

MUZHZHAVLEV, K.D.; LEBEDEV, O.A.; FRANTAS'YEV, N.A.; OLYUNIN, G.V.; DOLGIKH, T.K.;
SHEKA, T.S.

Improving the technology for the electrolysis of magnesium chloride.

Tsvet.met. 38 no.3:60-65 Mr '65.

(MIRA 18:6)

MUZHCHININ, V.

Our contribution to commerce. Vnesh. torg. 30 no.12:21-22 '60.

(MIRA 13:12)

(Automobile industry)

(Russia--Commerce)

L 11078-65 EMT(m)/EMF(t)/EMP(b) IJP(c) JD

ACCESSION NR: AP4046656

S/0181/64/006/010/3194/3196

AUTHORS: Muzhdaba, V. M.; Parfen'yev, R. V.; Shaly*t, S. S. (H)

TITLE: Magnetophonon oscillation of the thermal emf of n-InSb in a longitudinal magnetic field ²¹

SOURCE: Fizika tverdogo tela, v. 6, no. 10, 1964, 3194-3196

TOPIC TAGS: magnetophonon resonance, thermal emf, indium antimonide magnetoresistance, magnetothermal emf

ABSTRACT: The authors have shown experimentally that the magnetophonon oscillation effect observed theoretically by Garwick and Gurevich (Phys. Rev. Lett. 1, 10, 195) is manifest in indium antimonide. They also report the dependence of the thermal emf of InSb on the intensity of the longitudinal magnetic field. This experimental effect was already mentioned briefly by S. M. Puri and T. H. Geballe (Bull. Am. Phys. Soc. v. 8, 309, 1963). A plot of

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ACCESSION NR: AP4046656

the relative value of the longitudinal magnetothermal emf against the magnetic field intensity, taken at different temperatures (Fig. 1 of the enclosure), discloses an oscillation similar to that disclosed by the magnetoresistance. The difference in the new effect, however, is that the magnetothermal emf, unlike the magnetoresistance, exhibits neither minima nor maxima near the resonant values of the magnetic field, but some intermediate values. As in the case of the longitudinal magneto-resistance, the maxima and minima shift towards weaker fields, although to a lesser degree. The sample of n-type indium antimonide used in the investigation had a concentration $n = 3.5 \times 10^{13} \text{ cm}^{-3}$ and a mobility $u = 5.6 \times 10^5 \text{ cm}^2/\text{V-sec}$ at $T = 77\text{K}$; its thermal emf in the absence of a field increased from $585 \text{ } \mu\text{V/deg}$ at 83.4K to $645 \text{ } \mu\text{V/deg}$ at 150K . The absolute value of the thermal emf increased in the magnetic field. Similar tests made in a transverse magnetic field showed no noticeable oscillation. This agrees with the theoretical conclusion that the thermal emf in an extremely strong transverse field does not depend on the

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ACCESSION NR: AP4046656

4

mechanism whereby the carriers are scattered. "We are grateful to Yu. A. Firsov and S. T. Pavlov for a discussion of the theoretical problems and to student G. A. Kurbatov for help with the measurements." Orig. art. has: 1 figure and 1 formula.

ASSOCIATION: Institut poluprovodnikov AN SSSR, Leningrad (Institute of Semiconductors AN SSSR)

SUBMITTED: 13Jun64

ENCL: 01

SUB CODE: SS, EM

NR REF SOV: 002

OTHER: 001

Card 3/4

L 11078-65

ACCESSION NR: AP4046656

ENCLOSURE: 01

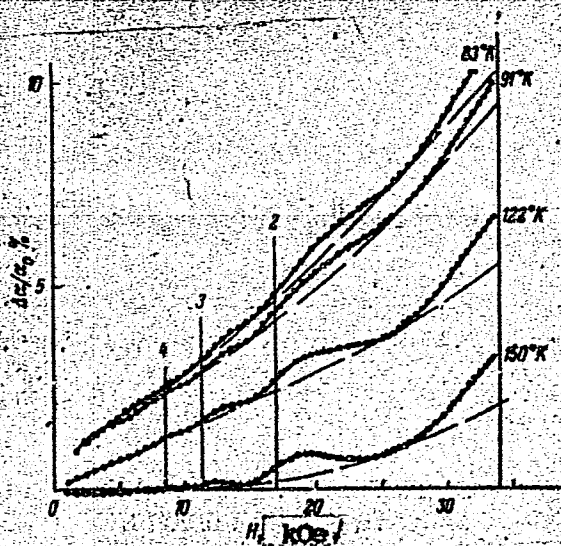


Fig. 1. Experimental plots of the thermal emf of n-InSb vs. magnetic field intensity for different temperatures.

The vertical lines 1, 2, 3, and 4 denote the calculated resonant values of the magnetic field.

The dashed lines tangent to the minima of the oscillating curves are drawn to illustrate the oscillating part of the thermal emf.

Card 4/A

ACCESSION NR: AP4043614

S/0056/64/047/002/0444/0451

AUTHORS: Parfen'yev, R. V.; Shaly*t, S. S.; Muzhdaba, V. M

TITLE: Experimental confirmation of the magnetophonon resonance in n-type InSb

SOURCE: Zh. eksper. i teor. fiz., v. 47, no. 2, 1964, 444-451

TOPIC TAGS: semiconductor resistance, quantum statistics, galvanomagnetic effect, indium antimonide, carrier density, low temperature phenomenon, phonon

ABSTRACT: This is a continuation of an earlier report (PTT v. 6, 647, 1964) of a new effect, first observed by S. M. Puri and T. H. Geballe, consisting of a new type of oscillation of magnetoresistance of a semiconductor, and resulting from inelastic scattering of the carriers by optical phonons. The present article describes the results of a detailed experimental investigation of the trans-

Card 1/4

ACCESSION NR: AP4043614

verse and longitudinal magnetoresistance of various samples of n-InSb. The results of the tests, which were made in a strong magnetic field, confirm the theoretical analysis of this effect, made by V. L. Gurevich and Yu. A. Firsov and published in the same issue of the journal (ZhETF, v. 47, 734, 1964). The tests were made at $T = 90K$ in fields up to ~ 38 kOe. The results show that the new type of oscillation differs from the Shubnikov-deHaas oscillation in that the former does not depend on the carrier density and its amplitude decreases with decreasing temperature and practically disappears at nitrogen temperatures, whereas the latter is observed only at very low temperatures and is determined only by the carrier density. Furthermore, the former can occur for any statistics of the electron gas, whereas the latter can occur only in a degenerate gas. Weak but noticeable oscillations of this type were observed on the longitudinal magnetoresistance curve of InAs, too, showing that this effect can be observed in other semiconductors. "In conclusion, the authors thank V. L. Gurevich and Yu. A. Firsov for suggesting the

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ACCESSION NR: AP4043614

research topic and for a discussion of the theoretical problems, and M. V. Aleksandrova for great help with the measurements." Orig. art. has: 5 figures, 1 formula, and 1 table.

ASSOCIATION: Institut poluprovodnikov Akademii nauk SSSR (Institute of Semiconductors, Academy of Sciences, SSSR)

SUBMITTED: 06Mar64

ENCL: 01

SUB CODE: SS

NR REF SOV: 003

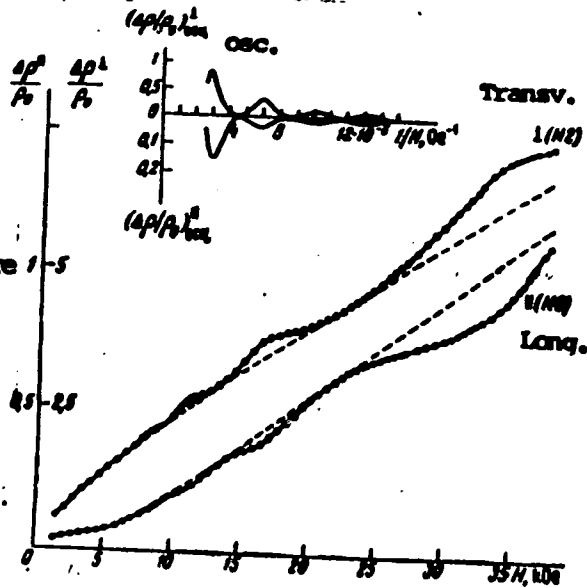
OTHER: 004

Card 3/4

ACCESSION NR: AP1043624

ENCLOSURE: 01

Curves showing transverse and longitudinal magnetoresistance, obtained for two n-InSb samples at 90K. Dashed lines represent the monotonic background on which the resonant oscillations are superimposed. The upper part of the figure shows the oscillating part of the magnetoresistance as a function of the reciprocal field intensity



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ACCESSION NR: AP4013541

S/0181/64/006/002/0647/0649

AUTHORS: Shaly*t, S. S.; Parfen'yev, R. V.; Muzhdaba, V. M.

TITLE: Experimental confirmation of a new type of oscillation of transverse reluctance

SOURCE: Fizika tverdogo tela, v. 6, no. 2, 1964, 647-649

TOPIC TAGS: reluctance, current carrier, inelastic scattering, semiconductor, phonon, Larmor frequency, relaxation time

ABSTRACT: This type of oscillation, determined by inelastic scattering of current carriers in an undegenerate semiconductor, was proposed on theoretical grounds by V. A. Gurevich and Yu. A. Firsov (ZhETF, 40, 199, 1961). To observe this type of oscillation, it is necessary that the phonon spectrum of the crystal have an optical branch and that the experiment be carried out in a strong magnetic field. The authors define these conditions in terms of the Larmor frequency, relaxation time, and mobility. From a consideration of these and of the physical character of the oscillation, they arrive at a value for the period of the oscillation, depending on the effective mass and the energy of the optical phonons. The problem of distinguishing the proposed oscillation from others, especially the

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ACCESSION NR: AP4013541

Shubnikov-de Haas oscillation, is described. Since the latter appears most favorably at low temperature, a higher temperature must be considered, but this leads to a weakening of the effect through decrease in mobility and complications in the current-carrier spectrum. Some optimal temperature is sought. It was found that five maxima appear in undegenerate InSb at a temperature of 104K

($H_m = 34.0, 17.0, 11.0, \sim 8.0, \text{ and } \sim 6.5 \text{ oersteds} \cdot 10^3$) with a period of $\approx 3 \cdot 10^{-5}$ oersteds⁻¹. The position of the maxima is independent of temperature, but the effect was found to weaken as the temperature declined from 104 to 63K and also as it increased to 200K. "We express our thanks to V. L. Gurevich for discussing our results and for his valuable suggestions." Orig. art. has: 1 figure and 1 formula.

