ZHITKEVICH, V.F.; LYUTYY, A.I.; ROSSIKHIN, V.S.; TSIKORA, I.L.
Prinimal uchastiye BUGRIM, Ye.D.

Anomalous excitation of metals in the flames and vapors of certain organic compounds. Opt. i spektr. 15 no.3:405-412 S '63.
(MIRA 16:10)

L 9190-66 EWT(l)/EWT(m)/EPF(n)-2/EWP(b)/EWP(t) IJP(c) JD/JG/WW

ACC NR: AR6000115 SOURCE CODE: UR/0058/65/000/008/D032/D032

SOURCE: Ref. zh. Fizika, Abs. 8D261

AUTHORS: Zhitkevich, V. F.; Lyutyy, A. I.; Rossikhin, V. S.; Tsikora, I. L.

ORG: none

TITLE: Excitation of metals in the vapors of some organic compounds

CITED SOURCE: Tr. Komis. po spektroskopii. AN SSSR, M., t. 2, vyp. 1, 1964, 240-246

TOPIC TAGS: metal property, optic spectrum, light excitation, flame, chemiluminescence

TRANSLATION: The authors investigated the glow spectra observed upon coalescence of jets of metal vapors (Bi, Ca, Cd, Mg, Na, Pb, Tl, and Zn) with a mixture of some carbon-containing substances with air at atmospheric pressure at 1000K. Atomic lines with excitation energy up to 7.78 ev and bands of several molecules were observed in the glow spectra. Comparison of the spectra of the reaction zone of a hydrocarbon flame, in which salts of the above-mentioned metals were introduced, with the investigated glow has shown that the latter has a purely chemiluminescent nature and is characterized by high population of the upper energy levels of the atoms. It is established that carbon and oxygen are indispensible participants in the formation of the glow zone.

SUB CODE: 20

Card 1/1 nds

L 31511-66 EWT(m)/EWP(j)/EWP(t)/ETI IJP(c) JD/WW/JG/RM
ACC NR: AP6013019 SOURCE CODE: UR/0051/66/020/004/0568/0575

AUTHOR: Bugrim, Ye. D.; Lyutyy, A. I.; Rossikhin, V. S.; Tsikora, I. L. 66 B

ORG: none

TITLE: Singularities in the excitation of the Swann bands of C_2 in vapor jets of metals and organic compounds

SOURCE: Optika i spektroskopiya, v. 20, no. 4, 1966, 568-575

TOPIC TAGS: carbon, band spectrum, chemiluminescence, vapor state, emission spectrum, excited electron state, relaxation process

ABSTRACT: This is a continuation of earlier work (Opt. i spektr. v. 15, 406, 1963) where it was observed that the spectra of glowing metal vapor show a clearly pronounced chemiluminescence character in the presence of the vapor of carbon-containing compounds (CCl_4, $CHCl_3$, CHI_3), and the observation of the Swann band system of C_2. The purpose of the present investigation was to study in greater detail the spectrum of the C_2 molecule excited upon coalescence of vapors of several metals and CCl_4. The apparatus used for the vapor production was described in the earlier paper. The emission spectrum of the C_2 molecule was obtained by means of a photoelectric setup based on a monochromator and photomultiplier. To

Card 1/2 UDC: 535.338.33 + 539.196.2

L 31511-66
ACC NR: AP6013019

study the singularities of the C_2 spectrum, the zone of the reaction of Li vapor and CCl_4 was used, and it was found that the main features of the C_2 spectrum in the metal-vapor reaction zone was an anomalous distribution of the intensities among the edges of the Swann system bands. The results have shown that variation of the temperature leads to a change in the population of the vibrational levels of the $d^3\Pi_g$ electron state, and the character of the population of these levels was established for excitation of the C_2 molecule in reactions of Li, K, Na, Cs, and Mg with CCl_4. An analysis of the relative intensities of the spectra and of the relative populations of the first vibrational levels in the $d^3\Pi_g$ state indicates that the experimental results can be reconciled with the theory of vibrational relaxation in the excited electron states. Orig. art. has: 4 figures, 3 formulas, and 3 tables.

SUB CODE: 20/ SUBM DATE: 22Dec64/ ORIG REF: 008/ OTH REF: 007

Card 2/2 mc

L 46134-66 EWT(1)/EEC(k)-2/T/EWP(k) LJP(c) WG/RTW/AT

ACC NR: AP6025950 SOURCE CODE: UR/0051/66/021/001/0027/0032

AUTHOR: Bugrim, Ye. D.; Lyutyy, A. I.; Rossikhin, V. S.

ORG: none

TITLE: Oscillatory relaxation of diatomic molecules in the excited electron state

SOURCE: Optika i spektroskopiya, v. 21, no. 1, 1966, 27-32

TOPIC TAGS: excited electron state, diatomic molecule, molecular property, molecular structure, molecular spectrum, excitation energy, excitation spectrum, quantum oscillation, shock wave oscillation

ABSTRACT: The process of oscillatory relaxation in diatomic molecules in an excited state is considered when these molecules constitute an impurity in a carrier gas. The expressions for the determination of energy exchange efficiency are derived based on the observed values of the population of the unstable levels. A diatomic molecule may be considered to be an oscillator. If diatomic molecules are contained as a small admixture in a carrier gas, the oscillatory relaxation takes place under isothermic conditions. This phenomenon can be described by the differential equation

$$\frac{dX_{v'}(t)}{dt} = K\{v'e^{-\theta}X_{v'-1} - [v' + (v'+1)e^{-\theta}]X_{v'} + (v'+1)X_{v'+1}\} - A^{*}X_{v'}, \qquad (1)$$

$$v' = 0, 1, 2 \ldots,$$

UDC: 539.196.3

Card 1/3

where $X_{v'}(t)$ is the share of the oscillators at the unstable level having the quantum number v'; $\theta = h\nu/kT$; ν is the oscillation frequency; T is the gas temperature; K is a constant determined by the properties of the carrier gas, its temperature T, and the efficiency of the interactions between the oscillating molecules and the carrier gas particles; A^* is the sum of absolute probabilities of all electron transitions from the given level. The solution of equation (1) is given by

$$X_{v'}(t) = \frac{1}{v'!}\frac{\partial^{v'} G(z, t)}{\partial z^{v'}}\Big|_{z=0} e^{-A^* t}, \qquad (2)$$

where $$G(z, t) = \frac{1 - e^{\theta}}{(z - e^{\theta}) - (z - 1)e^{-\tau}} G_0\left\{\frac{(z-1)e^{-\tau}e^{\theta} - (z - e^{\theta})}{(z-1)e^{-\tau} - (z - e^{\theta})}\right\},$$

$$\tau = Kt(1 - e^{-\theta}),$$

and G_0 is an arbitrary function determined from the initial conditions. Expression (2) represents the process of oscillatory relaxation of a system of harmonic oscillators in an excited state of electrons. If, following the act of molecule generation at a certain unstable level of excitation, a process of oscillatory relaxation takes place and is accompanied by the emission of electron-oscillatory bands, the change of the unstable level population with respect to time may be inferred from the intensity

I 46134-66
ACC NR: AP6025950

of the corresponding emissions, measured at different times after the initial reaction. The authors illustrate their findings by considering the oscillatory relaxation following the generation of a diatomic molecule on the *m*-th electron excitation level. Orig. art. has: 1 figure, 16 formulas.

SUB CODE: 20/ SUBM DATE: 22Dec64/ ORIG REF: 004/ OTH REF: 007

Card 3/3

L 06189-67 EWT(l)/EWT(m)/EEC(k)-2/EWP(t)/ETI/EWP(k)/EWP(l) IJP(c) WG/RTW/JD

ACC NR: AP6027735 SOURCE CODE: UR/0020/66/169/004/0858/0860

AUTHOR: Bugrim. Ye. D.; Lyutyy, A. I.; Rossikhin, V. S.; Tsikora, I. L.

ORG: Dnepropetrovsk State University (Dnepropetrovskiy gosudarstvennyy universitet)

TITLE: Vibrational relaxation of the C_2 molecule in the excited electronic state

SOURCE: AN SSSR. Doklady, v. 169, no. 4, 1966, 858-860

TOPIC TAGS: gas discharge spectroscopy, CC radical, Swan band, carbon, excited electron state, vibration relaxation, diatomic molecule

ABSTRACT: A spectroscopic investigation was carried out of the effect of various gases on the emission of Swan bands of C_2 excited in an electrical discharge. A condensed discharge was passed through a tube (described) filled with the gas of interest at a reduced pressure. A clearly visible afterglow was observed along the discharge path, whose spectrum consisting of Swan bands of C_2 was investigated. The gases used were CO(pressure range, 10—45 mm Hg), 0.5% CO + 99.5% He (10—750 mm Hg), and 0.5% CO + 99.5% Ar (10—150 mm Hg). The results are reported and interpreted in terms of the theory of vibrational relaxation of diatomic molecules in the excited electronic state. Orig. art. has: 1 figure and 1 table. [W.A. 68] [SM]

SUB CODE: 20/ SUBM DATE: 06Oct65/ ORIG REF: 007/ OTH REF: 006

Card 1/1 af UDC: 535.337

TIKHENKO, L.G., gornyy inzh.; STEL'MAKH, N.N., gornyy tekhnik; GUMENOK, G. Ye., gornyy tekhnik; VOLOSHIN, A.M., gornyy inzh.; BEREZOVSKIY, A.P., gornyy inzh.; LYUTYY A.L., gornyy inzh.; BUGAY, V.A., gornyy tekhnik-marksheyder

"Improving underground work" by IA. D. Grossman and E. M. Kozakov. Reviewed by L. G. Tikhenko and others. Gor. zhur. no.3:3-7 Mr '61. (MIRA 14:3)

1. Rudoupravleniye im. Rozy Lyuksemburg, Krivoy Rog (for Tikhenko, Stel'makh, Gumenok). 2. Shakhta "Kommunar-Probeda", Krivoy Rog (for Voloshin, Berezovskiy, Lyutyy). 3. Shakhta "Novaya" rudoupravleniya im. Rozy Lyuksemburg (for Bugay).
(Mining industry and finance)
(Grossman, IA. D.) (Kozakov, E. M.)

3444
S/185/61/006/006/023/030
D299/D304

11.5100

AUTHORS: Lyutyy, A.I., Nesterko, N.A., Rossykhin, V.S., and Tsykora, I.L.

TITLE: Cases of deviation from the thermodynamic equilibrium in the outer cone of a flame

PERIODICAL: Ukrayins'kyy fizychnyy zhurnal, v. 6, no. 6, 1961 851 - 852

TEXT: On adding various substances to a flame, the authors observed effects related to the absence of thermodynamic equilibrium. Thus, on introducing vapors of metallic magnesium directly into the outer cone of an acetylene-air flame and in a hydrogen-air flame, a small zone appeared (visible with the naked eye) at the spot where the metal vapor met the outer cone of the flame. The spectrum of the zone differs greatly from the spectrum of the rest of the cone. The zone spectrum has a band, contributed by the MgH molecule, as well as a line of the Mg atom. If Cs vapor is also introduced into the zone, the Cs lines λ = 4555 and 4593 Å, become much stronger. Spectral investigations by T.M. Sugden and E.M. Bulewicz (Ref. X

Card 1/3

Cases of deviation from the ...

