectric and Optical Phenomena in Semiconductors; Transactions of the First Conference on Photoelectric and Optical Phenomena in Semiconductors...) Kiyev, 1959. 403 p. 4,000 copies printed.

Additional Sponsoring Agency: Akademiya nauk SSSR. Prezidium. Komissiya po poluprovodnikam.

Ed. of Publishing House: I. V. Kisina; Tech. Ed.: A. A. Matveychuk; Resp. Ed.: V. Ye. Lashkarev, Academician, Ukrainian SSR, Academy of Sciences.

PURPOSE: This book is intended for scientists in the field of semiconductor physics, solid state spectroscopy, and semiconductor devices. The collection will be useful to advanced students in universities and institutes of higher technical training specializing in the physics and technical application of semiconductors.

COVERAGE: The collection contains reports and information bulletins (the latter are indicated by asterisks) read at the First All-Union Conference on Optical and Photoelectric Phenomena in Semiconductors. A wide scope of problems in semiconductor physics and technology are considered: photoconductivity, photoelectromotive forces, optical properties, photoelectric cells and photoresistors, the actions of hard and corpuscular radiations, the properties of thin films and complex semiconductor systems, etc. The materials were prepared for publication by Z. I. Rasnboy, O. V. Snitko, K. B. Tolpygo, A. F. Lubchenko, and M. K. Sheynkman. References and discussion follow each article.

ANDRIYEVSKIY, A. I.

24(1) PHASE I BOOK EXPLOITATION SOV/3140

Akademiya nauk Ukrainskoy SSR. Institut fiziki

Fotoelektricheskiye i opticheskiye yavleniya v poluprovodnikakh; trudy Pervogo vsesoyuznogo soveshchaniya po fotoelektricheskim yavleniyam v poluprovodnikakh, g. Kiyev, 20-26 noyabrya 1957 g. (Photoelectric and Optical Phenomena in Semiconductors; Transactions of the First Conference on Photoelectric and Optical Phenomena in Semiconductors...) Kiyev, 1959. 403 p. 4,000 copies printed.

Additional Sponsoring Agency: Akademiya nauk SSSR. Prezidium.

Ed. of Publishing House: I. V. Kistna; Tech. Ed.: A. A. Matveychuk; Resp. Ed.: V. Ye. Lashkarev, Andreyevich, Ukrainian SSR, Academy of Sciences.

PURPOSE: This book is intended for scientists in the field of semiconductor physics, solid state spectroscopy, and semiconductor devices. The collection will be useful to advanced students in universities and institutes of higher technical training specializing in the physics and technical application of semiconductors.

COVERAGE: The collection contains reports and information bulletins (the latter are indicated by asterisk) read at the First All-Union Conference on Optical and Photoelectric Phenomena in Semiconductors. A wide scope of problems in semiconductor physics and technology are considered: photoconductivity, photoelectromotive forces, optical properties, photoelectric cells and photoresistors, the actions of hard and corpuscular radiations, the properties of thin films and complex semiconductor systems, etc. The materials were prepared for publication by E. I. Rashba, O. V. Snitko, K. B. Tolpygo, A. F. Lubchenko, and M. K. Sheynkman. References and discussion follow each article.

Card 13/16

ANDRIYEVSKIY, A.I., doktor tekhn.nauk; TIKHONOV, V.A., dots.; SHPYNOVA, L.G.; MABITOVICH, I.D.

Electron microscopic testing of hydration hardening of unslaked lime. Stroi.mat. 5 no.3:33-35 Mr '59. (MIRA 12:5)
(Lime--Testing)

15(6)

AUTHORS: Andriyevskiy, A. I., Gabitovich, I. D., SOV/20-124-2-22/71
Kripyakevich, P. I.

TITLE: On the Structure of Selenium in Thin Layers
(O strukture selena v tonkikh sloyakh)

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 124, Nr 2, pp 321-325
(USSR)

ABSTRACT: The authors produced the samples for their investigations by sublimation of chemically pure vitreous or of red amorphous selenium in vacuum ($\sim 10^{-4}$ mm): 1) On zapon varnish films which were mounted on wire loops. The base was then dissolved in acetone and the selenium film was fished out by means of a copper net. 2) On zapon varnish films which were mounted on a specimen holder made of copper wire netting. The selenium film was then coated on the top with a second dense zapon varnish film. Sublimation was in both cases carried out at room temperature and the evaporation of vitreous or red amorphous selenium under these conditions led to the production of red amorphous selenium. A film thickness of 600 - 800 Å is best suited for determining a normal diffraction picture. During the

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thermal treatment of the first samples (without bases) the following results were obtained: If the samples are exposed to a temperature of 25° for 5 hours, the electronogram of such samples consists of 4 aureoles, which are lacking in the case of an electronographic investigation of freshly prepared samples. Gradual heating to 30° increases the aureoles somewhat, and weak lines form on them. At 35-40° the electronogram of a polycrystal already became noticeable, which is characteristic of the α-monoclinic modification of selenium. An increase of temperature up to 55-60° leads to recrystallization, and at ~65° β-monoclinic selenium was observed. A further increase of temperature up to 150-160° leads to a gradual recrystallization, and if the samples are kept for some time at a temperature of 160°, a new hitherto not observed modification of the selenium occurs. The new structure of selenium belongs to the cubic syngony with face-centered cubic lattice. This structure is here described as β-cubic (see the 15 photographs in figure 1). The thermal treatment of the selenium layers enclosed between zapon varnish films was carried out immediately in the electron microscope at a pressure of 10^{-5} torr. After such a local thermal treatment not only

On the Structure of Selenium in Thin Layers SOV/20-124-2-32/71

various electrono grams of hexagonal selenium were obtained in addition to the aforementioned results, but also a hitherto not observed modification of selenium could be discovered. This new modification is here described as α-cubic. The intensities observed agree well with those which were calculated for a structure with one atom per elementary cell. Also this structure is, like the other crystalline modifications of selenium, stable at room temperature and normal pressure. Both modifications have structures which are not usual with selenium. Nevertheless, the structure of the α-modification can by all means be described as probable. The considerable increase of the atomic radius (1.485 Å) of selenium in cubic α-modification as compares to the covalent radius (1.16 Å) can be explained by variation of the character of coordination. There are 2 figures, 1 table, and 11 references, 10 of which are Soviet.