ASSOCIATION: Institut poluprovodnikov AN SSSR, Leningrad (Institute of Semiconductors, AN SSSR)

SUBMITTED: 26Oct63

DATE ACQ: 03Mar64

ENCL: 00

SUB CODE: EC,SS

NO REF SOV: 002

OTHER: 003

Card 2/2

MUZHENKOVA, N. P.

USSR/Medicine - Tularemia

Jun 53

"The Action of Streptomycin in Experimental Tularemia of White Mice," Ye. V. Vlasova, K. I. Matveyev, N. P. Muzhenkova, Inst of Epid and Microbiol im N. F. Gamaleya and Moscow Observation Sta

Zhur Mikrobiol, Epidemiol, i Immunobiol, No 6,
pp 31-33

Streptomycin in a dose of 1,000-2,000 units, administered simultaneously with a lethal dose of B. tularensis, protects white mice against the disease. Two thousand units of streptomycin do not protect mice

267T15

against 10-100 lethal doses of B. tularensis. Infected mice which have survived as a result of administration of a prophylactic dose of streptomycin do not develop immunity to tularemia.

ZHDANOV, V.M.; GAVRILOV, V.I., MUZHENKOVA, N.P.

Etiology of viral gastroenteritis. Zhur.mikrobiol. epid. i immun.
no.6:78-85 Je '55. (MLRA 8:9)

1. Iz Moskovskoy mablyudatel'noi protivochumnyy stantsii Mini-
sterstva zdravookhraneniya SSSR.
(GASTROENTERITIS, bacteriology,
viral)
(VIRUS DISEASES,
gastroenteritis)

MUZHENKOVA, N. P. , and GAVRILOV, B. I.

"Published Information and Experimental Data on the Virus Etiology of Gastroenteritis," and "The Epidemiological Characteristics of an Unusual Outbreak of Gastroenteritis," reports discussed at one of six meetings of the Virological Section, Moscow Dept. All-Union Society of Microbiologists, Epidemiologists, and Infectionists imeni I. I. Mechnikov in 1955. Voprosy Virusologii, 1, No 2, 1956

Sum. 1003, 20 Jul 56

MUZHENKOVA, N. P., MATVEYEV, K. I., and VLASOVA, Ye. V.

**"The Action of Streptomycin in Experimental Tularemia -
The Therapeutic Effect of Streptomycin Following Nasal
and Intracutaneous Infection - Reproduction of Micro-
organisms in the Organism of Treated and Nontreated Animals,"**
by Ye. V. Vlasova, N. P. Muzhenkova, and K. I. Matveyev,
Institute of Epidemiology and Microbiology imeni N. F.
Gamaleya, Academy of Medical Sciences USSR, and the Moscow
Observation Station, Zhurnal Mikrobiologii, Epidemiologii i
Immunobiologii, Vol 27, No 9, Sep 56 pp 28-34

The purpose of the research described was to study the action of streptomycin in experimental tularemia in mice following various methods of infection. Results of the administration of streptomycin to white mice infected intranasally and intracutaneously with tularemia (a 2-day virulent culture of Strain No 9) and certain data concerning the mechanism of the therapeutic effect of streptomycin under these conditions are presented. Reference is made to work by Planel'yes and co-workers in which the intracutaneous route of infection was used extensively for studying the mechanism of the action of antibiotics.

The following four tables are included: (1) The therapeutic effect of streptomycin in experimental tularemia; (2) Results of the examination of the organs of mice surviving after streptomycin therapy; (3) Distribution of microorganisms in treated and untreated animals (method of infection - nasal; dose - one million microbial cells, comprising 100 MLD); (4) Immunity in animals surviving after streptomycin therapy. Two graphs show the relationship of the therapeutic effect of streptomycin to the rate of initial therapy after nasal and intracutaneous infection.

The conclusions derived from these experiments are as follows:

"1. Streptomycin in a dose of 3,000 units per diem was shown to be effective in the therapy of mice infected nasally and intracutaneously with 1-100 MLD of a virulent tularemia culture.

"2. Mice surviving after streptomycin therapy carried tularemia bacteria for 50-60 days after infection.

"3. In animals treated with streptomycin, proliferation of microorganisms and their dispersion throughout the organism occurred during the first 4-5 days after infection despite the introduction of streptomycin. Beginning with the 6th-8th day, the gradual elimination of the microorganisms from organism began; however, solitary microorganisms were observed in organs up to the 60th day.

"4. Mice surviving after streptomycin therapy were immune and survived a second infection with a virulent tularemia culture. The intensity of immunity depended on the intensity and time of initial therapy: the larger the dose of streptomycin and the earlier therapy was begun, the less intense was the immunity."

Sum 1239

MUZHETSKIY, A.P., kandidat tekhnicheskikh nauk.

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Precision casting of hydraulic machinery parts. Trudy VIGM no.17:
102-118 '54. (MLRA 9:3)

(Precision casting) (Hydraulic machinery)

MUZHEVA, L.

5
9
11
12

Temperature of vitrification and fluidity of natural rubbers
of different molecular weights. A. Tager, M. Iovleva, T.

Kantor, and L. Muzheva. *J. Appl. Chem. U.S.S.R.* 27, 1109-
1109-b(1954)(Orig. Translation).—See C.A. 49, 7887c.

H. M. R.

AA
est

MUZHEVA, L.

U S S R .

✓ Temperature of vitrification and fluidity of natural rubbers of different molecular weights. A. Tager, M. Javlyan, I. Kantor, and L. Muzheva. *Zhur. Priklad. Khim.* 27, 1227-30 (1954). The mol. wt. of natural rubbers milled for different periods was detd. from the reduced viscosity-concn. plots by the relation $[\eta] = KM^a$, where $[\eta]$ is the intrinsic viscosity, K and a are const., and M is the mol. wt. From the degree of deformation as a function of the temp. detd. by the method of Kargin, *et al.* (*C.A.* 43: 7294), it was shown that the mol. wt. affected the temp. of the initial fluidity but not that of vitrification. L. Benowitz

27

MUZHVIN, L.

Italy and the "common market". Vnesh.torg 28 no.12:17-20
'58. (MIRA 12:1)
(Italy--Foreign economic relations)

Muzheyev, V. A.

KOSHTOYANTS, Kh. S.; IVANOV, I.; KORZHUYEV, P. A.; MUZHEYEV, V. A.; OCHAKOVSKIY, S. G.

"On the Question of Secretin Specification". Comparative-Physiological Research".
(In German, "Zur Frage der Spezifitat des Sekretins. Vergleichendphysiologische
Untersuchung." (K voprosu o spetsifichnosti sekretina. Sravnitel'no-fizio-logicheskoye
issledovaniye).

Zs. f. vergl. Physiol., 1932, Bd. 18, H. 1, S. 112-115.

Also in Fiziol. zh., 1933, t. 16, v. 1, s. 216-218, tabl.

Muzheyev, V. A.

KOSHTOYANTS, Kh. S.; MUZHEYEV, V. A.

"Materials for Comparative Physiology of Muscle Tone." (Materialy k sravnitel'noy fiziologii tonusa myshts).

"Report 1. On the Question concerning the interrelation between Smooth Muscle Tone and Tetanus of Invertabrates." (Soobshcheniye I. K voprosu o vzaimootnoshenii mezhdu tonusom i tetanusom gladkoy myshtsy bespozvonochnykh.)

Biol. zh., 1933, t. 2, v. 6, s. 503-507.

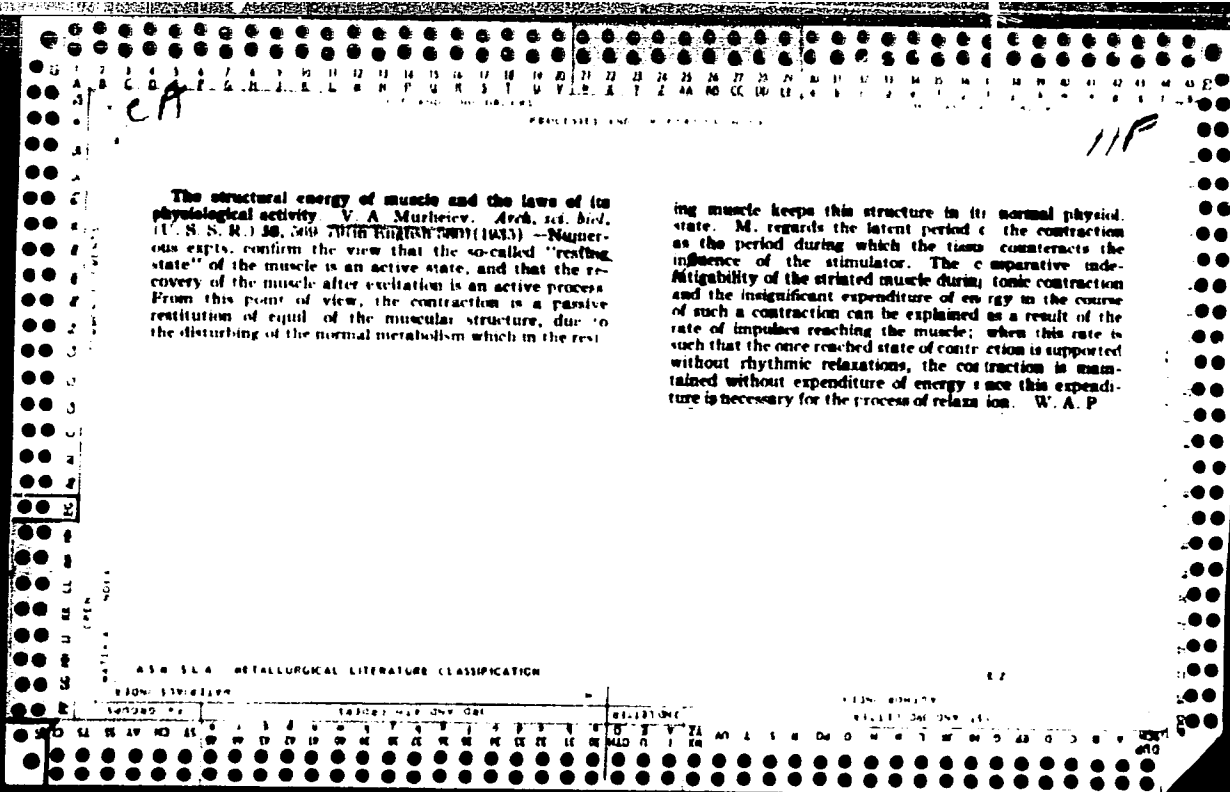
"Report 2. Physiological Views of the Process of Smooth Muscle Strain." (Soobshcheniye 2. Fiziologicheskkiye storony protsessa rastyazheniya gladkoy myshtsy.)