1; Trans. Farad. Soc., 55, No. 5, 720, 1959) showed that the MgH band does not appear in the spectrum of the outer cone if powdered Mg is introduced. In the experiments conducted by the authors, the conditions for the formation of MgH were more favorable (a large number of atoms, comparatively low temperatures -- of the order of 1000°K). Under these conditions, MgH molecules could be formed by 3 different reactions. An analysis of these reactions shows the absence of thermodynamic equilibrium in the observed zone. If CCl_4 vapor is introduced into the flame together with the air current, then a decrease in the intensity of the lines of the Ca, Sr, Li, Ba, Na, K, Rb and Cs-atoms, is observed. A table shows the values of the electrical conductivity of the flame before and after the introduction of CCl_4; on introducing CCl_4, the electrical conductivity behaves in a different way -- for some elements it increases, where as for others it increases (or remains unchanged). In the case of Sr, the decrease in electrical conductivity is accompanied by a decrease in the intensity of the ionic Sr-line, whereas an increase in the intensity of the ionic Ba-line is accompanied by a slight increase in conductivity. Hence the presence of CCl_4 in the flame

Card 2/3

Cases of deviation from the ...

not only disturbs the dissociation equilibrium, but may also lead to deviations from the ionization equilibrium. There are 1 figure, 1 table and 2 non-Soviet-bloc references;(including 1 translation) The reference to the English-language publication reads as follows: E.M. Bulewicz, T.M. Sugden, Trans. Farad. Soc., 55, no. 5, 720, 1959.

ASSOCIATION: Dnipropetrovs'kyy derzhavnyy universytet im. 300-richchya vozz'yednannya Ukrayiny z Rosiyeyu (Dnipropetrovs'k State University im. 300-th Anniversary of the Ukraine's Union with Russia)

Card 3/3

X

BUGRIM, Ye.D.; LYUTYY, A.I.; ROSSIKHIN, V.S.

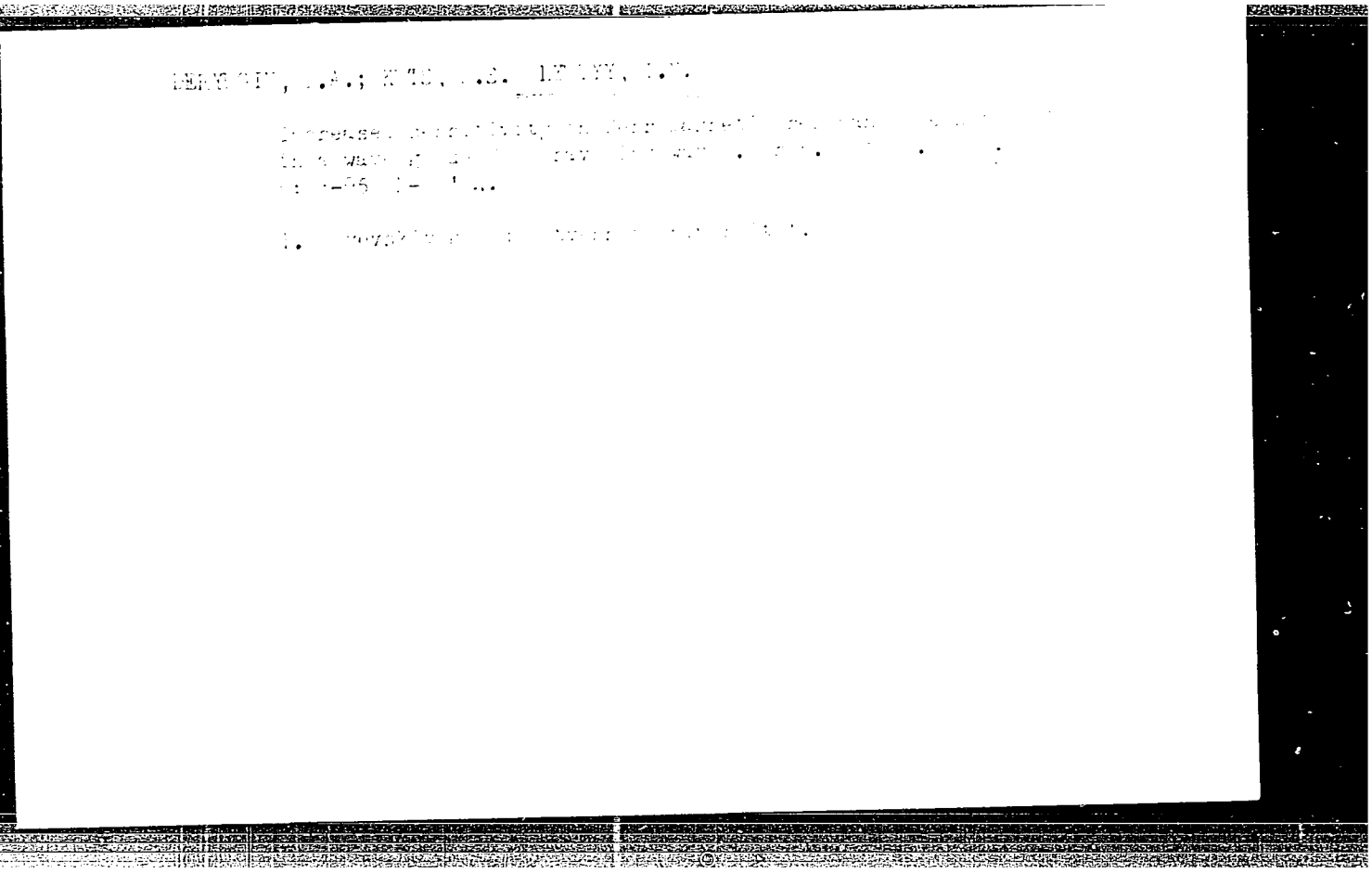
Appearance of the green spectral bands of the MgH molecule in a flame. Opt. i spektr. 10 no.6:804-806 Je '61. (MIRA 14:8)
(Magnesium hydride--Spectra)

LYUTYY, A.S. [Liutyi, A.S.]

Innervation of the periorbital and orbital periosteum of domestic animals. Dop. AN URSR no.6:801-804 '65.

(MIRA 18:7)

1. Belotserkovskiy sel'skokhozyaystvennyy institut.



LYUTYY, I.P.; SAPOZHNIKOV, M.B., redaktor; GLOTOVA, M.I., tekhnicheskiy redaktor.

[At a leading mine] Na peredovoi shakhte. Rostov-na-Donu, Rostovskoe kn-vo, 1953. 33p. (Microfilm) (MLRA 9:5)
(Shakhty--Coal mines and mining)

L 51296-65 EEC-4/EPA(s)-2/EEC(k)-2/EWT(d)/EWT(l) Pg-4/Pk-4/Pl-4/Po-4/
Pq-4/Pt-7 IJP(c) GG

ACCESSION NR: AP5016414 UR/0120/64/000/006/0093/0095

AUTHOR: Deryugin, I. A.; Kuts, P. S.; Lyutyy, I. M.

TITLE: Increasing the sensitivity of ferromagnetic resonance measurements in a traveling-wave waveguide

SOURCE: Pribory i tekhnika eksperimenta, no.6, 1964, 93-95

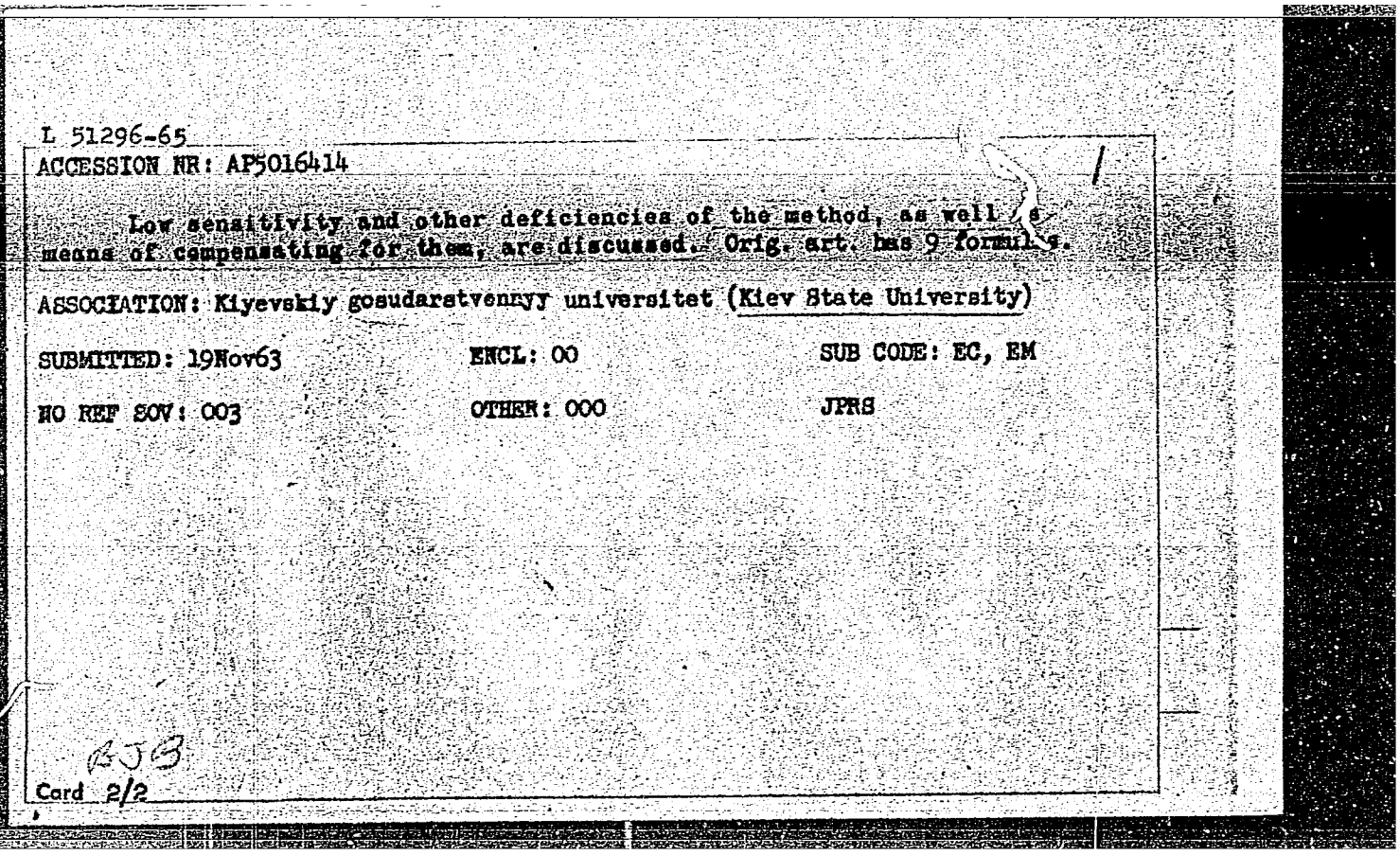
TOPIC TAGS: ferromagnetic material, ferromagnetic resonance, waveguide

Abstract: The relation is examined between the bandwidth of ferromagnetic resonance of ferrites and the distance between the extrema of the first derivative of the absorption curve. It was certified experimentally that when recording the first derivative the sensitivity increases by not less than two orders.

The method used for measurement involves a small ferromagnetic sphere placed at the point of spherical polarization of a high-frequency magnetic field in the waveguide.

The broadness of the band, simplicity of computations, and relatively low dependence of the method on the shape and surface condition of the sample distinguishes the waveguide method over the resonator method.

Card 1/2



L 51296-65

ACCESSION NR: AP5016414

Low sensitivity and other deficiencies of the method, as well as means of compensating for them, are discussed. Orig. art. has 9 formulas.

ASSOCIATION: Kiyevskiy gosudarstvennyy universitet (Kiev State University)

SUBMITTED: 19Nov63 ENCL: 00 SUB CODE: EC, EM

NO REF SOV: 003 OTHER: 000 JPRS

Card 2/2

DOMASHENKO, I.; LYUTYY, P. [Liutyi, P.]

We are introducing mesh-reinforced concrete into rural construction. Sil'. bud. 11 no.5:4-6 My '61. (MIRA 14:6)

1. Nachal'nik Gulyay-Pil'skoy mezhkolkhoznoy stroitel'noy organizatsii Zaporozhskoy oblasti (for Domashenko).
2. Glavnyy inzh. Gulyay-Pil'skogo mezhkolkhozstroya (for Lyutyy).

