

25702 S/020/61/139/002/011/017
B104/B205

18.8200 also 1327, 2808

AUTHORS: Likhtman, V. I., Bryukhanova, L. S., and Andreyeva, I. A.
TITLE: Long-time strength of metals
PERIODICAL: Akademiya nauk SSSR. Doklady. v. 139, no. 2. 1961, 359 - 362

TEXT: The effect of surface-active metallic melts on the mechanical properties of high-melting metals has been studied in the authors' laboratory. It could be shown on single crystals of Zn, Cd, and Sn that the sudden loss in strength and plasticity occurring under the action of a thin film of a melt on a single crystal being stretched at a constant rate, is related neither with the grain boundaries, nor with the dissolution of the high-melting metal in the melt, nor with the interaction between the metal and the basic metal, which leads to an intermetallic compound. The mechanism of this effect consists in a considerable adsorptive decrease of the surface energy of the high-melting metal (Rebinder effect) both on the external surface and on the two surfaces of the crack. S. N. Zhurkov et al. (ZhTF, 23, 1677 (1953); DAN, 101, 237

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Long-time strength of metals

25781

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X

(1955); Fiz. tverd. tela, 2, 1033 (1960)) have shown that the destruction of solids is a thermally activated process and, therefore, depends on the time of action of mechanical stress. Thus, it may be assumed that the dependence of the kinetics of the destruction of a metal on stress and temperature in the presence of an active melt makes it possible to estimate the role of thermal activation in this new mode of destruction. The authors studied single crystals of zinc of varying orientation, as well as zinc and cadmium polycrystals. The specimens were wires 1mm thick and 10 mm long. For zinc a thin Hg film was used as surface-active melt, and for cadmium a gallium film. The results obtained are illustrated in four graphs. On single crystals of zinc it was not possible to establish any relationship between the time elapsing until destruction and stress in the presence of a thin film. The single crystals broke suddenly at low stresses, and the transition from sudden rupture to practically infinite stability takes place within a very narrow range of stresses. Thus, it was not possible to find an intermediate value in this range. The same results were obtained for amalgamated zinc polycrystals and cadmium polycrystals coated with gallium. Amalgamated zinc specimens stretched at a constant rate are destroyed as soon as a stress of 1 kg/mm^2

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is reached. This corresponds to the discontinuity on the curve $\log \tau = f(P)$ which, in turn, corresponds to the transition from the destruction mechanism based on thermally activated processes to a mechanism based on an increase in the surface energy, which is brought about by the active melt. The second mechanism occurs not before a certain stress is attained. This corresponds to the braking strength of the metal which is reduced in the presence of the active melt. The authors thank Ye. D. Shchukin and L. A. Kochanova for discussions. There are 4 figures and 10 references: 9 Soviet-bloc and 1 non-Soviet-bloc. The reference to English-language publications reads as follows: K. H. Mann, et al. J. Phys. Chem., 64, 251 (1960).

ASSOCIATION: Institut fizicheskoy khimii Akademii nauk SSSR (Institute of Physical Chemistry of the Academy of Sciences USSR)
PRESENTED: March 15, 1961, by P. A. Rebinder, Academician
SUBMITTED: March 6, 1961

Card 3/4

35603

S/020/62/143/001/018/030
B104/B108

18,110

AUTHORS: Chayevskiy, M. I., Bryukhanova, L. S., and Likhtman, V. I.
TITLE: Durability of steels in the presence of active metal melts
PERIODICAL: Akademiya nauk SSSR. Doklady, v. 143, no. 1, 1962, 92-94