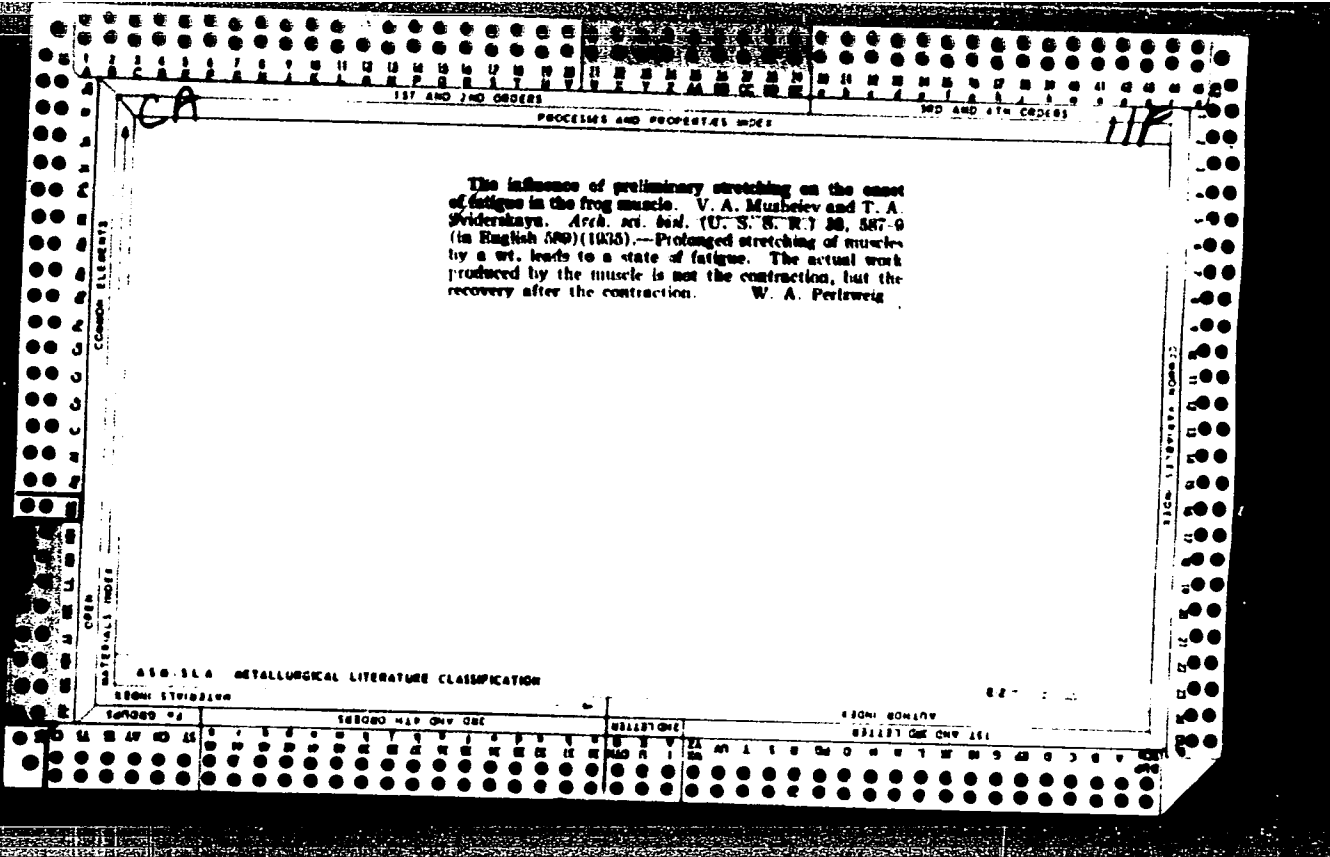
Ibid., s. 508-514, ris., tabl. Literatura 3 nazv.

"Report 3. O kharaktere krivoy rastyazheniya gladkoy myshtsy nogi ulitki pri otravlenii yeye monioduksusnoy kislotoy.

Ibid., s. 515-518, ris.

* Also in the book, "Several Problems of Comparative Physiology." Collection of works of the Laboratory of Comparative Animal Physiology of the Biological Institute im. K. A. Timiryazev. M.-L., Medgiz, 1934, s. 113-118, ris.





1ST AND 2ND GROUPS 3RD AND 4TH GROUPS

PROCESSES AND PROPERTIES UNIT

04

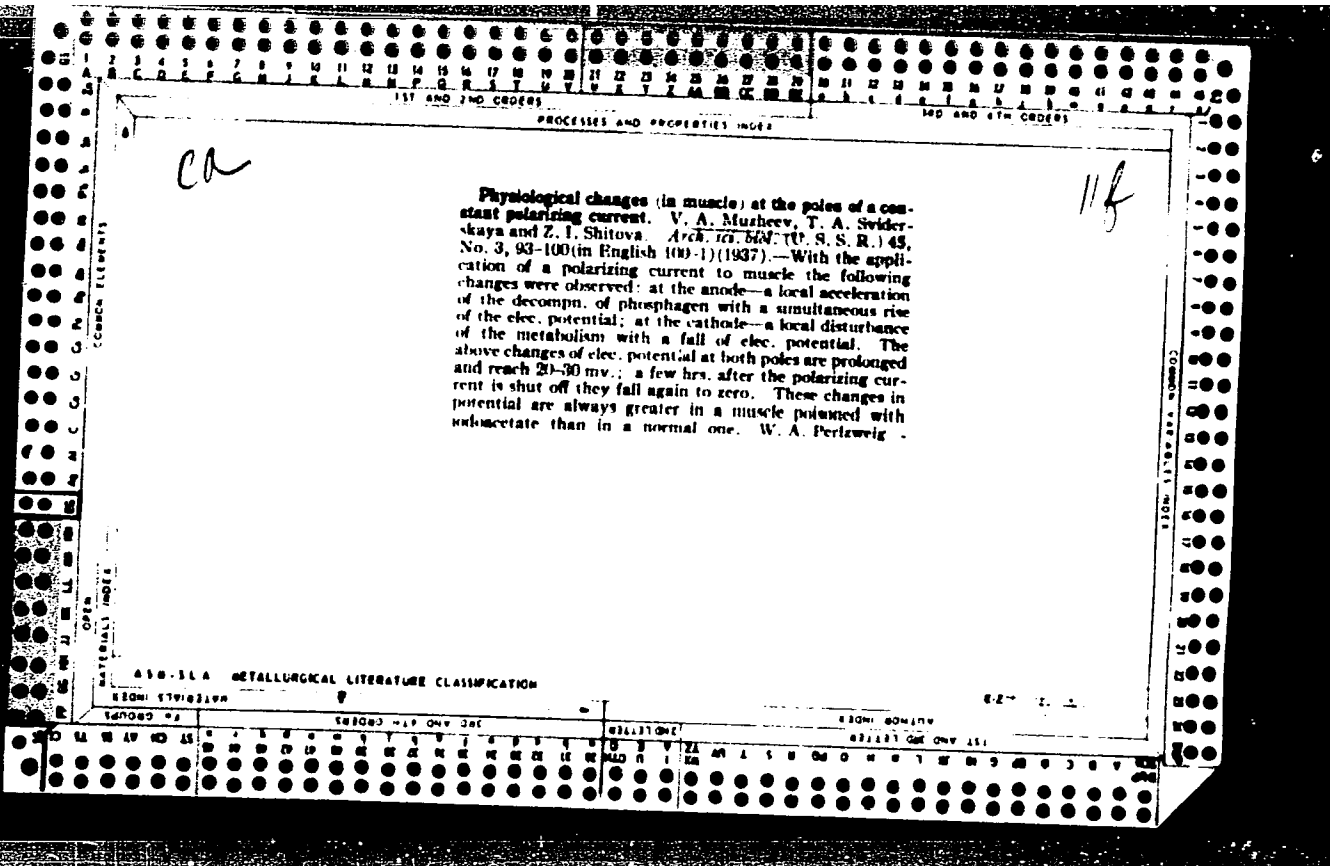
The role of the motor and sympathetic nerve endings in the use of phosphagen by the muscles during work and their interconversion during resting metabolism. V. A. Mushayev, T. A. Sviderskaya and Z. I. Shitova. *Arch. Biol. Sci.* (U. S. S. R.) 44, No. 3, 77 80 (in English, 80)