(Ukraine--Reinforced concrete)
(Feeding--Equipment and supplies)

BODNYA, V.; LYUTYY, P. [Liutyi, P.]

A brickyard with tunnel driers. Sil'.bud. 12 no.6:14-15 Je '62. (MIRA 15:8)

1. Predsedatel' Gulyaypol'skogo mezhkolkhozstroya Zaporozhskoy oblasti (for Bodnya). 2. Glavnyy inzh. Gulyaypol'skogo mezhkolkhozstroya Zaporozhskoy oblasti (for Lyutyy).
(Gulyaypole District—Brickmaking)

AID P - 3354

Subject : USSR/Electricity

Card 1/1 Pub. 29 - 12/27

Author : Lyutyy, S. G., Electrician

Title : Automatic discharger of a compressor

Periodical : Energetik, 9, 23-24, S 1955

Abstract : The author describes the compressors produced by the VEM plant which feed air circuit breakers of a substation. The author designed an automatic discharger of the compressor which he describes. One drawing.

Institution : None

Submitted : No date

L 48999-65 EPA(s)-2/EWT(m)/EWA(c)/EWP(v)/T/EWP(t)/EWP(k)/EWP(z)/EWP(b)/
EWA(c) Pf-4 IJP(c) MJW/JD/WW/JG
ACCESSION NR: AP5006973 S/0128/65/000/002/0009/0010

AUTHOR: Rostovtsev, L. I. (Engineer); Vashchenko, K. I.; Lyutyy, V.A.; (Engineer) Martynov, L. P.; Yanover, Ya. D. (Engineers)

TITLE: High chromium steel for heat-resistant castings

SOURCE: Liteynoye proizvodstvo, no. 2, 1965, 9-10

TOPIC TAGS: steel casting, heat resistant casting, heat resistant steel, high chromium steel, steel mechanical property, steel weldability, casting strength/ Kh21L sub ce steel, Kh24N12SL steel, Kh18N19TL steel

ABSTRACT: The authors describe the positive effect of additions (in unspecified proportions) of high-carbon scrap steel, low-carbon scrap ferrochromium, ferrosilicon, ferromanganese, scrap metal mixture and ferrotitanium on the impact toughness, structural coarseness, and casting and welding behavior of Kh21L ce (0.10-0.41% C, 19.5-22.1% Cr, 0.88-2.33 Si, 0.4-0.7% Mn and 0.1-0.5% Ce), Kh24N12SL (0.11-0.20% C, 11.3-14.1% Ni, 23.0-28.0% Cr, 0.75-3.00% Si and 0.2-0.35% Mn) and Kh18N19TL (0.28% C, 9.0% Ni, 16.6% Cr, 1.7% Si and 0.29% Mn) steels. The following properties of castings prepared in the laboratory and in the foundry were investigated: crack resistance, fluidity, heat-resistance

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L 48999-65

ACCESSION NR: AP5006973

(weight loss of 0.14-7.58 g/m^3·hr. in an intermittent treatment at 1000C for 100 hrs.), elongation (0.10.8%) and tensile (26.3-61.9 kg/mm^2) strength, welding properties, impact toughness (0.2-0.4 kg-m/cm^2), and machining behavior. The economic advantages of the industrial use of these quality steels in place of high-nickel steels are noted. "Welding properties were tested in the Institute svarki AN UkrSSR (Welding Institute, AN UkrSSR). The remainder of the work was carried out in the Bazovaya liteynaya laboratoriya Kiyevskogo politekhnicheskogo instituta (Base Casting Laboratory, Kiev Polytechnic Institute) and the "Leninskaya kuznitsa" zavod ("Leninskaya kuznitsa" Plant)." Orig. art. has: 2 tables.

ASSOCIATION: None

SUBMITTED: 00 ENCL: 00 SUB CODE: MM

NO REF SOV: 003 OTHER: 000

Card 2/2

AUTHORS: Dolgov, B. N., Andreyev, D. N., Lyutyy, V. P. 2o-3-23/59

TITLE: The Effect of the R-Value of Alkyl Radicals on the Si-R Bond Stability Against the Action of Concentrated Sulfuric Acid (Vliyaniye velichiny alkil'nykh radikalov R na ustoychivost' svyazi Si-R k deystviyu kontsentrirovannoy sernoy kisloty).

PERIODICAL: Doklady AN SSSR, 1958, Vol. 118, Nr 3, pp. 5o1-5o4 (USSR)

ABSTRACT: From the results of references 1-6 the authors draw the conclusion that the stability of the ≡Si—C≡ bond to concentrated sulfuric acid must depend on the quantity (number of carbon atoms) and the structure of the radicals combined with this carbon atom. In order to check this assumption the authors synthesized 3 new monobasic β-silicium-organic acids (VII, VIII and IX) with a common formula $CH_3(R)_2SiCH_2CH_2COOH$ (where R = = n-C_3H_7, n-C_4H_9 and i-C_5H_{11}). Their reaction to concentrated sulfuric acid under standard conditions was studied. Three 2-basic silicium organic acids were produced: 4,4,6,6-tetra-n--propyl-4,6-disila-5-oxanonan-dicarboxylic acid (X), 4,6-dimethyl-4,6-di-n-butyl-4-6-disila-5-oxanonan-dicarboxylic acid (XI) and 4,6-dimethyl-4,6-di-isoamyl-4,6-disila-5-oxanonan-dicarboxylic acid (XII). The structure of these acids points at

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The Effect of the R-Value of Alkyl Radicals on the Si-R Bond Stability Against the Action of Concentrated Sulfuric Acid. 20-3-23/59

the breaking of the Si-C bond in the initial acids VII, VIII and IX, which, however, took place with different radicals. In acid VII it took place with the $\equiv Si-CH_3$ bond, while in the two other cases the bonds $\equiv Si-C_4H_9$ and $\equiv Si-C_5H_{11}$ were broken. These results prove the assumption that in the β-silicium organic acids containing the $(CH_3)R_2Si$ group the consecutive order of the breaking of the bonds $Si-CH_3$ and Si-R under the action of concentrated H_2SO_4 is determined by the size of the hydrocarbon radical R. Thus the radicals investigated can be arranged according to their resistivity against H_2SO_4:

$$C_2H_5, \quad n\text{-}C_3H_7 \rangle CH_3 \rangle n\text{-}C_4H_9, \quad i\text{-}C_5H_{11}.$$

The constants of the compounds produced are mentioned in table 1. An experimental part with the usual data follows. There are 1 table and 11 references, 6 of which are Slavic.

ASSOCIATION: Institute for Silicate Chemistry AN USSR (Institut khimii silikatov Akademii nauk SSSR)

PRESENTED: August 5, 1957, by A. V. Topchiyev, Academician
SUBMITTED: August 5, 1957
AVAILABLE: Library of Congress

Card 2/2

S/080/60/033/04/22/045

AUTHORS: Razumovskiy, S.D., Bartnitskiy, I.N., Lyutyy, V.P., Kirillova, L.P.

TITLE: The Hydrolysis of Ethylsulfates

PERIODICAL: Zhurnal prikladnoy khimii, 1960, Vol 33, Nr 4, pp 877 - 884

TEXT: The production of synthetic ethyl alcohol by the method of sulfuric acid absorption of ethylene passes through a stage of ethylsulfate formation. This is then subjected to hydrolysis. The hydrolysis rate is investigated here in relation to the temperature and dilution and with regard to studying the effect of these factors on the yields of alcohol and ether. It has been shown that the hydrolysis rate increases with the temperature. An extract obtained by the Orskiy zavod sinteticheskogo spirta (Orsk Plant of Synthetic Alcohol) with a specific gravity of 1.33 - 1.35 and a content of sulfuric acid of 70% and a saturation of 1.1 mole of ethylene per 1 mole of H_2SO_4 was hydrolyzed. Under industrial conditions it is expedient to carry out hydrolysis at a temperature of 100°C. Diethylsulfate is hydrolyzed considerably more quickly than monoethylsulfate; the hydrolysis rate of the extract in the whole is limited by the rate of monoethyl disappearance. Within the range of 70 - 100°C the yields of alcohol and ether do not change noticeably with the temperature; beyond 110°C the thermal decomposition of

Card 1/2

The Hydrolysis of Ethylsulfates

S/080/60/033/04/22/045

ethylsulfates starts with the liberation of C_2H_4 and SO_2 and the alcohol yield decreases. The maximum yeild of alcohol is obtained in case of the ratio extract : water = 1:1.33 based on weight. In the case of the change of this ratio the yields of alcohol decrease. The hydrolysis of the extract by water steam even after preliminary partial dolution with water produces no positive results: the yield is low. Ether is formed in the hydrolysis of the extract at the expense of diethylsulfate. The optimum conditions for hydrolysis of the extract in the industry are: a temperature of 100°C and a dilution with water in the ratio 1:1.1 based on weight.
There are: 3 graphs, 3 tables and 7 references, 4 of which are Soviet, 2 American and 1 German.

SUBMITTED: April 18, 1959

Card 2/2

DOMASHENKO, I.; LYUTYY, P. [Liutyi, P.]

New developments in the organization of rural construction.
Sil'. bud. 11 no.9:10-11 S '61. (MIRA 14:11)

1. Rukovoditel' soveta Gulyay-Pole mezhkolkhoznoy stroitel'skoy organizatsii Zaporozhskoy oblasti (for Domashenko).
(Zaporozh'ye Province--Construction industry)
(Zaporozh'ye Province--Farm building)

25369

S/079/61/031/008/007/009
D215/D304

53700

AUTHORS: Andreyev, D.N., and Lyutyy, V.P.

TITLE: Synthesis and properties of silicon organic complex esters

PERIODICAL: Zhurnal obshchey khimii, v. 31, no. 8, 1961, 2726-2729

TEXT: The authors undertook this experimental work on the supposition that these complex silicon compounds could be as useful as similar normal organic ones. They obtained nine new esters from alkali salts of higher aliphatic and aromatic acids and halogen derivatives of alkyl--silanes, and siloxanes by heating the components in dimethylformamide, according to the following schemes

$$2RCOOK + ClCH_2Si(CH_3)_2O(CH_3)_2SiCH_2Cl \rightarrow$$
$$\rightarrow RCOOCH_2Si(CH_3)_2O(CH_3)_2SiCH_2OCOR + 2KCl$$

$$2(CH_3)_3SiCH_2Cl + KOCOR'COOK \rightarrow$$
$$\rightarrow (CH_3)_3SiCH_2OCOR'COOCH_2Si(CH_3)_3 + 2KCl$$

The constants of obtained diesters are given in the Table.

(see next card)

Card 1/4

(1) Константы полученных диэфиров представлены в таблице.

(2) № п.п.	(3) Формула	Температура кипения (давление в мм)	Температура застывания или плавления	n_D^{20}	d_4^{20}	(4) MR_D найдено	MR_D вычислено
(I)	$[CH_3CH_2COOCH_2Si(CH_3)_2]_2O$	143° (4)	ниже —29°	1.4255	0.9850	79.63	80.24
(II)	$[(CH_3)_2CHCOOCH_2Si(CH_3)_2]_2O$	142 (2)	Ниже —71	1.4250	0.9632	88.80	89.50
(III)	$[C_6H_5COOCH_2Si(CH_3)_2]_2O$	231 (2)	—45 (стекло)	1.5115	1.0905	110.67	110.20
(IV)	$[(CH_3)_3SiCH_2OOCCH_2]_2$	128 (1)	—23	1.4382	0.9548	79.90	80.49
(V)	$[(CH_3)_3SiCH_2OOCCH_2CH_2]_2$	175—176 (5)	—26	1.4419	0.9497	88.74	89.75
(VI)	$[(CH_3)_3SiCH_2OOC(CH_2)_3]_2CH_2$	218 (14)	—70 (стекло)	1.4446	0.9325	102.85	103.64
(VII)	$[(CH_3)_3SiCH_2OOC(CH_2)_4]_2$	201—202 (6)	—28	1.4443	0.9261	107.53	108.27
(VIII)	$[(CH_3)_3SiCH_2OOC]_2C_6H_4$-o	185 (7)	—	1.4973	1.0277	96.44	95.94
(IX)	$[(CH_3)_3SiCH_2OOC]_2C_6H_4$-p	—	115—116	—	—	—	—

Card 2/4 (For Legend of the Table see next card)

Synthesis and properties...