ASSOCIATION: L'vovskiy politekhnicheskiy institut (L'vov Polytechnic Institute)

PRESENTED: September 9, 1958, by N. V. Belov, Academician

SUBMITTED: August 25, 1958

Card 3/3

Andriyevskiy, A.I.

81952
S/181/60/002/04/11/034
B002/B063

24.7500

AUTHORS: Andriyevskiy, A. I., Sandulova, A. V., Yurkevich, M. I.

TITLE: Diffusion of Silver Into Cuprous Oxide

PERIODICAL: Fizika tverdogo tela, 1960, Vol. 2, No. 4, pp. 624-628

TEXT: Cuprous oxide was prepared from purified copper and atmospheric oxygen at 1,030°C. The crystal surfaces were etched, and a thin layer of radioactive Ag^{110} was electrolytically applied to them. The diffusion of silver into cuprous oxide between 800°C and 1,050°C was examined in nitrogen atmosphere or in vacuo. After quenching of the cuprous oxide, thin layers were taken from the crystal, and their gamma activity was measured. From this the authors determined the silver content by means of a calibration curve (Fig. 1). The following temperature dependence was found for the coefficient of silver diffusion into single crystals of cuprous oxide (Fig. 2): $D_{Cu_2O(single)} = 0.6 \cdot 10^{-2} \exp\left[-\frac{27630}{RT}\right]$ cm²/sec. Two regions are distinguished for diffusion into polycrystalline material: Up to 850°C, the

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pre-exponential factor equals $0.24 \cdot 10^{-4} cm^2/sec$, and above this point it equals $0.56 \cdot 10^{-2} cm^2/sec$ (Fig. 3):

$$D_{Cu_2O(poly)} = 0.56 \cdot 10^{-2} \exp\left[-\frac{28270}{RT}\right] + 0.24 \cdot 10^{-4} \exp\left[-\frac{14080}{RT}\right] cm^2/sec.$$

The diffusion of silver into single crystals and polycrystalline material above 850°C takes place via the free copper sites of the lattice. The diffusion into polycrystalline material below 850°C takes place via intercrystalline layers. Further, the authors studied the diffusion of silver during the oxidation of copper.(Fig. 4). There are 4 figures, 1 table, and 7 references: 4 Soviet, 2 British, and 1 German.

ASSOCIATION: L'vovskiy politekhnicheskiy institut (L'vov Polytechnic Institute)

SUBMITTED: March 27, 1959

Card 2/2

ANDRIYEVSKIY, A. I.; NABITOVICH, I.D.

Structural transformations of tungsten in thin films. Fiz. tver. tela 2 no.5:982-986 My '60. (MIRA 13:10)

1. L'vovskiy politekhnicheskiy institut.
(Tungsten)

Andriyevskiy, A.I.

24.7000

S/070/60/005/03/003/008
E132/E360

AUTHORS: Andriyevskiy, A.I., Nabitovich, I.D. and Voloshchuk, Ya.V.

82267

TITLE: An Electron-diffraction Study of Thin Films of Amorphous Selenium

PERIODICAL: Kristallografiya, 1960, Vol. 5, No. 3, pp 369-374

TEXT: Selenium, both in thin films and in bulk, may be amorphous or may occur as one of two monoclinic, two cubic and one hexagonal modifications. X-ray measurements of the amorphous material have given a radial density distribution showing the radii of the first four coordination spheres. Layers of amorphous Se about 1 000 Å thick have been here studied electronographically, the radial density distribution function being obtained at 20, 40-50, 60-70 and at -180 °C. It is found that amorphous selenium has two forms each with the maximum possible coordination number. The first exists at about 20 °C and the second at about 70 °C. Within this range one form changes over to the other, by-passing the crystalline phase. The transition proceeds by the gradual breaking up of the structural units of the first form (ring molecules) and the formation of the chains of the second form. There is no orientational

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82267 S/070/60/005/03/003/008
E132/E360

An Electron-diffraction Study of Thin Films of Amorphous Selenium

relationship between the two forms. The maximum degree of disorder must occur when equal quantities of the two different kinds of units coexist at about 30-40 °C as electronograms taken in this region show a maximum in the incoherent scattering intensity. The coordination number is here smaller than the maximum. If some crystalline selenium is formed, as some workers report, then the number of peaks in the radial distribution curve will be increased. When the second amorphous phase predominates then the number of peaks in the radial distribution curve decreases but the coordination number increases. The degree of ordering in both forms depends on temperature, as was found also for As_2Se_3. The maximum degree of ordering was limited by the onset of crystallisation or by the transition to the other amorphous phase. The electronographic results obtained agree with the X-ray measurements of Richter and Steeb (Naturwiss. Vol 45, 461, 1958) for radii greater and less than 5 Å. Acknowledgments to L.I. Tatarinova.

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82267 S/070/60/005/03/003/008
E132/E360

An Electron-diffraction Study of Thin Films of Amorphous Selenium

There are 4 figures, 1 table and 21 references: 2 international, 1 English, 5 German and 13 Soviet.

ASSOCIATION: L'vovskiy politekhnicheskiy institut (L'vov Polytechnical Institute)

SUBMITTED: December 19, 1959

Card 3/3