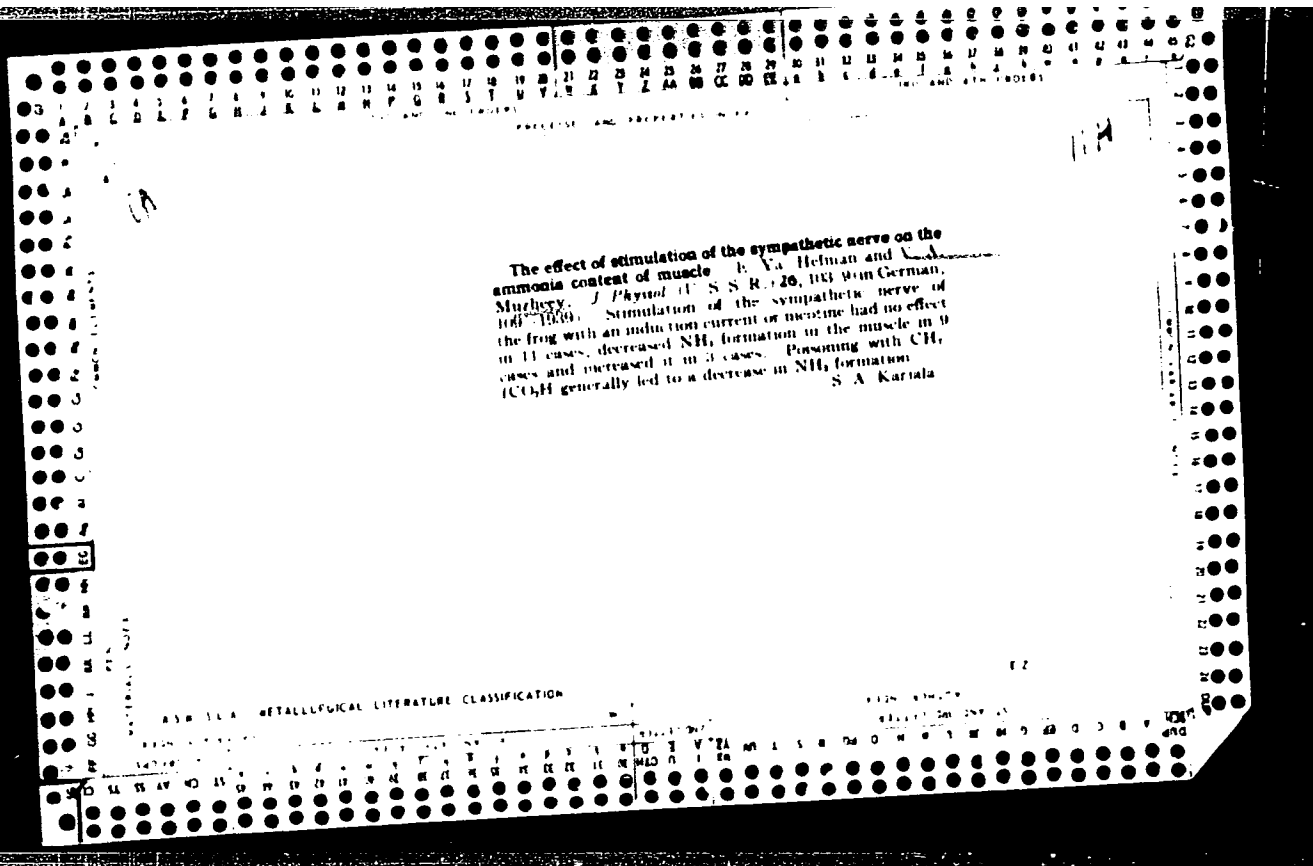
(1980) Muscles poisoned with CH_3CO_2H with preliminarily regenerated nerve endings fall into irreversible contraction after rhythmic irritation, using up less than 50% of the available phosphagen (I). With simultaneous degeneration of motor (II) and sympathetic (III) nerve endings, with degenerated II and preserved III and with preserved II and degenerated III the amt. of I remaining in the muscles is 65, 43 and 30%, resp., of normal. The irritability of muscles with degenerated II is lower than that of the controls, while that of muscles with degenerated III or with degenerated II and III is higher than that of the controls. II aids in the disturbance of resting metabolism and muscle structure and aids in the performance of external work, while III restores and supports resting metabolism and the normal condition of muscle structure.

S. A. Karjala

ASSOCIATED METALLURGICAL LITERATURE CLASSIFICATION

1980M 017 019 020 021 022 023 024 025 026 027 028 029 030 031 032 033 034 035 036 037 038 039 040 041 042 043 044 045 046 047 048 049 050 051 052 053 054 055 056 057 058 059 060 061 062 063 064 065 066 067 068 069 070 071 072 073 074 075 076 077 078 079 080 081 082 083 084 085 086 087 088 089 090 091 092 093 094 095 096 097 098 099 100





MUZHEEV

USSR/Human and Animal Physiology - Neuro-Muscular Physiology.

R-11

Abs Jour : Referat Zhur - Biol., No 16, 1957, 71087

Author : Muzheev and Shitova

Title : Influence of Radon Irradiation on the Breathing of an Isolated Frog Muscle.

Orig Pub : Vopr. radiobiologii, L., 1956, 69-77

Abstract : The irradiation of an isolated calf muscle of a frog in the course of 30 minutes increased the breathing on the average by 28%, which further increased with the increase of the dose and time of irradiation. The intensity of oxidation processes in the muscle increased at the cost of increased cyanosis during depressed breathing. The breathing of muscles irradiated by considerable doses of Rn by KCN poisoning, was considerably lower than those irradiated but not poisoned. In short-term irradiations with doses of 40-200 m-curies the breathing in one instance decreased by 14%, in others-on the average by 32%. The changes were irreversible.

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Card 1/1

USSR/Human and Animal Physiology Neuro-Muscular Physiology I

Abs Jour: Ref Zhur-Biol, No 3, 1958, 36795.

Author : Muzheyev, V.A

Inst :

Title : The Effect of Radon Irradiation on Heat Production of an Isolated Skeletal Frog Muscle in a Chamber.

Orig Pub: V.sb Vopr Radiobiologii L. 1956, 73-94

Abstract: Heat production (H) was registered by the thermoelectric method of Hill. When H was investigated under anaerobic conditions, the Ringer solution was replaced by paraffin oil, saturated with N. En (from a few units to 250 microcuries) in 2 cm capillary tubes was affixed above the muscle on the thermobathery with plastillin at distances from 1.5 - 2 mm for a certain definite period of time.

Card : 1/3

USSR/Human and Animal Physiology Neuro-Muscular Physiology

Abs Jour: Ref Zhur-Biol , No 8, 1958, 36795.

With low doses of irradiation (0.11 microcuries, in a N and O₂ atmosphere in the chamber, there were no noticeable changes of H of the muscle. With larger doses (0.27 microcuries) in oxygen atmosphere the H always increased at times to considerable degree (from 390 to 720-1180 in mm deviations of the galvanometer). Following the death of the muscle, the curve of H began to fall. Irradiation with large doses (0.5 - 0.7 microcuries) during 1-3 hours through lead filters increased the H of the muscle, which demonstrates the harmful effect of mainly the beta irradiation, which occurred more rapidly in muscles placed in air, than in pure O₂

Card : 2/3

USSR/Human and Animal Physiology. Neuro-Muscular Physiology.
Abs Jour: Ref Zhur-Biol., No 3, 1958, 36795

T

atmosphere. X-rays, as well as gamma rays of ^{60}Co ,
proved to be less effective in their harmful effect
on the isolated muscle.

Card : 3/3

USSR/Human and Animal Physiology. Neuro-Muscular Physiology.

Abs Jour: Ref Zhur-Biol., No 8, 1958, 36796.

Author : Muzheyev, V.A.

Inst :

Title : Changes in Adenosintri-phosphoric Acid and Creatine Phosphate in the Frog Muscles Subjected to Radon Irradiation.

Orig Pub: V.Zh. Vopr. radiobiologii L. 1956, 95-102.

Abstract: Two paired gastrocnemius muscles of a frog were suspended in a humid chamber at room temperature. One of the muscles was placed in a plastilin envelope without contact with the muscle. In the envelope were placed glass capillaries with Rn, 15-20 mm long. The intensity of radiation varied from 20-310 microcuries, the dose of the radiation from 0.15 - 3.16 microcuries. Imme-

Card : 1/2

USSR/Human and Animal Physiology. Nerve and Muscle Physiology. T-9

Abs Jour: Ref Zhur-Biol., No 12 1958, 55949.

paradoxibility, typical for a parabiosis, became easily apparent. At the presence of deeprooted modifications, only the anode effect lasting for 10 minutes was able to restore the excitability completely. The chief role played in the functional modifications of the nerve and of the muscle, which were provoked by Rn radiation, and which had the characteristics of an irreversible impairment, were caused by β -radiation. The Rn γ -radiation was ineffective.

Card : 3/3

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M. OZHEV, V. A.

/ Nature of biopotentials. V. A. Muzheev and M. P. Popova (Inst. Biol. Phys., Moscow). *Biophysika* 1, 741-53 (1966).—In order to clarify the nature of biopotentials, the effect of stretching on frog's muscles and the solas. of various proteins was studied. Two gastrocnemius muscles of the same *Rana temporaria* were used at various temperatures. They were suspended for 15 min. in Ringer solution as a control without stretching and the other was stretched by applying to one end of it various wts. from 50 to 310 grams. The Ringer soln. was replaced by 20% formalin for 30 min. The latter was washed by rinsing in fresh Ringer soln. for 15 min. Now the resting currents were measured by connecting one *N/1* calomel electrode with the intact surface of the muscle (it has the pos. charge) and the other with the transversely cut surface of the same muscle. As a result of stretching the resting potential was gradually increased until with 100 gm. weights its value was trebled. With more wt. the potential dropped to the value of controls. It was found that the increase of potentials with wt. was the highest at room temp. The difference in potentials became smaller and practically disappeared at 2° (the lowest tested temp.); it was highest at 27° (the highest tested temp.). The rest potentials were absent on dead muscles killed by freezing. For the expts. with proteins, e.g. myosin, a strong soln. was prepd. without heating or denatured by heating at 60° for 30 min., or inactivated by heating for two hours at 77°. These solns. were poured into glass dishes, connected to each other by agar bridges and with calomel electrodes. Usually (in 4 out 5 expts.) the soln. of native protein was positively charged, with e.m.f. 200 microvolts to 1 mv. In other expts. the solns. of proteins were in the form of threads, prepared by pouring them through a narrow orifice into distilled water; 8-10 threads were put on a glass slide. One end was denatured either by squeezing or by heating.

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Muzheev, V.A.; Popova, M.F.

Calomel electrodes were applied as usual. As with muscles, the undamaged end was positively charged. The e.m.f. varied between 60-320 microvolts. The application of the salts: $CdCl_2$, $CuSO_4$, and $AgNO_3$, and adenosinetriphosphoric acid to the one end of threads diminished the e.m.f. The details of similar expts. with strips of gelatin and agar gave similar results. According to Harris and Sookne (*C.A.*, 35, 2124), Mikhalkov (*Physico-chemical Basis of the Technology of Hides*, Moscow, p. 187, 1949), and Pasynskii and Blokhina (*C.A.*, 47, 4920b) the stretching and coagulation of proteins is followed by change in the isoelectric points of proteins. The stretching produces the lowering, and the contraction the increase of the isoelectric points of proteins.