Legend of the Table:

(1) Constants of the obtained diesters.

(2) N N (3) Formula (4) b.p. (pressure in mm) (5) temp. of solidification or m.p. (6) n_D^{20} (7) d_4^{20}

(8) $\frac{MR_D}{\text{found/calculated.}}$

They observed that the reactivity of potassium salts of dibasic acids increased markedly with their molecular weight increase, in the series: succinic < adipic < azelaic. It was also observed that whilst determining solidification temperatures of the new esters, they often

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Synthesis and properties...

became overcooled, crystallizing afterwards spontaneously. For these esters (N I, IV, V and VII) approximate m.p. were evaluated from cooling curves. Diesters with even carbon numbers crystallize in a narrow temperature range: from -23 to -28° C. The azelaic acid ester sets at -70° C to a glassy substance; among diesters with soloxanic bond onyl NI crystallizes by cooling, N III solidifying to a glassy substance, and the di-isobutyrate (N II) stays liquid even at -70° C. There are 1 table and 10 references: 3 Soviet-bloc and 7 non-Soviet-bloc. The references to the English-language publications read as follows: - T.L. Speier, B.F. Daubert, R.R. Gregor, Y.Am.Chem. Soc. 71, 1474, (1949); R.L. Merker, T.E. Noll, Y. Org. Ch. 21, 1537, (1956); L.H. Sommer, W.D. English, G.R. Ansul, D.N. Vivona, S.Am. Chem. Soc. 77, 2485 (1955); L.H. Sommer, N.S. Marans, G.M. Godberg and others, S. Am. Chem. Soc. 73, 882, (1951).

ASSOCIATION: Institut khimii silikatov akademii nauk SSSR (Institute of Silicates, Academy of Sciences USSR)

SUBMITTED: August 5, 1960

Card 4/4

27067
S/080/61/034/003/007/017
A057/A129

15 7140

AUTHORS: Andreyev, D. N., Okhrimenko, I. S., Pinchuk, A. Ye., Lyutyy, V. P.

TITLE: Unsaturated organosilicon polyesters and the properties of lacquers on this base

PERIODICAL: Zhurnal prikladnoy khimii, v. 34. no. 3, 1961, 584 - 588

TEXT: Syntheses of two new polyfumarates, modified with siloxane links, viz., the diester bis(trimethylsilylmethyl)fumarate and the polyester poly(dimethylene-tetramethyldisiloxane)fumarate are described and preliminary results in investigations of their properties are given. Polymaleates and polyfumarates are widely used in the manufacture of lacquers, plastics etc. M. A. Bulatov and S. S. Spasskiy [Ref. 1: Vysokomol. soyed., 2, 5, 658 (1960)] demonstrated already that these esters, when modified with organosiloxanes, as for instance with dimethyldiethoxysilane, obtain high technical properties. Organosiloxane polymaleates and polyfumarates, derivatives of organosiloxane and glycols containing a siloxane link in the molecule, have not been synthesized. Thus the present authors started investigations in this field. To develop the synthesis of the polyester, the synthesis of the diester was carried out first according to the reaction $2(CH_3)_3SiCH_2Cl$ +

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Unsaturated organosilicon polyesters and the...

+ $KOOCCH{=}CHCOOK \rightarrow (CH_3)_3SiCH_2OOCCH{=}CHCOOCH_2Si(CH_3)_3$. In the procedure 0.16 mole of potassium fumarate was mixed with 0.08 mole of fumaric acid in 150 ml of dimethylformamide as solvent. The mixture was boiled, agitated during 30 minutes, dropwise 0.32 mole chloromethyltrimethylsilane was added, heated, agitated for 20 hrs more, while the boiling temperature rose from 124°C to 149°C. After cooling the precipitated potassium chloride was filtered off, the solvent was removed by vacuum distillation and the residue was treated with a soda solution and water-benzene mixture. Then the benzene was dried, evaporated and the fumarate was vacuum-distilled (151°-153°C, 8 torr). The yield was 54.8% of a product with n_D^{20} 1.4548, d_4^{20} 0.9835. In an analogous way the polyester was prepared. Potassium fumarate of 0.5 mole was mixed with 0.125 mole of fumaric acid in 300 ml of dimethylformamide and then bis(chloromethyl)tetramethyldisiloxane was added. Instead of benzene ether was used as solvent and after removal of the latter a highly viscous reddish-brown substance insoluble in water but soluble in most organic solvents, except petroleum ether and gasoline, was obtained. The average molecular weight was found to be 2,400 corresponding to a condensation degree of 9. The re-precipitated polyester was investigated by spectrophotometry on an ИКС-12 (IKS-12) apparatus. The obtained infrared absorption spectrum proved the presence of double bonds in the trans-

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Unsaturated organosilicon polyesters and the...

position (900 - 990 cm^{-1}, 1,320 cm^{-1}), siloxane bonds (1,020 - 1,091 cm^{-1}), $(CH_3)_2Si$ groups (800 - 814 cm^{-1}, and 1,259 cm^{-1}), ester groups characteristic for fumarates (1,140 - 1,180 cm^{-1}) and end-carboxylic groups (900 - 950 cm^{-1}). The obtained polyester is miscible with styrene within a range from 3.5 : 1 to 0.3 : 1, and transparent homogeneous solutions are obtained. Properties of four lacquers (see table) based on this polyester were investigated and it was observed that in comparison with maleic resins the double bonds in siloxane-modified fumaric resin show lower activity. Thus a lacquer based on this resin required heating to 200°C to "dry" within 30 minutes, i.e., to produce a three-dimensional structuration to 70% (Fig. 3). At 120°C the same degree of structuration requires 7 hrs (Fig. 2). The drying is the result of two independent processes: 1) a catalytic polymerization with an initiator (1% of cyclohexanone peroxide), and 2) an oxidative structuration produced by heating over 100°C. No initiator seems to be necessary for the latter process. Elasticity tests carried out by the NIILK method and hardness tests on a ГИПИ-4 (GIPI-4) machine showed that films obtained from these lacquers have high elasticity, but rather low hardness. Thus lacquer no. III showed after 70 minutes of drying at 200°C a 1 mm flexibility on a rod and a 0.195 hardness. There are 3 figures, 1 table, and 2 Soviet-bloc references.
SUBMITTED: July 9, 1960

Card 3/5

LYUTYY, V.P.; KHARITONOV, N.P.

Copolymerization of unsaturated organosilicon polyethers with vinyl monomers. Izv. AN SSSR. Ser. khim. no.11:2052-2054 N '63.

Synthesis and some properties of organosilicon polyethers with a siloxane bond in the main chain. Izv. AN SSSR. Ser. khim. no.11:2055-2056 N '63. (MIRA 17:1)

1. Institut khimii silikatov imeni I.V. Grebenshchikova, AN SSSR.

ANDREYEV, D.N.; LYUTYY, V.P.

Synthesis of phenyltrichlorosilane in silent discharge.
Zhur. prikl. khim. 36 no.9:2096 D '63. (MIRA 17:1)

L 23486-65 EPA(s)-2/EWT(m)/EPF(c)/EWP(v)/EPR/EPA(w)-2/EWP(j)/T Pc-4/Pab-10/Pr-4
ACCESSION NR: AP5002194 Ps-4/Pt-10 WW/ S/0080/64/037/012/2758/2761
RM

AUTHOR: Lyutyy, V. P.; Kharitonov, N. P.

B

TITLE: Binder based on polyorganosiloxane modified with organosilicon polyesters

SOURCE: Zhurnal prikladnoy khimii, v. 37, no. 12, 1964, 2758-2761

TOPIC TAGS: polyorganosiloxane binder, coating, modified polyorganosiloxane, organosilicon polyester modifier, modified polyorganosiloxane coating, physical property, electrical insulation

ABSTRACT: The properties of coatings based on polyorganosiloxanes modified with organosilicon polyesters obtained from the potassium salts of dibasic organic acids and sym-bis(chloromethyl)tetramethyldisoloxane were studied. Solutions of methyl-phenylated silane diols and triols in toluene were condensed at 120-150C to the polysiloxanes in the presence of 25 wt. % of the organosilicon polyesters derived from itaconic acid, from a 1.5:1 mixture of fumaric and terephthalic acids. These products were used as binders for preparing organosilicate materi-

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L 23486-65
ACCESSION NR: AP5002194

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als with mica-muscovite and chromium oxide as fillers. 15 All the compositions had high heat stability, withstood sharp temperature drops (no cracking or spalling after 15 cycles from -60 to 400C), had good resistance to oil and benzene but poor moisture resistance, and had good electrical insulating properties. "In conclusion the authors take the opportunity to thank V. A. Krotikov and I. P. Barinov for participation in the work." Orig. art. has: 3 figures, 1 table, and 1 formula

ASSOCIATION: None

SUBMITTED: 19Apr63 ENCL: 00 SUB CODE: OC

NR REF SOV: 005 OTHER: 006

Card 2/2

LYUTYY, V.P.; KHARITONOV, N.P.

Binder on a base of polyorganosiloxane modified with organosilicon polyesters. Zhur. prikl. khim. 37 no.12:2758-2761 D '64. (MIRA 18:3)

ANDROSOV, V.F.; GERASIMOVA, O.N.; LYUTYY, V.P.; KHARITONOV, N.P.

Use of organosilicon compounds in the chemical treatment of woolen and cotton engineering cloth. Izv. vys. uchen. zav.; tekh. tekst. prom. no.6:86-91 '65. (MIRA 19:1

1. Leningradskiy institut sherstyanoy i lenyanoy promyshlennosti imeni S.M. Kirova i Institut khimii silikatov imeni I.V. Grebenshchikova AN SSSR. Submitted January .., 1965.

L 54960-65 EWT(m)/EPF(c)/EWP(v)/EPR/EWP(j)/T Pc-4/Pr-4/Ps-4 WW/RM
ACCESSION NR: AP5014163 UR/0080/65/038/005/1131/1133
547.245+541.6

AUTHOR: Lyuityy, V. P.; Kharitonov, N. P.; Shtremt, L. P.

TITLE: Transparent plastics with a new organosilicon binder

SOURCE: Zhurnal prikladnoy khimii, v. 38, no. 5, 1965, 1131-1133

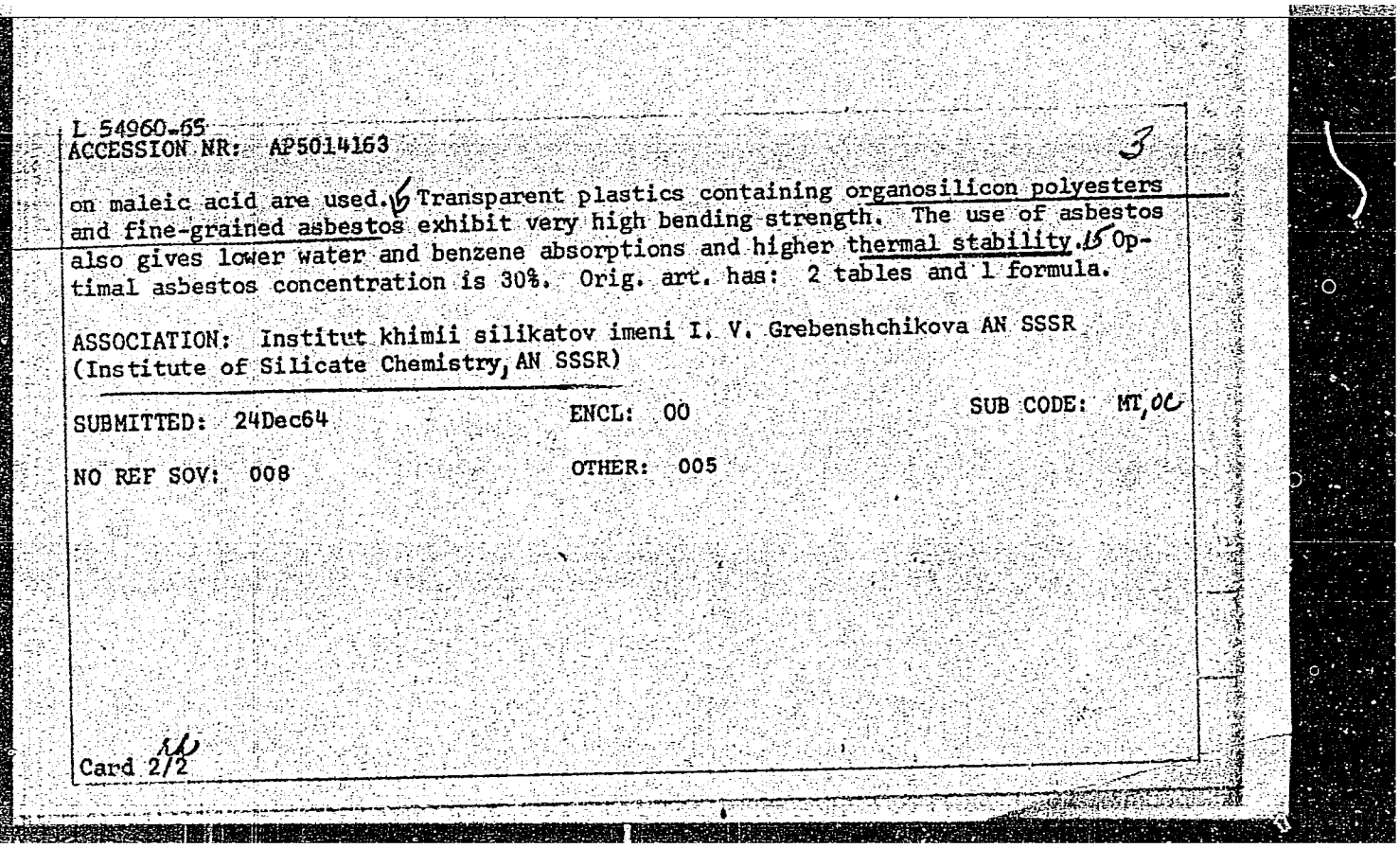
TOPIC TAGS: plastic, organosilicon resin, binder

ABSTRACT: The authors studied the properties of transparent plastics containing organosilicon binders based on unsaturated esters of the following structure:

$$\left[-CH_2Si(CH_3)_2-O-Si(CH_3)_2CH_2OCORCOO-\right]_n,$$

where: R is a group based on an unsaturated acid such as fumaric and maleic. Applicability of the binder based on fumaric acid for use in transparent plastics was established. Transparent plastics containing organosilicon polymer binders based

Card 1/2



L 54960-65
ACCESSION NR: AP5014163

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on maleic acid are used. Transparent plastics containing organosilicon polyesters and fine-grained asbestos exhibit very high bending strength. The use of asbestos also gives lower water and benzene absorptions and higher thermal stability. Optimal asbestos concentration is 30%. Orig. art. has: 2 tables and 1 formula.

ASSOCIATION: Institut khimii silikatov imeni I. V. Grebenshchikova AN SSSR (Institute of Silicate Chemistry, AN SSSR)

SUBMITTED: 24Dec64 ENCL: 00 SUB CODE: MT, OC

NO REF SOV: 008 OTHER: 005

Card 2/2

LYUYEV, A.I.

Scientific and Technical Mining Society of Donetsk Province is striving for technical progress. Ugol' 40 no.6:[illegible]-72 Je '65. (MIRA 18:7)

1. Predsedatel' pravleniya Donetskogo oblastnogo Nauchno-tekhnicheskogo gornogo obshchestva.

LYUYEV, A.I., inzhener.

Causes for gas emanation in preparatory mines. Bezop.truda v prom. 1 no.5:9 '57. (MIRA 10:7)
(Mine gases)

LYUYEV, A.I., inzh.

Accident in the "IUnkom" mine in the Donets Basin. Bezop.truda v prom. 4 no.10:7-9 O '60. (MIRA 13:11)

1. Upravleniye Stalinskogo okruga Gosgortekhnadzora USSR.
(Donets Basin--Coal mines and mining--Accidents)

LYUYEV, A.I.; DOROKHOV, D.V.; ZHIZLOV, N.I.

Sudden coal and gas outbursts in tapped coal seams. Ugol' Ukr. 4 no.12:8-10 D '60. (MIRA 13:12)
(Donets Basin--Coal mines and mining) (Mine gases)
(Rock pressure)

LYUYEV, Andrey Ivanovich; SOLOV'YEV, P.M., otv. red.; VINOGRADOVA, G.V., red.; PROZOROVSKAYA, V.L., tekhn. red.

[Manual on safety engineering for miners] Posobie po tekhnike bezopasnosti dlia shakhterov. Moskva, Gos. nauchno-tekhn. izd-vo lit-ry po gornomu delu, 1961. 86 p. (MIRA 14:6)
(Coal mines and mining—Safety measures)

LYUBEV, A.I., inzh.; IVANCHENKO, G.P., inzh.; ISEROV, B.I., inzh.

Eliminating traumatism during the operation of circular saws.
Bezop. truda v prom. 8 no.9:11-12 S '64 (MIRA 18:1)

1. Upravleniye Donetskogo okruga Gosudarstvennogo komiteta pri Sovete Ministrov UkrSSR po nadzoru za bezopasnym vedeniyem rabot v promyshlennosti i gornomu nadzoru.

L 01281-66

ACCESSION NR: AT5020448 UR/0000/64/000/000/0039/0046

AUTHOR: Katayev, G. A.; Presnov, V. A. (Professor); Lyuze, L. L.; Batuyeva, Ye. N.

TITLE: The effect which various substances have on the electrical and physical properties of the surface of germanium

SOURCE: Mezhvuzovskaya nauchno-tekhnicheskaya konferentsiya po fizike poluprovodnikov (poverkhnostnyye i kontaktnyye yavleniya). Tomsk. 1962. Porverkhnostnyye i kontaktnyye yavleniya v poluprovodnikakh (Surface and contact phenomena in semiconductors). Tomsk, Izd-vo Tomskogo univ., 1964, 39-46

TOPIC TAGS: germanium semiconductor, surface property, crystal surface, molecular interaction, semiconductor research

ABSTRACT: An attempt is made to explain the physicochemical nature of phenomena which take place during interaction of the natural surface of germanium with a chemical medium. The following effects are taken into consideration: 1. Interaction with the germanium surface atoms, which causes a radical change in the surface due to the formation of a new surface compound (sulfide, nitride, etc.). 2. Interaction of adsorbed molecules with germanium surface atoms due to various forces

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L 01281-66

ACCESSION NR: AT5020448

(physical and chemical adsorption). This may cause changes in the parameters of the surface states as well as the appearance of new levels. These phenomena are completely reversible in the case of physical adsorption. 3. Interaction of adsorbed molecules with molecules of water, oxygen and hydrated oxide in the oxide layer and at the germanium-oxide interface by various mechanisms. It is found that the interaction of various substances with germanium causes a change in the surface charge. The negative charge of an etched surface is usually reduced by chemical treatment, and sometimes even changes sign. The effect of various substances on the germanium surface is a change in the parameters of the "fast" states. A change is noted in the recombination velocity, which at times may be considerable. There is a sharp reduction in recombination velocity as a result of quinone treatment. Various substances are specific in their effect on the "fast" states. This effect cannot be interpreted on the basis of electrostatic interactions alone. The adsorption process is reversible in many cases (nitrobenzene, chlorobenzene, etc.). Chemical treatments are discussed in which redox systems take part (e. g. quinone-hydroquinone). It was found that quinone is very effective in reducing recombination by eliminating the acceptor level. Water causes large leakage currents due to the H_3O^+ ion in the monomolecular water layer (the "relay-race" effect). The mechanism of the effect of various substances on the "fast" state is not clear on several points.

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L 01281-66
ACCESSION NR: AT5020448

Further theoretical and experimental studies are needed in this direction. Orig. art. has: 6 formulas.

ASSOCIATION: none

SUBMITTED: 06Oct64 ENCL: 00 SUB CODE: SS, NP

NO REF SOV: 012 OTHER: 006

Card 3/3

L 61327-65 EWP(j)/EWT(m)/EWP(i)/EWP(b)/T/EWP(t) IJP(c) JD/RM/GS

ACCESSION NR: AT5020449 UR/0000/64/000/000/0047/0058 38 37 B+1

AUTHOR: Presnov, V. A. (Professor); Katayev, G. A.; Lyuze, L. L.; Batuyeva, Ye. N.; Otmakhov, I. I.

TITLE: The effect of film-forming substances on the electrical and physical properties of the surface of germanium

SOURCE: Mezhvuzovskaya nauchno-tekhnicheskaya konferentsiya po fizike poluprovodnikov (poverkhnostnyye i kontaktnyye yavleniya). Tomsk, 1962. Poverkhnostnyye i kontaktnyye yavleniya v poluprovodnikakh (Surface and contact phenomena in semiconductors). Tomsk, Izd-vo Tomskogo univ., 1964, 47-58

TOPIC TAGS: surface property, germanium semiconductor, electric property, crystal surface, semiconductor research, electron recombination

ABSTRACT: The effect which film-forming substances have on the value and stability of the surface potential, and on the density and energy configuration of the levels of "fast" states is determined by the nature of the substances which appear in the film composition. To study the use of films made up of high molecular materials for stabilizing semiconductor devices, the authors investigated several lacquers as well as a number of components used in various lacquers and enamels with

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L 64327-65

ACCESSION NR: AT5020449

regard to their effect on the electrical and physical properties of the surface of germanium. Specimens with dimensions of 1.5 × 0.6 × 0.3 cm were prepared from germanium with a resistivity $\rho = 32\ \Omega \cdot cm$. Before measurements were made, the specimens were etched for 3 minutes in boiling Perhydrol and washed several times in boiling water. The lacquer treatment was done according to instructions. In making the measurements, use was made of the field effect with a strong sinusoidal signal with stationary photoconductivity. Field effect curves are given for etched germanium and for germanium treated with glyptal enamel, V-1 lacquer, drying oil and rosin. Recombination and charge curves are given for treatment with V-1 lacquer, drying oil and rosin. Treatment in glyptal enamel changed the negative charge slightly. Relaxation of surface conductivity in vacuum was considerably stronger for samples treated in V-1 lacquer than for the etched surface. Treatment of semiconductor devices in V-1 lacquer produces stable parameters. The high current amplification factor and low reverse current are due to low surface recombination since the operating point is beyond the maximum for surface recombination at the surface potentials produced by the treatment. The low reverse currents of the collector are due both to low recombination on the surface and to the absence of leakage along the surface. The energy configuration and concentration of surface states were altered

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ACCESSION NR: AT5020449

by treatment in drying oil. The effect of film-forming substances on the change in surface potential is apparently determined chiefly by two factors: substances in the film composition which have donor-acceptor properties, and substances (or individual groups of molecules) which may interact with oxygen, the chief factor in determining the charge in "slow" states. The change in surface potential from the first mechanism is determined by the concentration and nature of the donor-acceptor substances in the composition of the film. The chief factor in the cases studied seems to have been the second mechanism, i.e. interaction between absorbed oxygen and substances appearing in the composition of the film. It may be assumed that in some cases (drying oil, rosin) the appearance of a donor level and the disappearance (or change) of the energy configuration in the acceptor level is caused by donor groups (bonds) in the molecules of these substances, e.g. the double bond of the carbonyl, ether or alcohol radicals. Orig. art. has: 8 figures.