A. V. Tolstoukhov

2/2

MUZHEEV, V. A.

USSR / General Biology. Physical and Chemical Biology. B-1

Abs Jour: Ref Zhur-Biol., No 10, 1958, 42697.

Author : Kalamnarova, M. B., Muzhev, V. A.

Inst : Not given.

Title : Structural Changes in Myosin Upon Reversible and Irreversible Inactivation. Alteration of Double Refraction in Current, ATP Activity, and Myosin Sulfhydryl Groups in Some Forms of Inactivation.

Orig Pub: Biofizika, 1957, 2, No 3, 304-312.

Abstract: A method is described of testing double refraction in a current of myosin (I) by using Tsvetkov's optical apparatus. CdCl_2 (II), guanidine (III) and monoiodoacetate (IV) decrease its enzymatic

Card 1/2

MUZHEYEV, V.A.

Changes in the adenosinetriphosphoric acid content of a frog muscle
caused by different loads [with summary in English]. Biofizika 2
no.6:661-664 '57. (MIRA 10:12)

1. Institut biologicheskoy fiziki AN SSSR, Moskva.
(MUSCLE) (ADENOSINETRIPHOSPHORIC ACID)

MUZHEYEV, V.A.

Luminescence of muscles and nerves and the absorption spectra of
muscles in ultraviolet rays during various functional states.
Trudy Len. ob-va est. 74 no. 1:89-94 '63. (MIRA 17:9)

CHANDLER, A.T., (CS)

"The Lipovetskiy District and Internal Security." "

Report presented at the 1st Intl. Ministry Conference, Moscow,
1-16 Aug 1971.

MUZHICHENKO, A.V.

Lipoproteins of the gastric and intestinal mucosa. Ukr. biokhim.
zhur. 33 no.2:151-158 '61. (MIRA 14:4)

1. Kafedra biokhimii Stalingradskogo meditsinskogo instituta.
(LIPOPROTEINS) (ALIMENTARY CANAL)

MUZHICHKOV, N.I., inzh.

Construction of a crane-building shop. Prom.stroi. 40 no.6:8-10
'62. (MIRA 15:6)

1. Kombinat Uglemetallurgstroy.
(Cranes, derricks, etc.)
(Factories--Design and construction)

MUZHICHKOV, V.I., inzhener; RODOVSKAYA, M.V.

Repair stations for diesel locomotives of U.S. railroads. Zhel.
dor.transp. 37 no.3:85-90 Mr '56. (MLRA 9:5)
(United States--Diesel locomotives--Repairs)

MUZHICHKOV, Vasilii Ivanovich, inzhener; REDNIKOV, Vsevolod Anatol'yevich,
inzhener; RIDEI', E.I., kandidat tekhnicheskikh nauk, redaktor;
VERINA, G.P., tekhnicheskii redaktor

[Hoisting cranes for railroad operations (construction, operation
and repair)] Gruzopod'nyye krany na zheleznodorozhnom khodu
(ustroistvo, ekspluatatsia i remont). Moskva, Gos.transp.zhel-dor.
izd-vo, 1957. 463 p. (MLRA 10:9)
(Cranes, derricks, etc.)

MUZHICHKOV, V.I., inzh. (st. Kustanay Yuzhno-Ural'skoy dorogi).

Diesel locomotives in the virgin lands. Elek. i topl. tiaga no.1:
17-18 '57. (MIRA 12:3)

(Diesel locomotives)

MUZHICHKOV, V.I., inzh.

Standard plans for shops used for repairing electric locomotives
in depots. Elek. 1 tepl. tiaga 2 no.8:12-14 Ag '58. (MIRA 11:9)
(Railroads--Repair-shops)

MUZHUK, F.

4935* Aromatic Diazo-Compounds. Aromaticeskje diazo-soedinenija. XV. Double Bond Fixation in Aromatic Compounds. Aromaticeskje soedinenija s fikirovannyimi dvojnymi svjazjami. (Russian.) F. Muzhuk and Z. Allan. *Collection of Czechoslovak Chemical Communications*, v. 19, no. 5, Oct. 1954, p. 953-958. Includes table. 8 ref.

MUZHUK, Mihai.

The new Rumania is ten years old. Vsem.prof.dvizh. no.14:36-39
0 '54. (MLRA 7:10)

(Rumania--Economic conditions)

MUZHNIKOV V I

Scientific-Technical Conference on Metallography and Heat Treatment, Khar'kov 129-52-5-15/17

properties of the components was elucidated. Practical experience has shown that most failures are due to fatigue. A very effective method of increasing the stable strength of components is by surface work hardening.

Candidate of Technical Sciences A. A. Novik and Engineer V. I. Muzhikov reported on the work of the Khar'kov Works for Building Transport Machinery in the paper "Surface Work Hardening as an Effective Method of Increasing the Fatigue Strength of Highly Stressed Components". The highest sensitivity to failure was observed in components which contain stress concentrators inherent in the design. Surface work hardening of such components gives better results and is technologically more suitable than shot peening. Work hardening by means of rolls is suitable for components like gears, shafts, etc. Work hardening of friction discs and of cylinder jackets of diesel engines by shot peening proved highly effective.

Card 3/20 In his paper Engineer D. B. Boskoboynikov dealt with

MUZHKOVA , V. I.

7624. MUZHKOVA, V. I.--Osvoyeniye svetlogo otpuska detaley. (Khar'k. zavod transp. mashinostroyeniya). M., 1954. 16 s. s ill. 20 sm. (M-vo transp. mashinostroyeniya SSSP. Vsesoyuz. proyekt-no-tekhivol. In-t v pti. obmen tekhn. opytom. vyp. 123). 1.000 ekz. b. ts. --avt. ukazany na 3-y s. --- (55-659 zh) 621. 785.7

SO: Knizhnaya Letopsis', Vol. 7, 1955

Muzhikova, V. I.

AID P - 4319

Subject : USSR/Engineering
Card 1/1 Pub. 128 - 19/26
Authors : Novik, A. A., Kand. Tech. Sci., and V. I. Muzhikova,
Engineer
Title : Strengthening of stamping hammer rods by surface
hardening with rollers.
Periodical : Vest. mash., #3, p. 67-68, Mr 1956
Abstract : The wear of stamping hammer rods has been found to
start and be most prominent close to their surface.
In order to strengthen these surfaces, a hardening
treatment is suggested by means of rollers applied
under pressure. The rods are made of 45KhN steel.
Photos, charts.
Institution : None
Submitted : No date

BALTER, Mariya Aronovna, kand. tekhn. nauk; MUZHIKOVA, Vera Ivanovna, inzh.; ZHEERMUNSKAYA, L.B., inzh., red.

[Bright annealing of steel articles in hot alkaline media]
Svetlisa zakalka stal'nykh izdelii v goriachikh shchelochnykh sredakh. Leningrad, 1961. 20 p. (Leningradskii Dom nauchno-tekhnicheskoi propagandy. Obmen peredovym opytom. Seria: Metallovedenie i termicheskaiia obrabotka, no.37) (MIRA 14:7)
(Steel—Hardening)

MUZHKOVA, V N

SKURATOV, A.D., red., V redaktirovani primali uchastiye: SHKATOV, K.K.;
FEDOROVA, M.A.; OVCHINNIKOV, A.I.; SIZOVA, A.I.; SIGEL', M.G.;
KARVETSKIY, A.V.; KULICHKIN, A.V.; NIKOLAYEVA, Z.A.; STEPANOVA,
V.P.; RYZHOVA, V.K.; MUZHKOVA, V.N.. YEREMIN, N.I., red.;
KHAKHAM, Ya.M., tekhn.red.

[Economy of Ul'yanovsk Province; a concise statistical manual]
Narodnoe khoziaistvo Ul'ianovskoi oblasti; kratkii statisticheski
sbornik. Ul'ianovskoe knizhnoe izd-vo, 1958. 199 p. (MIRA 12:3)

1. Ulyanovsk (Province). Oblastnoye statisticheskoye upravleniye.
2. Nachal'nik Statisticheskogo upravleniya Ul'yanovskoy oblasti
(for Skuratov).

(Ul'yanovsk Province--Statistics)

SHELKOVSKIY, M.F., zootekhnik; MIZHIPOV, R.G., zootekhnik; MENDEL'EVICH,
M.M., kand.veterin.nauk, red.; LODVIKOVA, A.S., red.; GALKINA,
V.N., tekhn.red.

[What the leading poultry breeders of the Tatar A.S.S.R. have to
say] Govoriat peredoviki ptitsevodstva Tatarii. Kazan',
Tatarskoe knizhnoe izd-vo, 1960. 85 p. (MIRA 14:1)
(Tatar A.S.S.R.--Poultry)

44

L 00667-67 EWT(m)/EWP(j)/T IJP(c) RM

ACC NR: AP6009867

(A)

SOURCE CODE: UR/0413/66/000/004/0065/0065

INVENTOR: Kalnin'sh, A. I.; Rakin, A. G.; Berzin'sh, G. V.; Sheydin, I. A.; Darzin'sh, T. A.; Muzhits, V. I.; Doronin, Yu. G.; Ziyemelis, A. E.; Churina, Ye. A.

ORG: none

TITLE: Preparation of wood plastics. Class 38, No. 178971 [announced by the Institute of Wood Chemistry AN LatSSR (Institut khimii drevesiny AN Latviyskoy SSR) and Central Scientific-Research Institute of Plywood (Tsentral'nyy nauchno-issledovatel'skiy institut fanery)]

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 4, 1966, 65

TOPIC TAGS: plywood, wood chemistry, wood plastic, *forest product*

ABSTRACT: An Author Certificate has been issued describing a method of preparing wood plastics. To improve the physical and mechanical properties of the end product and lower the amount of binder for making wood plastic from veneer sheets or ground wood, the latter are treated, prior to pressing, with a 25-percent solution of ammonia for 4 hr at 18-20C. The treated sheets are combined with untreated sheets during pressing. [LD]

SUB CODE: 11/ SUBM DATE: 25Jan65

Card 1/1 vlr

UDC: 674.812.2

MUZHAROV, Svetoslav Al., tekhn. po khlebcpreizvodstvo (Sofia)

Equation for the gas conditions in bread making. Mat i fiz Bulg
5 no.3:40-41 My-Je '62.