ASSOCIATION: none

SUBMITTED: 06Oct64 ENCL: 00 SUB CODE: SS, EC

NO REF SOV: 003 OTHER: 001

Card 3/3

L 01285-66 EWT(l)/EWT(m)/EPF(c)/EWP(j)/EWP(t)/EWP(b)/EWA(h)/EWA(c) IJP(c)
JD/GS/AT/RM

ACCESSION NR: AT5020451 UR/0000/64/000/000/0065/0078

AUTHOR: Lyuze, L. L.; Batuyeva, Ye. N.; Katayev, G. A.; Presnov, V. A. (Professor)

TITLE: The effect which the adsorption of various substances has on the surface properties of germanium

SOURCE: Mezhvuzovskaya nauchno-tekhnicheskaya konferentsiya po fizike poluprovodnikov (poverkhnostnyye i kontaktnyye yavleniya). Tomsk, 1962. Poverkhnostnyye i kontaktnyye yavleniya v poluprovodnikakh (Surface and contact phenomena in semiconductors). Tomsk, Izd-vo Tomskogo univ., 1964, 65-78

TOPIC TAGS: crystal surface, surface property, adsorption, germanium, semiconductor research, electron recombination

ABSTRACT: The authors study the adsorption of chlorobenzene, nitrobenzene, o-hydroxyquinoline and phthalic anhydride with regard to its effect on the density and energy configuration of recombination levels in germanium. Treatment in chlorobenzene gives the highest increase in negative surface charge. The recombination curve for this type of treatment showed no maximum, which makes it difficult to make any conclusions as to the properties of the recombination centers. Treatment in

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ACCESSION NR: AT5020451

nitrobenzene is of interest since the nitro group is often an active radical in lacquer coatings. This type of treatment reduces the negative surface charge which appears after etching. When the treated specimen is aged in air, the surface potential increases to the former value characteristic for the etched surface. Treatment in *o*-hydroxyquinoline causes a sharp increase in positive surface charge. It was impossible to make any conclusions about the structure of surface centers after this type of treatment. Treatment in phthalic anhydride also increases the positive surface potential. Thus in nearly all cases adsorption of the substances is accompanied by a reduction in negative surface charge, especially in the case of *o*-hydroxyquinoline. This is explained by the displacement of adsorbed oxygen from the oxide layer, and for the case with *o*-hydroxyquinoline, by direct participation of electrons in the nitrogen atom in the volume with the conduction band:

$$\gg N: + L \rightarrow \gg N^{+} + Le,$$

which causes positive surface charging. Adsorption causes a reduction in the maximum surface recombination velocity, which is due to a change in the capture cross section for the carriers. Adsorption of nitrobenzene and chlorobenzene is reversible. In the case of nitrobenzene adsorption, levels located above the center of the

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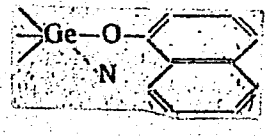
ACCESSION NR: AT5020451

forbidden zone are shifted upward. The concentration of groups of levels located below the center of the forbidden zone increases during adsorption and returns to the original value during aging in air (as a result of desorption). It is assumed that the effects observed in adsorption of chlorobenzene, nitrobenzene and phthalic anhydride are due largely to electrostatic adsorption in the field of the defect responsible for recombination. Polarization and dispersion effects are apparently important in chlorobenzene adsorption, while the dipole moment is an important factor in adsorption of nitrobenzene. Adsorption of *o*-hydroxyquinoline is accompanied by deeper interactions, including the formation of bonds of the type

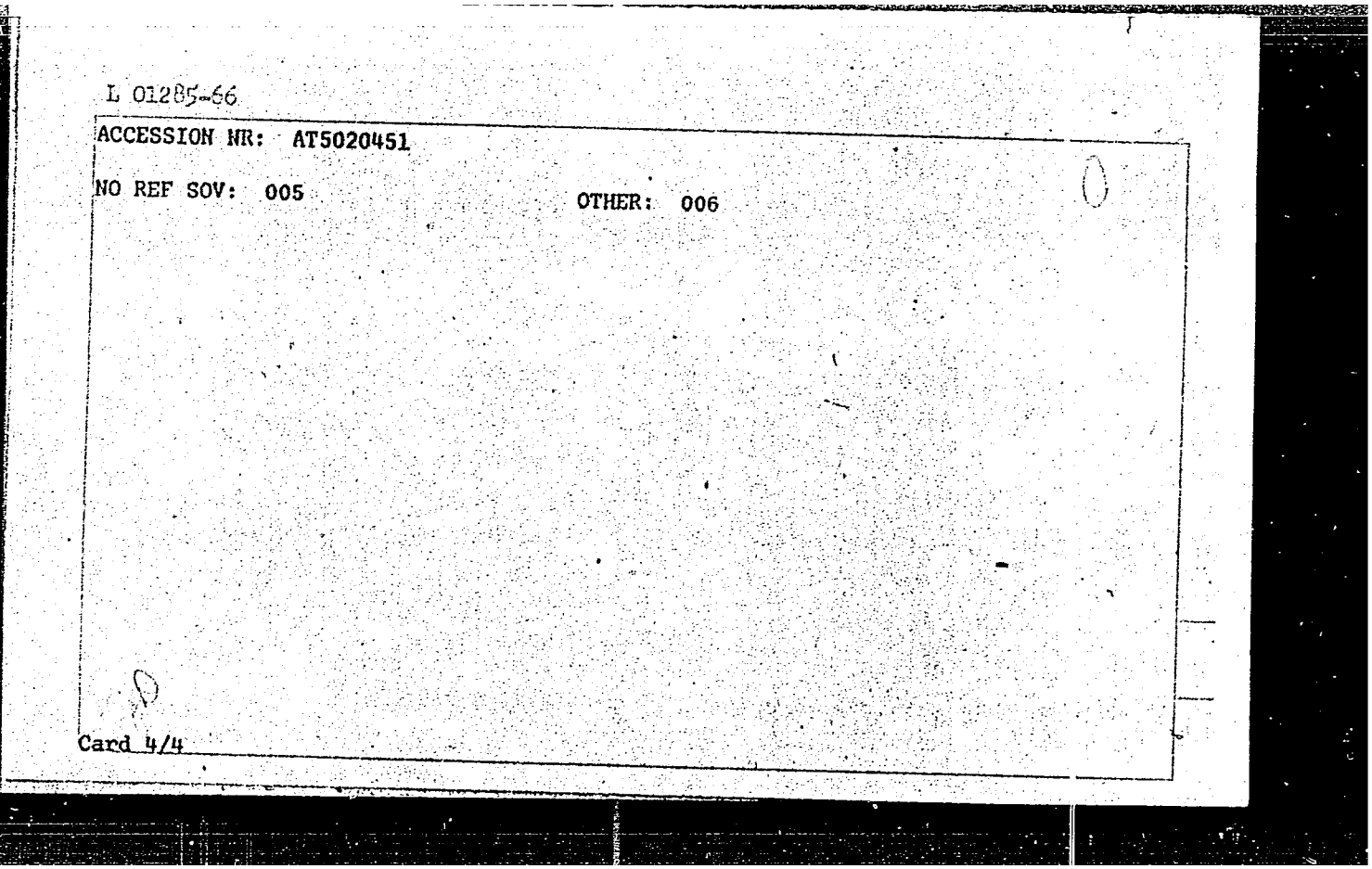


A nitrogen atom which has an unshared pair takes part in this reaction. The experimental effects are due to this phenomenon. Orig. art. has: 9 figures.

ASSOCIATION: none

SUBMITTED: 060ct64 ENCL: 00 SUB CODE: SS

Card 3/4



L 01285-66

ACCESSION NR: AT5020451

NO REF SOV: 005 OTHER: 006

Card 4/4

L 01287-66 EWT(1)/T/EWA(h) IJP(c) AT/GS

ACCESSION NR: AT5020452 UR/0000/64/000/000/0079/0086

AUTHOR: Lyuze, L. L.; Batuyeva, Ye. N.; Katayev, G. A.; Presnov, V. A. (Professor)

TITLE: Investigation of the surface properties of germanium and germanium devices treated in quinone

SOURCE: Mezhvuzovskaya nauchno-tekhnicheskaya konferentsiya po fizike poluprovodnikov (poverkhnostnyye i kontaktnyye yavleniya). Tomsk, 1962. Poverkhnostnyye i kontaktnyye yavleniya v poluprovodnikakh (Surface and contact phenomena in semiconductors). Tomsk, Izd-vo Tomskogo univ., 1964, 79-86

TOPIC TAGS: germanium, semiconductor device, adsorption, surface property, crystal surface, quinone, semiconductor research

ABSTRACT: The quinone-hydroquinone redox pair is studied with regard to its effect on the structure of fast states, since a change in surface recombination velocity may be caused not only by a change in surface potential, but also by a change in the density, and in the energy terms of the "fast states." In making the measurements, use was made of the field effect with a strong sinusoidal signal combined with stationary photoconductivity. The frequency of the transverse field was 20-30 cps.

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L 01287-66

ACCESSION NR: AT5020452

Stationary photoconductivity was calibrated by the reduction in photoconductivity in the absence of a transverse field. The dielectric was a sheet of mica 20-30 μ thick. The specimens were made with *n*-germanium having resistivities of 32, 44 and 20 Ω·cm and lifetimes of 200, 150 and 300 μsec respectively. P-5 germanium devices were treated along with the germanium samples. The reverse current of the collector, the volume component of the reverse current, and the effective lifetime of the minority carriers were measured. Before treatment in quinone, the devices and germanium samples were etched in peroxide, washed several times in water, dried for three hours in a drying cabinet, and aged for two days in air in room conditions to stabilize the oxidized surface of the germanium. Quinone treatment and drying were done at room temperature. Concentration of alcohol solutions was 0.5 M, concentration of aqueous solutions was 0.05-0.1 M. The devices and germanium specimens were held in solution for 0.5 hour. The surface potential for the etched samples corresponds to minimum conductivity. After treatment in quinone, the charge of the etched surface becomes more positive. It was impossible to measure the maximum surface recombination as a function of the surface potential in the etched specimens, therefore it is difficult to determine the energy configuration of fast surface states. The recombination surface states in the etched samples are above the center of the forbidden zone. For the treated surface, the maximum surface recombination velocity is at a

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L 01287-66

ACCESSION NR: AT5020452

negative surface potential, and the basic contribution to recombination is from the group of levels below the center of the zone. It was found that quinone treatment strongly reduces the volume component of the reverse current. Freshly prepared quinone solutions (both alcohol and aqueous) were not as effective as solutions aged at room temperature or heated. This is due to the formation of hydroquinone and hydroxyquinone, which have acid properties. Thus a quinone-hydroquinone system acts on the germanium surface. It is apparently this redox pair which is chiefly responsible for the germanium surface charge. Adsorption of quinone is accompanied by a reduction in negative surface charge. This is explained by the desorption of oxygen, which is chiefly responsible for charge in the slow states. Orig. art. has: 2 figures, 1 table, 2 formulas.

ASSOCIATION: none

SUBMITTED: 06Oct64 ENCL: 00 SUB CODE: SS

NO REF SOV: 005 OTHER: 002

Card 3/3

LYUZE, L.L.; DUKHANINA, R.Ya.

Work function of the A and B faces of the (111) surface in gallium arsenide. Izv. vys. ucheb. zav.; fiz. 8 no.6:164-165 '65. (MIRA 19:)

1. Sibirskiy fiziko-tekhnicheskiy institut imeni V.D. Kuznetsova. Submitted July 2, 1964.

L 24337-66 EWT(1)

ACC NR: AP6009706 SOURCE CODE: UR/0181/66/008/003/0984/0986

AUTHOR: Lyuze, L. L.; Burlakov, R. B.