PELOVA, N.; MUZHLEKOV, M.

Teratomas of the ovary according to biopsy material of the Institute of Pathology and of the Gynecological and Obstetrical Clinic at the Medical School in Sofia and of the Institute for Pathology and Onkology at the postgraduate Medical Training Institute in Sofia. Suvrem. med., Sofia 8 no.9:12-20 1957.

1. Iz Katedrata na patologichna anatomia pri VMI - Sofia (Zavezhdashch: prof. B. Kurdzhiev) Akusheroginekologichnata klinika pri ISUL - Sofia (Direktor: doc. Nikolov)

(TERATOMA, statist.

classif. of ovarial teratoma according to biopsy)

(OVARIIIS, neoplasms

teratoma, statist. on classif. according to biopsy)

MUZHNAV, Dominik

Comparative immunoelectrophoretic study of proteins in the placenta and in fetal blood serum. Biul. eksp. biol. i med. 55 no.2:50-53 F'63. (MIRA 16:6)

1. Iz laboratorii immunokhimii (zav. S.S.Vasileyskiy) Nauchno-issledovatel'skogo instituta akusherstva i ginekologii (dir. prof. O.V.Makozov) Mirovaya nauka, Moskva, SSSR.
Predstavlena deystvitel'nykh telenom ANI SSSR M.S.Malinovskim.
(PROTEINS IN THE BODY) (PLACENTA) (FETUS)

171-2-112-1112-2-1-45-2-1
STRELETS, Kh.L.; MUZHZHAVLEV, K.D.

Use of radioactive isotopes to investigate the mechanism of
cathode passivation in a magnesium electrolyser. TSvet.net.
30 no.6:52-56 Je '57. (MLRA 10:7)

1. Vsesoyuznyy alyuminiyevy-magniyevyy institut.
(Magnesium--Electrometallurgy) (Radioisotopes--Industrial applications)

85455

S/149/60/000/005/006/015
A006/AOC1

18 5100

1087,1454

AUTHORS:

Muzhzhaviev, K.D. and Lecedev, O.A.

TITLE:

On the Problem of Improving the Quality of Electrolytical Magnesium

PERIODICAL:

Izvestiya vysshikh uchebnykh zavedeniy, Tsvetnaya metallurgiya, 1960, No. 5, pp. 89-94

TEXT

In considering the problem of improving the quality of electrolytical magnesium the authors use literature data results obtained at the Berezniki and Solikamsk magnesium plants and data obtained by special experiments carried out by the authors and workers of the Berezniki plant. The properties of electrolytical magnesium depend on various factors, such as the quality of the raw material, the design of the electrolytic cell and technology of electrolysis. A series of measures is proposed to raise the purity of initial magnesium. Chlorous magnesium obtained by the magnesium-thermal method of titanium reduction is suggested as a raw material. This material contains the following impurities (in %): 0.01 Fe, traces of SiO₂ and SO₄, Al₂O₃, etc. and 0.2 MgO. These impurities may cause cathode passivation and "bubbling" of the electrolyte which entails stirring of the slime and makes the electrolyte non transparent. Special investigations

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A006/A001

On the Problem of Improving the Quality of Electrolytical Magnesium

should be carried out to improve the quality of the raw material. It was shown by special tests that the addition of magnesium chips to a carnallite fusion containing up to 1% SO_4^{2-} reduced the sulfur and moisture content to traces within some minutes. New electrolytic cells should be designed in such a manner that their efficiency be raised and the specific consumption of electric power be reduced, producing magnesium of higher purity. This may be attained by improving the quality of the furnace lining using magnesite bricks and by preventing the destruction of the cathode steel bars contaminating the electrolyte with iron. The durability of cathode bars may be raised by artificial cooling. The new design of electrolytic cells should provide for the collection of magnesium from the cells to one spot prior to its extraction. Presently, designs have been proposed ensuring the collection of magnesium and slime into a special cell from which mechanized slime extraction can be performed. (Author's claim submitted by V.V. Krivtuchenko # 609079 of October 8, 1958) The information includes the following technological recommendations: optimum electrolyte temperature 690-720°C; use of a sodium-calcium electrolyte containing 10% $MgCl_2$, 25-35% $CaCl_2$; $NaCl$: $KCl \geq 3$ the concentration of magnesium chloride should not be below 8-10% in order to obtain high-purity magnesium. The observation of the measures suggested

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A006/A001

On the Problem of Improving the Quality of Electrolytical Magnesium

would ensure the production of magnesium with a content of impurities (particularly Fe, S, A) by several times below that was provided by GOST for Mg-1 grade magnesium. There is 1 table and 7 references - 6 Soviet and 1 English. This article was recommended for publication by the kafedra elektropirometallurgii tsvetnykh metallov (Department of Electropyrometallurgy) of the Leningradskiy politekhnicheskii institut (Leningrad Polytechnic Institute)

ASSOCIATION: Leningrad Polytechnic Institute - Vsesoyuznyy alyuminiyevo-magniyevyy institut (All-Union Aluminum-Magnesium Institute)

SUBMITTED: January 5, 1960

Card 3/3

86936

S/149/60/000/006/007/018
A006/A001

18 3100

1087, 1208, 1454

AUTHORS: Lebedev, O.A., Muzhzhavlev, K.D.

TITLE: Obtaining High-Purity Magnesium by the Method of Electrolytic Refining

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Tsvetnaya metallurgiya, 1960, No. 6, pp. 80-86

TEXT: In the USSR the basic method of obtaining high-purity magnesium is vacuum distillation of MgI grade magnesium, developed from 1953-55 by I.D. Tsaregorodtsev and V.M. Gus'kov (Ref. 3). Primary magnesium of higher purity than MgI magnesium can be obtained directly from a magnesium electrolytic cell. This was confirmed by experiments made at an American plant where primary electrolytic magnesium was obtained with a content of only 0.003% Fe (Ref. 1) although the content of other impurities was not considerably reduced. The main deficiency of all vacuum distillation is the fact that magnesium cannot be uniformly refined of all the impurities. A method of obtaining high-purity magnesium by electrolytic refining of raw magnesium has been laboratory tested for the first time by the All-Union Scientific Research Institute of Aluminum and Magnesium in cooperation with

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86936

S/149/60/000/006/007/018
A006/A001

Obtaining High-Purity Magnesium by the Method of Electrolytic Refining

the Leningrad Polytechnic Institute. The same two- and three-layer methods employed in electrolytic refining of aluminum were used in this case. The lay-out of the electrolyzer (1-1.5-liter-capacity) which was used in the experiments is shown in the illustration. A batch of the electrolyte and magnesium was placed in the electrolyzer and heat was supplied during continuous hydrogen chloride feed which was not interrupted in order to prevent hydrolysis of the electrolyte. After the salt and magnesium had melted, the metal floated up in the cathodic space and was carefully scooped into the anodic space; then the dried cathode was slowly introduced. After switching on the current, the magnesium was scooped every 30-60 minutes with a graphite ladle, poured onto a graphite plate and after cooling placed into glass containers. The metal samples were subjected to spectral and chemical analysis. The composition of the electrolyte was 30% magnesium chloride, 35% each sodium and potassium chloride, with a 2% addition of calcium fluoride. Bath temperature was 700-750°C; the current density (cathode) was 1.3 a/cm². The average impurity content of electrolytically refined magnesium is approximately 0.005% as compared with 0.01% for vacuum distilled magnesium. Approximate

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S/149/60/000/006/007/001
A006/A001

Obtaining High-Purity Magnesium by the Method of Electrolytic Refining

economical calculations show that power consumption is approximately equal for both methods, but the attendance of the electrolytic cell is less labor consuming. It can be expected that magnesium obtained by electrolytical refining will be of a higher purity and the method will be cheaper than vacuum distillation. The preliminary results obtained could be completed by the further development of theoretical, constructional and technological problems.

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4

X

Doc 3/1

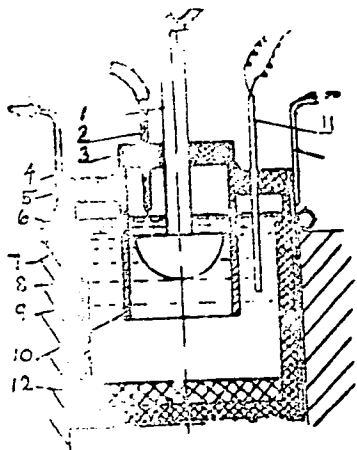
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A006/A001

Obtaining High-Purity Magnesium by the Method of Electrolytic Refining

Schematic drawing of the electrolyzer



1 - graphite cathode; 2 - quartz tube for feeding hydrogen chloride; 3 - graphite cathode cover; 4 - anode power connection; 5 - graphite anode cover; 6 - cooling pipe; 7 - raw magnesium; 8 - steel crucible; 9 - graphite body of electrolyzer; 10 - magnesite diaphragm; 11 - quartz cover of thermocouple; 12 - magnesite plate. In two-layer refining, a magnesite plate is mounted to insulate the bottom (12). In three-layer refining this plate is removed and a liquid magnesium-copper alloy is filled onto the bottom. X

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S/149/60/000/006/007/018
A006/A001

Obtaining High-Purity Magnesium by the Method of Electrolytic Refining

There are 3 tables, 1 figure and 3 references: 2 English and 1 Soviet.

ASSOCIATIONS: Vsesoyuznyy alyuminiyevo-magniyevyy institut (All-Union Institute of Aluminum and Magnesium); Leningradskiy politekhnicheskiy institut (Leningrad Polytechnic Institute)

SUBMITTED: January 5, 1960

X

Card 5/5

S/149/62/000/002/005/008
A006/A101

18146
AUTHORS:

Lebedev, O. A., Muzhzhavlev, K. D.

TITLE:

Electrolytical refining of magnesium alloys

PERIODICAL:

Izvestiya vysshikh uchebnykh zavedeniy, Tsvetnaya metallurgiya,
no. 2, 1962, 72-77

TEXT:

Results of laboratory studies are presented, which were carried out for the purpose of revealing the possibility to obtain commercial Mr 1 (Mg1) or Mr 2 (Mg2) grade magnesium from magnesium-alloy scrap, by means of three-layer electrolytical refining. The experimental magnesium alloy contained Mg +10% Al + 1.5% Zn + 0.5% Mn + 0.3% Ni + 0.5% Si; 20 - 30% Cu was added as weighting compound. The electrolyte was composed of 40% KCl, 40% NaCl, 10% BaCl₂, 10% MgCl₂. The experiments were made in three series: 1) to study the effect of the anode current density on the quality of the cathode metal; 2) to study the degree of magnesium extraction from the anode alloy and the technological indices of electrolytical refining; 3) to reveal the possibility of using zinc as a weighting compound and to test a lesser hygroscopic electrolyte. The following results were obtained. At 0.4 - 0.8 amp/cm² density of the anode current and

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Electrolytical refining of magnesium alloys

S/149/62/000/002/005/008
A006/A101

about 1 amp/cm² density of the cathode current, the magnesium obtained from the refining of alloys corresponds, regarding the majority of admixtures, to grade "Mg1" GOST 804-56. The maximum degree of extracting magnesium from the anodic alloy is about 80 - 90%. Slime formation has a great effect on the electrolytic process; the cathode current efficiency decreases from 100 to 50% as magnesium extraction increases from 0 to 80% and more. Preliminary experiments on the use of zinc as a weighting compound show the possibility of three-layer refining at about 30% Zn content in the anode alloy. At D_a varying from 0.4 - 0.8 amp/cm², the Zn content in the cathode metal is 0.03 - 0.1%. Further investigations are necessary. There are 1 figure, 4 tables, and 5 references: 4 Soviet-bloc and 1 non-Soviet-bloc.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy alyuminiyevyo-magniyevyy institut (All Union Scientific Research Institute of Aluminum and Magnesium)

SUBMITTED: May 9, 1961

Card 2/2

MUZHZHAVLEV, K. D.; LEBEDEV, O. A.; IVANOV, A. I.; DESYATNIKOV, O. G.

Ways of avoiding manual labor for the removal of sludge from
magnesium electrolytic cells. TSvet. met. 35 no.10:56-62
0 '62. (MIRA 15:10)

(Magnesium—Electrometallurgy)

MUZHZHAYEV, K.D.; LEBEDEV, O.A.; DECIATNIKOV, O.G.

Some problems in the technology of magnesium electrolysis.
TSvet. met. 36 no.4:55-61 Ap '63. (MIRA 16:4)

(Magnesium—Electrometallurgy)

LEBEDEV, O. A.; FRANTAS'YEV, N. A.; OLYUNIN, G. V.; MUZHZHAVLEV,
K. D.; SHEKA, V. P.; SHEKA, T. S.

Developing a method of mechanized removal of electrolytic
slime in magnesium production. TSvet. met. 36 no. 11:38-
41 N '63. (MIRA 17:1)

LEBEDEV, Oleg Andreyevich; FRANTAS'YEV, Nikolay Anatol'yevich;
MUZHZHAVLEV, Konstantin Dmitriyevich

[Casting, refining, and preparing magnesium alloys; manual
for workers in magnesium foundries] Lit'e, rafinirovaniye i
prigotovleniye magnievykh splavov; posobie dlia rabochikh
liteinykh tsekhov magnievykh zavodov. Moskva, Metallurgiya,
1965. 56 p. (MIRA 18:7)

MUZHZHAVLEV, K.D.; LEBEDEV, O.A.; FRANTAS'YEV, N.A.; OLYUNIN, G.V.;
SHEKA, T.S.; DOLGIKH, T.K.; Prinimali uchastiye: POPOV, V.V.;
SHEKA, V.P.

Results of testing individual design elements of magnesium
electrolytic cells. TSvet. met. 38 no.5:57-60 My '65.
(MIRA 18:6)

FRANTAS'YEV, Nikolay Anatol'yevich; MUZHZHAVLEV, Konstantin
Dmitriyevich; LEBEDEV, Oleg Andreyevich

[Operation of rotary kilns, chlorinators and continuous
action, stationary cast-iron furnaces] Obsluzhivanie vra-
shchaisushchikhsia pechei, khloratorov i pechei SKN. Moskva,
Metallurgiya, 1965. 60 p. (MIRA 18:8)

L 28970-66 EWT(m)/EWP(e)/T/EWP(t)/ETI IJP(c) DS/JD/WW/WH

ACC NR: AP6019136

SOURCE CODE: UR/0136/65/000/003/0060/0065

AUTHOR: Muzhzhavlev, K. D.; Lebedev, O. A.; Frantas'yev, N. A.; Olyumin, G. V.; Dolgikh, T. K.; Sheka, T. S.

ORG: none

TITLE: Improvement in the technology of magnesium chloride electrolysis¹

SOURCE: Tsvetnyye metally, no. 3, 1965, 60-65

TOPIC TAGS: electrolyte, electrolysis, titanium, magnesium, chloride, furnace, magnesium compound, chlorination

ABSTRACT: On the basis of the pilot plant investigations conducted by the authors in 1959-1960, a sodium-potassium electrolyte composed of (%): 8-18 MgCl₂, 60-30 NaCl, 20-30 KCl, 0-10 CaCl₂ or BaCl₂, was recommended for the electrolysis of MgCl₂ obtained from the production of titanium.

In 1961-1963, at one magnesium plant, extensive research of the sodium - potassium electrolyte was conducted at a group of experimental industrial electrolyzers operated for 1-1.5 years after replacement of the lining before the beginning of the tests. For comparison, the sodium-calcium and potassium electrolytes were tested simultaneously under comparable conditions.

The electrolyzers were fed molten MgCl₂ from titanium production containing (%): 95-99 MgCl₂, 0.4 MgO, 0.004 SiO₂, 0.007 Fe, < 0.02 C, 0.01 SO₄⁻², 0.01 F⁻, 0.04 H₂O, and 0-2 Mg metal.

The slime² from the electrolyzers was removed manually once in 7 days; the distance between electrodes was kept at 8-10 cm; fluorides were not introduced into the electrolyzers. The anode current density for all electrolyzers was identical - 0.43 a/cm². In contrast to the earlier issued recommendations, the electrolyte temperature was kept at 700-720°C.

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UDC: 669.721

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ACC NR: AP6019136

To control the true value of the current yield the electrolyzers were periodically (6-10 days) changed to a feed of $MgCl_2$ obtained in electrical shaft furnaces.

Identically high and stable average current yield, approximating 90%, was obtained in the sodium-potassium and potassium electrolyzers. The current yield for the sodium-calcium electrolyte was 4-6% lower.

The amount of slime in the potassium and sodium-potassium electrolytes was identical (0.06 kg/mg Mg); in the sodium-calcium electrolyte, 70% more slime was obtained.

Because of these factors the actual electrical conductivity of the sodium-potassium electrolyte is approximately 20% higher than the electrical conductivity of the sodium-calcium electrolyte with the same amount of NaCl in the electrolyte.

The amount of magnesium raw material in its main impurities, the losses of metallic magnesium with the slime, the yield and concentration of chlorine, and the stability of the lining in the experimental industrial electrolyzers were identical for all three electrolyte compositions.

Relationship of current yield to the interelectrode distance showed in pilot-plant electrolyzers of the All-Union Aluminum and Magnesium Institute (VAMI), that the change in distance between electrodes within the limits of 3-16 cm does not at all affect current yield.

In 1963, this relationship was studied on an experimental industrial electrolyzer. When the composition of the electrolyte was (in %): 8-12 $MgCl_2$, 22-24 NaCl, 63-56 KCl and 3.0 $CaCl_2$, the current yield and the electric

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power consumption remained almost unchanged upon decreasing the interelectrode distance from 8-9 to 4-5 cm, but the current at the electrolyzer cell in the second case was increased by 20% because of the additional current feed from the auxiliary generator and disconnection of one cell. The losses of chlorine with the gases of the cathode suction and its concentration in the anode gas remained unchanged. The amount of slime also remained unchanged.

Relationship of current yield and slime content to the $MgCl_2$ concentration in the electrolyte was conducted on the pilot plant electrolyzer of VAMI at 2000 amps.

Granulated $MgCl_2$ from titanium production containing (in %): 0.5-1.5 H_2O , 0.4-0.7 MgO was the raw material. $MgCl_2$ was loaded into the electrolyzer continuously with the aid of a trough feeder. The variation in concentration in a single period did not exceed 1%, and the electrolyte level was kept strictly constant.

If one takes, as 100%, the amount of slime when the concentration of $MgCl_2$ is 6%, then when the content of $MgCl_2$ in the electrolyte is 9, 13 and 16%, this value is 118, 154, and 195% respectively. Increased $MgCl_2$ concentrations in the electrolyte from 6-9 to 13% led to the increase of current yield from 86 to 90%.

It is evident that to obtain a high and stable current yield the $MgCl_2$ concentration in the electrolyte of industrial electrolyzers should not be below 8-10% (the upper limit -- not over 18-20%)

It is interesting to note that the $MgCl_2$ content change in the range of 6-16% in the electrolyte did not at all affect the value of the average

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ACC NR: AP6019136

voltage of the electrolyzer.

The cause of this, evidently, is the fact that the reverse emf measured by the instantaneous cut-out of a cell was 2.92 V at 6% $MgCl_2$ and 2.28 V at 16% $MgCl_2$.

Relationship of the current yield and slime content to the duration of intervals between recoveries of slime at the VAMI pilot plant electrolyzer showed that the duration of interval between extraction of the slime was increased to 142 days; thereupon the amount of slime amounted to 0.01 kg/kg Mg in all.

In 1961, in an experimental industrial electrolyzer, the time of the intervals between slime removal was set at 40-50 days; the current yield was 85-87%. In 1963 this task was studied more in detail at two experimental industrial electrolyzers.

From the data obtained it follows that when feeding $MgCl_2$ from titanium production to electrolyzers the slime content depends not so much on the amount of raw material, composition of the electrolyte and design of the electrolyzer as on the conditions for slime recovery.