ORG: Tomsk State University (Tomskiy gosudarstvennyy universitet)

TITLE: Effect of the angle between the electric and magnetic fields on the current oscillations in an oscillistor

SOURCE: Fizika tverdogo tela, v. 8, no. 3, 1966, 984-986

TOPIC TAGS: pn junction, semiconductor device, transistorized oscillator, critical magnetic field, electric field

ABSTRACT: The authors investigated the current instabilities in an oscillistor, a device whose theory was described by M. Glicksman (Phys. Rev., v. 124, 1655, 1961) and O. Holter (Phys. Rev. v. 129, 2548, 1963), and which consists of an n-type germanium p-junction operated in a longitudinal magnetic field. The samples were made of n-germanium with specific resistivity ~30 ohm-cm and carrier lifetime longer than 200 μsec, with a p-n junction on one end surface and an ohmic contact on the other. The samples were tested in a pulsed electric field of 700 μsec duration and repetition frequency 120 cps. Several samples were tested and in all cases the critical value of the electric and magnetic fields at which oscillations set in were inversely proportional for all angles between the fields. With increasing angle, the values of the critical fields increased. The amplitude of the oscillations decreased with the increasing angle. The results also confirm the conclusion drawn in an earlier in-

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ACC NR: AP6009706

vestigation by L. E. Gurevich and I. V. Ioffe (FTT v. 4, 2641, 1962) that the frequency of the oscillations depends on the angle between the fields. On the other hand, the increase in the field values with increasing angle contradicts the results of Gurevich and Ioffe. It is therefore concluded that further work on this subject is necessary. Orig. art. has: 2 figures.

SUB CODE: 09/ SUBM DATE: 11May65/ ORIG REF: 002/ OTH REF: 005

Card 2/2 ULR

L 46948-66 EWT(1)/EWT(m)/EWP(t)/ETI IJP(c) JD/AT
ACC NR: AP6015504 (N) SOURCE CODE: UR/0181/66/008/005/1639/1640

AUTHOR: Lyuze, L. L.; Shushkevich, V. L.

ORG: Tomsk State University (Tomskiy gosudarstvennyy universitet)

TITLE: A new form of injected plasma instability in germanium

SOURCE: Fizika tverdogo tela, v. 8, no. 5, 1966, 1639-1640

TOPIC TAGS: plasma instability, plasma injection, germanium

ABSTRACT: This type of current instability in Ge occurs in a powerful electrical field when there is a temperature gradient between the interior and the volume to the surface of the sample. The temperature under these conditions must be above 0°C. The relationship between these parameters is shown in figure 1. The oscillation frequency is in the 0.5-4.5 Mc range. It was noted that the frequency sometimes changes smoothly, and sometimes abruptly. The characteristic feature of this type of instability is the complex effect of the transverse magnetic field upon the frequency and the amplitude of the oscillations. With increasing intensity of the electrical field and increasing temperature, the intensity of the magnetic field capable of suppressing the oscillations also goes up. Thus, when $E = 7.8 \cdot 10^4$ v/m, then at $T = 37°C$, $B = 0.055$ weber/m^2; at $T = 75°C$, $B = 0.1$ weber/m^2. Orig. art. has: 2 figures.

Card 1/2

L 46948-66
ACC NR: AP6015504

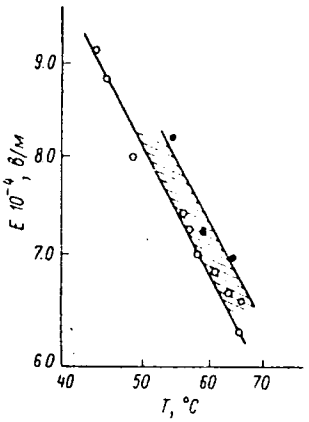

Fig. 1. Relationship between field intensity and temperature. Oscillations occur in the shaded area only, beginning at the lower line and attenuating at the upper line.

SUB CODE: 20/ // SUBM DATE: 17Dec65/ ORIG REF: 002/ OTH REF: 003

Card 2/2 afs

L 09224-67 EWP(j)/EWT(m)/EWP(t)/ETI IJP(c) RM/JD

ACC NR: AR6019907 SOURCE CODE: UR/0275/66/000/002/B003/3003

AUTHOR: Presnov, V. A.; Katayev, G. A.; Lyuze, L. L.

TITLE: Study of the effect of film forming substances on the electrical and physical properties of a germanium surface

SOURCE: Ref. zh. Elektronika i yeye primeneniye, Abs. 2B21

REF SOURCE: Sb. Poverkhnostn. i kontaktn. yavleniya v poluprovodnikakh. Tomsk, Tomskiy un-t, 1964, 47-58

TOPIC TAGS: germanium, surface film, film forming substance, paint, electric field, photoconductivity ELECTRIC PROPERTY

ABSTRACT: The work was conducted in an effort to ascertain the possibilities of stabilizing the surface of Ge using film forming substances. The effects of glyptal enamel, V-1 lacquer, drying oil, and rosin were considered. The effect of the field on a large sine signal and stationary photoconductivity were used for measurements. I. V. [Translation of abstract]

SUB CODE: 07, 20

Card 1/1 mlb UDC: 539.293:546.289

L 09223-67 EWP(j)/EWT(l)/EWP(m)/EWT(t)/ETI IJP(c) JD/JD

ACC NR: AR6019908 SOURCE CODE: UR/0275/66/000/002/B003/B003

AUTHOR: Lyuze, L. L.; Batuyeva, Ye. N.; Katayev, G. A.; Presnov, V. A.

TITLE: Effect of adsorption of certain substances on the surface properties of germanium

SOURCE: Ref. zh. Elektronika i yeye primeneniye, Abs. 2B22

REF SOURCE: Sb. Poverkhnostn. i kontaktn. yavleniya v poluprovodnikakh. Tomsk, Tomskiy un-t, 1964, 65-78

TOPIC TAGS: germanium, adsorption, chlorobenzene, nitrobenzene, phthalic anhydride, photoconductivity, chemical reaction

ABSTRACT: The effect of adsorption by chlorobenzene, nitrobenzene, o-hydroxyquinoline, and phthalic anhydride, on the density and energy state of recombination levels for Ge was investigated. Strips of Ge were kept in solution at 98°C for two hours, and then in a thermostatically controlled oven at 98°C for two hours, for the chlorobenzene and nitrobenzene processing. The quinone and the o-hydroxyquinoline were dissolved in alcohol prior to processing. During processing the specimens were kept in an alcohol solution for two hours at 78°C and dried in a thermostatically controlled oven at 78°C. Fusion was used in the phthalic anhydride processing. The field effect and recombination were measured by the drop in

UDC: 539.293:546.289:541.183

Card 1/2

L 09223-67
ACC NR: AR6019908

photoconductivity. In virtually all instances adsorption of the substances is accompanied by a reduction in the negative surface charge, and the reduction is particularly great for o-hydroxyquinoline. Change and recombination levels were tested. The adsorptions of nitrobenzene and chlorobenzene are reversible. The adsorptions of nitrobenzene and chlorobenzene are reversible. K. [Translation of abstract]

SUB CODE: 07

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2. USSR (600)
4. Fisheries-Accounting
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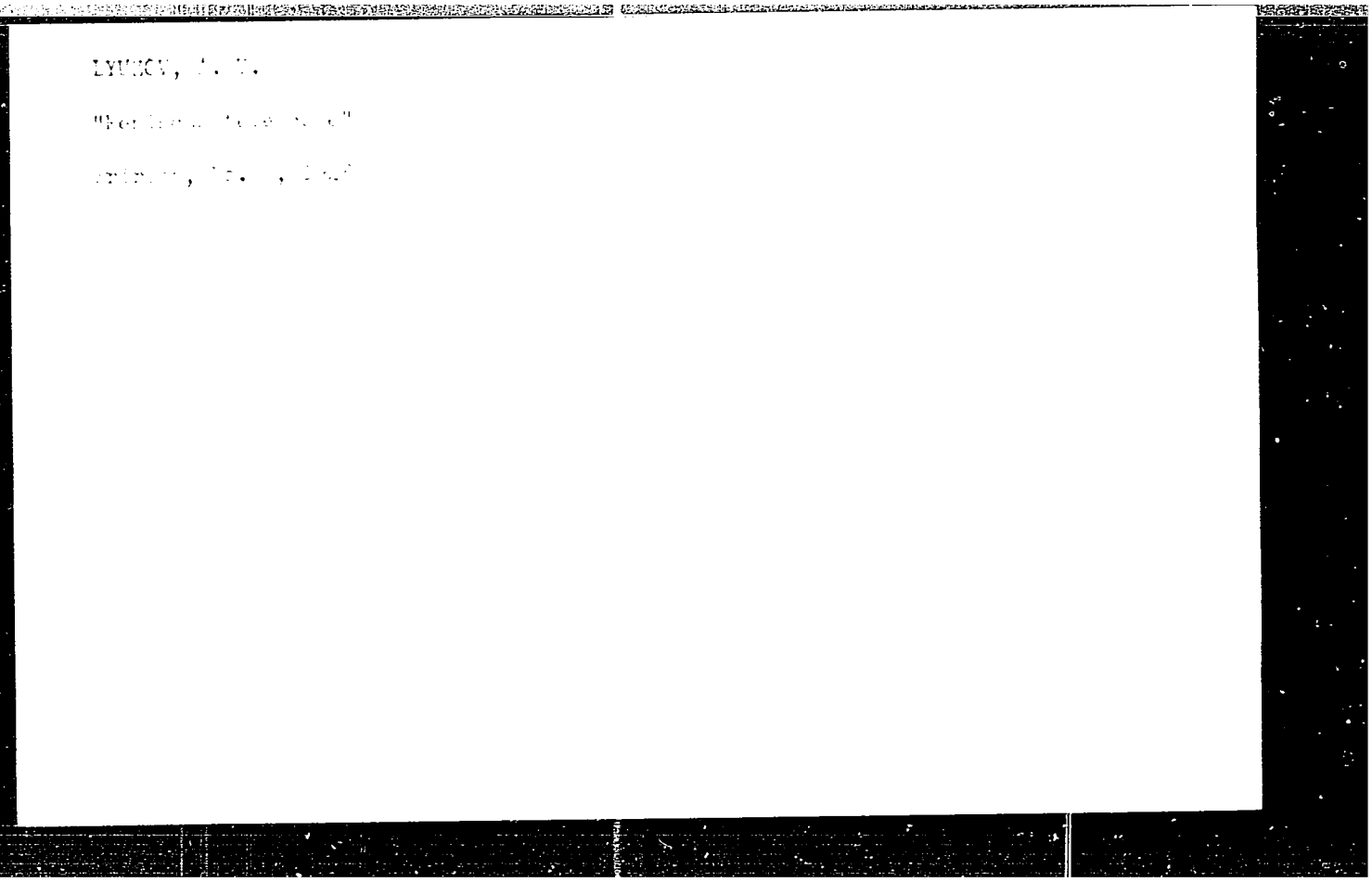
9. Monthly List of Russian Accessions, Library of Congress, February 1953. Unclassified.



LYUZOV, A.V.

Inertia of vision. Probl.fiziol. opt. 12:13-23 '58 (MIRA 11:6)
(VISION)

LYVI, V.

Portable electric goad. Mias. ind. SSSR 29 no.5:50 '58.
(MIRA 11:10)

1. Estonskaya skotozagotovitel'naya kontora, Tallin.
(Stockyards--Equipment and supplies)

LYYE, Yu.A.; OGANESYAN, L.V., aspirant

Some criteria for prospecting for hidden ore bodies by primary halos; for pyrite deposits in southern Armenia. Izv. vys. ucheb. zav.; geol. i razv. 7 no.7:68-71 Jl '64 (MIRA 18:2)

1. Simferopol'skiy institut mineral'nykh resursov pri Gosudarstvennom geologicheskom komitete SSSR i Moskovskiy geologorazvedochnyy institut im. S. Ordzhonikidze.

LYZ', Aleksandr Ivanovich, assistent

Transformation of continuous quantities into discrete increments. Izv. vys. ucheb. zav.; elektromekh. 6 no.9:1115-1117 '63. (MIRA 16:12)

1. Kafedra vychislitel'noy tekhniki Taganrogskogo radiotekhnicheskogo instituta.

LYZENTSEVA, M.A.; VALETDINOV, R.K.; KUZNETSOV, Ye.V.

Fireproofing treatment of cotton fabrics. Trudy KKHTI no.30: 170-173 '62. (MIRA 16:10)

LYZHENKO, I.G., inzh.; BORISEVICH, V.I.; VAYSINA, A.M.

Over-all processing of gravel mixtures. Avt.dor. 24 no.6:19 Je '61. (MIRA 14:7)

(Ukraine—Gravel)

Lyzhenko, I.T.

AUTHOR: Lyzhenko, I.T. 130-12-18/24

TITLE: Smoothing Pass Walls in a Working Stand (Zachistka stenok kalibrov v rabochey kleti)

PERIODICAL: Metallurg, 1957, No.12, p. 30 (USSR).

ABSTRACT: At the Chusovoy Metallurgical Works, the roughing stand of the 800 billet mill has rolls cast from type 50 or 55 steel. Roughness has been found to develop on the sides of the box passes in these rolls causing defects in the type 55C2 silicon steel rolled. The author briefly describes a device for smoothing the pass walls which consists essentially of a holder for keeping two pieces of emery wheel in close contact with the walls while the roll is rotated for about five minutes. The use of this device was found to eliminate wall roughness and the consequent spoiling of the billet surface. There is 1 figure.

ASSOCIATION: Chusovoy Metallurgical Works (Chusovskiy metallurgicheskiy zavod)

AVAILABLE: Library of Congress

Card 1/1

AUTHOR: Lyzhenko, I.T. SOV/130-58-9-14/23

TITLE: Use of Deflectors Instead of Suspended Guides (Primeneniye otboynikov vmesto podvesnykh provodok)

PERIODICAL: Metallurg, 1958, Nr 9, p 28 (USSR)

ABSTRACT: The table arranged on the upper supporting bar at the back side of the second (finishing) stand of the 800 mill at the Chusovoy Works prevented suspended guides being provided for the five bottom passes. To eliminate the dislodgment by bent metal from the lower passes of the upper bar and the equipment supported by it, deflectors of sheet iron 20 mm thick were welded to the bottom surface of the bar opposite each pass (Figure 1). This arrangement has proved completely successful. There is 1 figure.

ASSOCIATION: Chusovskiy metallurgicheskiy zavod (Chusovoy Metallurgical Works)

Card 1/1

1. Rolling mills--Operation 2. Rolling mills--Equipment
3. Metals--Processing

AUTHOR: Ivzhenko, I.T. SOV/130-58-9-15/27

TITLE: Effecient Utilisation of the Barrel of the Upper Roll (Ratsional'noye ispol'zovaniye bochki verkhnego valka)

PERIODICAL: Metallurg, 1958, Nr 9, p 28 (USSR)

ABSTRACT: This very brief note describes how the whole instead of half the barrel length of the upper roll in the 500 mill was brought into use, considerably reducing roll consumption. There are 2 figures.

Card 1/1 1. Rolling mills--Operation

LYZHENKO, V.P., inzh.; NAGOROV, V.V., inzh.

High-pressure system for blast cleaning the heating surfaces of boilers. Elek. sta. 33 no.5:82-83 My '62. (MIRA 15:7)
(Boilers—Cleaning)

LYSHENKOV, V.

Loud-Speakers

Causes of creak in outlet of a loud-speaker cable. Radio, no. 4, 1952.

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ITSKOVICH, Georgiy Mikhaylovich; VINOKUROV, Anatoliy Ivanovich. Prinimali uchastiye: SUDAKOVA, N.I.; GAVRILOV, Yu.V.; MAKUSHIN, V.M., laureat Leninskoy premii, prof., retsenzent; LYZHENKOV, A.A., inzh., retsenzent; SAPOZHKOV, N.M., nauchnyy red.; SHAURAK, Ye.N., red.; KOROVENKO, Yu.N., tekhn. red.

[Collected problems on the strength of materials] Sbornik zadach po soprotivleniiu materialov. Leningrad, Sudpromgiz, 283 p. (MIRA 15:6)

(Strength of materials--Problems, exercises, etc.)

ITSKOVICH, Georgiy Meyerovich; MAKUSHIN, V.M., dotsent, kand.tekhn.nauk, retsenzent; LYZHENKOV, A.A., inzh., retsenzent; RABINOVICH, S.V., dotsent, kand.tekhn.nauk, nauchnyy red.; LIPKINA, T.G., red.izd-va; YEZHOVA, L.L., tekhn.red.

[Strength of materials] Soprotivlenie materialov. Moskva, Gos. izd-vo "Vysshaia shkola," 1960. 529 p. (MIRA 14:3)

(Strength of materials)

LYZHIN, K., red.; GIL'DEBRANT, Ye., tekhn. red.

[The second year of the Seven-year plant] Vtoroi god semiletki; ocherki. Krasnoiarsk, Krasnoiarskoe izd-vo, 1960. 84 p. (MIRA 14:12)

(Labor and laboring classes) (Socialist competition)

LYZHIN K

NIKOLAYEV, Vladislav Nikolayevich; LYZHIN, K., redaktor; KOKOULINA, A., tekhnicheskiy redaktor.

[On a new site; sketches about young construction workers at the Krasnoyarsk Hydroelectric Power Station] Na novom meste; ocherki o molodykh stroiteliakh Krasnoiarskoi GES. [Krasnoiarsk] Krasnoiarskoe khizhnoe izd-vo, 1957. 40 p. (MLRA 10:5)
(Construction workers)

SHCHEGLOV, Sergey L'vovich; BONDAREV, Aleksey Ivanovich; LYZHIN, K., red.; GIL'DEBRANT, Ye., tekhn.red.

[Noril'sk city; local geographical essay] Gorod Noril'sk; kraevedcheskii ocherk. Krasnoiarsk, Krasnoiarskoe knizhnoe izd-vo, 1958. 99 p. (MIRA 12:9)
(Noril'sk--Description)

LYZHIN, K.;KLIMKIN, M., red.; ASKINAS, L., tekhn. red

[Yenisey; handbook and guide from Minusinsk to Dudinka] Enisei; putevoditel'-spravochnik ot pristani Minusinsk do pristani Dudinka. Izd.2., perer. i dop. Krasnoiarsk, Krasnoiarskoe knizhnoe izd-vo, 1953. 208 p. (MIRA 15:12)

1. Yeniseyskoye rechnoye parokhodstvo.
(Yenisey Valley—Handbooks, manuals, etc.)

LEVCHENKO, Serafim Vasil'yevich, kand.geologo-mineral.nauk; ZUBKOV, Anatoliy Ivanovich, kand.ekonom.nauk; GORIZONTOV, Boris Borisovich; LYZHIN, K., red.; GIL'DEBRANT, Ye., tekhn.red.

[Industrial development of Krasnoyarsk Territory; popular scientific study] Problemy promyshlennogo razvitiia Krasnoiarskogo kraia; nauchno-populiarnyi ocherk. Krasnoiarsk, Krasnoiarskoe knizhnoe izd-vo, 1958. 170 p. (MIRA 13:4)
(Krasnoyarsk Territory--Natural resources)
(Krasnoyarsk Territory--Industries)

LYZHIN, Konstantin Dmitriyevich; U.AZOV, I., red.; GI'DEBRANT, Ye., tekhn. red.

[Along the Yenisey; concise handbook and guide] Po Eniseiu; putevoditel'-spravochnik. Krasnoiarsk, Krasnoiarskoe inizh-noe izd-vo, 1961. 320 p. (MIRA 15:11)
(Yenisey Valley—Guidebooks)

LYZHIN, Konstantin Dmitriyevich; GREBTSOV, I., red.; GIL'DEBRANT, Ye., tekhn.red.

[Krasnoyarsk Territory; reference-guidebook] Krasnoiarskii krai: spravochnik-putevoditel'. Krasnoiarsk, Krasnoiarskoe knizhnoe izd-vo, 1958. 452 p. (MIRA 13:1)
(Krasnoyarsk Territory--Guidebooks)

SHNEYBERG, Yakov Iosifovich; LYZHIN, K., red.; GIL'DEBRANT, Ye., tekhn. red.

[Preventing injuries to animals in large-group maintenance and loose housing] Preduprezhdenie travmatizma zhivotnykh pri krupnogruppovom i bespriviaznom soderzhanii. Krasnoiarsk, Krasnoiarskoe knizhnoe izd-vo, 1960. 45 p. (MIRA 14:10)
(Stock and stockbreeding)

TOKOVOY, Nikolay Akimovich, prof., doktor veter. nauk; ZOLOTUKHIN, Georgiy Yeremeyevich, kand. fiz. nauk; LYZHIN, K., red.; GIL'-DEBRANT, Ye., tekhn. red.

[Mineral composition of feeds andits effect on the development and productivity of animals] Mineral'nyi sostav kormov i vliianie ego na razvitie i produktivnost' zhivotnykh. Krasnoiarsk, Krasnoiarskoe knizhnoe izd-vo, 1960. 72 p. (MIRA 14:9)
(Minerals in food) (Krasnoyarsk Territory—Forage plants)

GARKUSHIN, Aleksandr Mikhaylovich; SEMENOV, Pavel Semenovich; LYZHIN, K., red.; GIL'DEBRANT, Ye., tekhn. red.

[Monetary payments for labor and business accounting on the collective farms of the Krasnoyarsk Territory] Denezhnaia oplata truda i khozraschet v kolkhozakh Krasnoiarskogo kraia. Krasnoiarsk, Krasnoiarskoe knizhnoe izd-vo, 1960. 95 p. (MIRA 14:10)
(Krasnoyarsk Territory—Collective farms—Income distribution)
(Krasnoyarsk Territory--Collective farms—Finance)

SEREDA, M.S., agronom; BOGOSLOVSKIY, D.L., agronom; VORONTSOVA, V.P., agronom; FEDCHENKO, V.P., agronom; LYZHIN, K., red.; GIL'DEBRANT, Ye., tekhn.red.

[Catalog of regionally adapted field crop varieties for Krasnoyarsk Territory] Katalog raionirovannykh sortov sel'skokhozialstvennykh kul'tur po Krasnoiarskomu kraiu. Krasnoiarsk, Krasnoiarskoe knizhnoe izd-vo, 1960. 55 p.

(MIRA 14:4)

1. Russia (1923- U.S.S.R.) Gosudarstvennaya komissiya po sortoispytaniyu sel'skokhozyaystvennykh kul'tur po Krasnoyarskomu krayu. 2. Inspektor Gosudarstvennoy komissii po sortoispytaniyu sel'skokhozyaystvennykh kul'tur po Krasnoyarskomu krayu pri Ministerstve sel'skogo khozyaystva SSSR (for Sereda). 3. Inspektura Gosudarstvennoy komissii po sortoispytaniyu sel'skokhozyaystvennykh kul'tur po Krasnoyarskomu krayu pri Ministerstve sel'skogo khozyaystva SSSR (for Bogoslovskiy, Vorontsova, Fedchenko).
(Field crops--Varieties)

SHEVCHENKO, Petr Davidovich; MAKRINOVA, Aleksandra Nikiforovna; LYZHIN, K., red.; GIL'DEBRANT, Ye., tekhn. red.

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(Uyar District--Rotation of crops)

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(Reindeer—Diseases and pests) (Antibiotics)

LYZHOV, A. V. (Moskva)

Experiment on the subject "flame and its structure". Khim. v shkole 15 no.4:85 Jl-Ag '60. (MIRA 13:9)
(Flame) (Chemistry--Experiments)