Testing of an electrolyzer with a graphite hearth with $MgCl_2$ feed from the titanium production was conducted on pilot plant scale for 4 months.

The total current at the electrolyzer was 2000 amps; the current shunted to the hearth -- 100-200 amps ($D = 0.03-0.06$ amps/cm²).

With a disconnected hearth, the current yield and slime formation were the same as in the pilot plant electrolyzer with an ordinary hearth.

During anode polarization of the graphite hearth, the slime completely

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ACC NR: AP6019136

disappeared in 2-3 days; during operation with a connected hearth no slime was formed.

However, both in the first and also in the second case the current yield was reduced from 88-91 to 80-85%, i.e., by 5-8%. This can be explained by the chlorination of impurities and their harmful effect on the process. Research in this area will be continued. Of much interest in removing the harmful effect of impurities is the use of chlorine-discharging anodes with which all or part of the chlorine is carried off through the body of the anode. Such experiments are being conducted at the present time.

With the further mastery of the sodium-potassium electrolyte, increase of NaCl in it, and the introduction into industry of the operating regimes at small distances (4-5 mm) between electrodes, these indicators in the opinion of the authors, can amount to 88-90% and 50.4-52.2 megajoules/kg of Mg (14.0-14.5 kilowatt-hours/kg of Mg) respectively, when the current is 20-30% higher than at the present.

The tests on experimental industrial electrolyzers, as well as the physical and chemical properties of the sodium-potassium electrolyte which are favorable to the electrolytic process and the high quality of $MgCl_2$ from the production of titanium, can serve to confirm this.

The selection of the actual ratio of NaCl:KCl in the electrolyte depends on the technical scheme of the plant and level of mechanization of slime recovery processes. As the calculation of economic effectiveness indicates, the use of the sodium-potassium electrolyte in place of the sodium-calcium one permits a reduction of approximately 5% in the cost of magnesium.

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Additionally, the use of this electrolyte permits the mechanisation of the slime recovery with the aid of a vacuum. With sodium-calcium or sodium-barium electrolytes this means of slime recovery is hardly applicable because of the large losses of CaCl_2 or BaCl_2 . The sodium-potassium electrolyte should be recommended for use, in turn, for high quality MgCl_2 . However, in the future this electrolyte composition may be quite practical for all forms of MgCl_2 .

Orig. art. has: 5 tables. [JPRS]

SUB CODE: 13, 07 / SUBM DATE: none / ORIG REF: 006

Card 6/6 *BLG*

~~MUZICAR, Ch.~~ [Muzicar, C.]

Vavilov--Cherenkov effect in uniaxial crystals. Zhur. eksp.
i teor. fiz. 39 no. 1:163-170 JI '60. (MIRA 13:12)

1. Sotrudnik fiziko-matematicheskogo fakul'teta Karlova
universiteta, Praga, Chexoslovakiya. Ob'yedinenyy institut
yadernykh issledovaniy.
(Cherenkov radiation) (Crystals)

MUZYCHUK A.M.

USSR/Chemistry - Physical chemistry

Card 1/1 Pub. 147 - 11/27

Authors : Glauberman, A. E., and Muzychuk, A. M.

Title : Surface tension of binary metallic alloys of volumetrically- and face-centered structures

Periodical : Zhur. fiz. khim. 28/9, 1615-1622, Sep 1954

Abstract : Formulas determining the surface tension of alloys of volumetrically- and face-centered structures, often encountered in nature, are presented. The theory of surface tension of binary alloys, based on the idea of quasi-heteropolarity of the lattice in the alloy, was applied for the calculation of the surface tension of binary intermetallic alloys of the above mentioned structures. The surface tension in the given formulas is expressed through values of effective charges characterizing the components of the alloys. Four USSR references (1949-1954). Drawings.

Institution : The Iv. Franko State University, Lvov

Submitted : December 25, 1953

MUZYCHUK, A. M., Cand Phys-Math Sci -- (diss) "An investigation of the Changes in the Resistance of Semiconductors in Polar Magnetic Field." Lvov, 1957, 8 pp (Ministry of Higher Education UkSSR: Lvov State Univ im Ivan Franko) 120 copies, no price given. -- bibliography at end of text (10 entries) (KL, 21-60, 118)

MUZICHUK, O.M.

Semiconductor magnetoresistance effect in a polar model. Ukr.
fiz.zhur. 2 no.1:43-52 Ja-Mr '57. (MLRA 10:5)

1. L'vivs'kiy derzhavniy universitet.
(Semiconductors)

GIAUBERMAN, A.Yu.; MUZYCHUK, O.M.

Resistance of semiconductors in strong magnetic fields [in Ukrainian
with summary in English]. Ukr. fiz. zhur. 3 no.2:178-184 Apr-May '58.
(MIRA 11:6)

(Semiconductors--Magnetic properties)

GLAUBERMAN, A.Ye.; MUZYCHUK, A.M. [Muzychuk, O.M.]

Many-electron theory of liquid semiconductors. Ukr. fiz. zhur. 5
no. 5:597-605 S-0 '60. (MIRA 14:4)

1. L'vovskiy gosudarstvennyy universitet.
(Semiconductors)

3/135/62/007/003/004/015
 3299/550:

14.2110

AUTHORS:

Blauberman, A.Yu. and Muzychuk, O.M.

TITLE:

On the theory of transport processes in liquid semiconductors

PERIODICAL:

Ukrayins'kyy fizychnyy zhurnal, v. 7, no. 3, 1962,
 261 - 265

TEXT:

Transport processes in liquid semiconductors are considered on the basis of the theory, developed by the authors in an earlier work (Ref.1: Ukr. fizychn. zh., 5, 597, 1960); the results of the preceding article (in same issue, pp. 256 - 259) are also used. The exact excitation-Hamiltonian for a fixed configuration of atoms is written in the form:

$$H = \bar{H} + (H - \bar{H}) \quad (1)$$

the quantity $(H - \bar{H})$ is interpreted as a perturbation (the subscript of $H_{exc.}$ has been dropped, hence H denotes $H_{exc.}$). A liquid semicon-

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S/165/62/007/003/004/015
0209/0301

On the theory of transport ...

ductor in crossed electric (E) and magnetic (H) fields is considered; the dependence of the conductivity on the magnetic field strength is determined. On the basis of the method of stationary states it is shown that the current, averaged over all the atomic configurations, is non-zero. A formula is derived, relating the operators of the quasiparticles (X_q and σ_q) in \bar{H} , to those in H . The Hamiltonian \bar{H} is diagonalized.

The perturbation $\Delta H = H - \bar{H}$, which carries forth the current, is expressed in terms of the operators $\bar{\sigma}_q$ and \bar{X}_q , which diagonalize \bar{H} . A formula is derived for the total number of quasiparticles which changed their state as a result of the perturbation. After computations, one obtains an approximate formula for the resistance ρ in a weak magnetic field ($\frac{\hbar\omega_c}{kT} \ll 1$), viz.: $\rho_H = A(T) H^2$ ($A(T)$ is given by an ex-

pression). Thus the relationship between the resistance and magnetic field strength in weak fields, is analogous to that in crystals, where the temperature dependence of the field strength is considerably more

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S/185/62/007/003/004/015
D299/D301

On the theory of transport ...

complicated. There are 8 references: 6 Soviet-bloc and 2 non-Soviet-bloc.
The reference to the English-language publication reads as follows:
L. Norheim, Ann.Phys., 9, 641, 1931.

ASSOCIATION: L'vivs'kyi derzhuniversytet im. Iv. Franka (L'viv
State University im. Iv. Franko)

SUBMITTED: June 8, 1961

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Card 3/3

MUZICHUK, F.M. [Muzychuk, F.M.]

Restoration of the canvas of the root elevator in ~~SKEM~~-3 combines.
Mekh.sil'.hosp. 9 no.12:18 D '58. (MIRA 12:1)

1. Glavnyy inzh. Chertkovskoy remontno-traktornoy stantsii,
Ternopol'skoy oblasti.

(Sugar beets--Harvesting)

(Harvesting machinery--Maintenance and repair)

MUZICHUK, M.F. [Muzychuk, M.F.]

How to detect leakage in fuel feed pumps of engines. Mekh.sil'.
hosp. 10 no.1:18-19 Ja '59. (MIRA 12:4)

1. Glavnyy inzhener Chertkovskoy remontno-tehnicheskoy stantsii,
Ternopol'skoy oblasti.
(Tractors--Fuel systems)

MUZYCHUK, F.M.; PODRUCHNYY, L.F., traktorist

Improving the use of tractor trailers. Mekh.sil'.hosp.
10 no.12:14 D '59. (MIRA 13:3)

1. Glavnyy inzhener Chortkovskoy remontno-tekhnicheskoy
stantsii, Ternopol'skoy oblasti (for Muzychuk). 2. Kolkhoz
"1 Travnaya," Chortkovskogo rayona (for Podruchnyy).
(Tractors--Trailers)

MUZICHUK, F.M. (Masychuk, F.M)

Our method of assembling sprayers. Mekh. sil'. hosp. 11 no.7:18
J1 '60. (MIRA 13:10)

1. Glavnyy inzhener Chortkovskoy remontno-tekhnicheskoy stantsii,
Ternopol'skoy oblasti.
(Diesel engines)

MUZYCHUK, F.M.

Performance of the frictional attachment of fuel pumps. Mekh. sil'.
hosp. 11 no.9:13 S '60. (MIRA 13:9)

1. Glavnyy inzhener Chertkovskoy remontno-tekhnicheskoy stantsii,
Ternopol'skoy oblasti.
(Fuel pumps)

MUZYCHUK, F., inzh.

How we improve the technical knowledge of machinery operators.
Tekh. v sel'hooz. 20 no.7:12 JI '60. (MIRA 13:9)

1. Chortkovskaya rayonnaya traktornaya stantsiya.
(Farm mechanization)

MUZICHUK, F.M.

Improving the adjustment mechanism of multiple-purpose regulators.
Mekh. sil'. hosp. 12 no. 4:23-24 Ap '61. (MIRA 14:4)

1. Glavnyy inzh. Chortkovskoy remontno-tekhnicheskoy stantsii,
Ternopol'skoy oblasti.

(Governors (Machinery))