TEXT: Specimens of steel Cr 50 (St 50) in normal state, with a test length of 30 mm and a diameter of 10 mm were investigated. Part of the specimens were provided with 0.5 mm deep notches (edge angle 45°) as stress concentrator. In the presence of a eutectic Pb-Sn alloy, the logarithm of the time up to rupture of the specimen at a deformation rate of about 10% per minute suddenly drops (Fig. 1). This destruction is not related to thermal activations. Zn-Sn melts with 50% Sn immediately form compounds in the cracks of the steel specimens owing to their high surface activity. Thus, the stress ranges in the specimens are widened very much. The reduction in surface energy owing to adsorption is greater than for Pb-Sn melt. Consequently, the stress at which the logarithm of the time up to destruction suddenly drops, is much smaller for Zn-Sn than for Pb-Sn (Fig. 2). Sn-Cu melts (5% Cu) are even more active. There are 2 figures

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Durability of steels in the ...

S/020/62/143/001/018/030
B104/B108

and 5 references: 4 Soviet and 1 non-Soviet. The reference to the English-language publication reads as follows: G. W. Austin, J. Inst. Met., 58, 1 (1936).

ASSOCIATION: Institut fizicheskoy khimii Akademii nauk SSSR (Institute of Physical Chemistry of the Academy of Sciences USSR)

PRESENTED: May 16, 1961, by P. A. Rebinder, Academician

SUBMITTED: May 3, 1961

Fig. 1. Durability of St 50 as a function of stress at 400°C.
Legend: (1) specimens without notch; (2) specimens with notch; (I) specimens without notch in Pb-Sn melt; (II) specimens with notch in Pb-Sn melt; (τ) time up to rupture; (p) stress.

Fig. 2. Durability of St 50 as a function of stress at 400°C, (specimens without notch).
Legend: (1) specimens in air; (2) specimens in Zn-Sn melt; (τ) and (p) as in Fig. 1. X

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ACC NR: AR6035407

SOURCE CODE: UR/0137/66/000/009/A007/A007

AUTHOR: Likhtman, V. I.; Bryukhanova, L. S.; Andreyeva, I. A.

TITLE: Measurement of surface tension of hard metals in the presence of adsorption layers of surface-active metallic alloys

SOURCE: Ref. zh. Metallurgiya, Abs. 9A41

REF. SOURCE: Sb. Poverkhnostn. yavleniya v rasplavakh i vznikayushchikh iz nikh tverd. fazakh. Nal'chik, 1965, 438-442

TOPIC TAGS: surface tension, alloy, adsorption, surface active coating, metal surface

ABSTRACT: The author determined experimentally the surface tension σ of solid Zn which adsorbed different amounts of Ga on its surface. σ was determined by the Tamman "zero" creep method. A foil of Zn 7×10^{-3} cm thick was used; the Ga film (5×10^{-7} -- 1×10^{-5} cm) was deposited electrolytically. σ experiences maximum reduction when the Ga film thickness is 0.1μ . A tentative estimate of the depth of the diffusion penetration of Ga and Zn makes it possible to propose that the maximum reduction of σ corresponds to a monomolecular layer of Ga on the surface of Zn. 3 illustrations. Bibliography, 7 titles. (From RZh Khim.) [Translation of abstract]

SUB CODE: 20, 11

Card 1/1

UDC: 669.532.61

E-62534-65

EPP(c)/EWT(m)/EWP(1)/EWP(b)/EWA(d)/EWP(t) IJP(c) JD/JG/WB

ACCESSION NR: AP5012648

UR/0369/65/001/002/0134/0138 33

AUTHOR: Bryukhanova, L. S.; Andreyeva, I. A.; Likhtman, V. I. 29 B

TITLE: Reduction in surface tension of solid metals when atoms from melts of surface-active metals are absorbed on their surfaces

SOURCE: Fiziko-khimicheskaya mekhanika materialov, v. 1, no. 2, 1965, 134-138

TOPIC TAGS: surface tension, zinc, thin film, surface active agent

ABSTRACT: The surface tension of solid zinc was measured during adsorption of various quantities of gallium. The surface tension of zinc covered with a thin lead film (2 μ thick) was also measured. The "zero" creep method developed by Tamman and Udin was used (G. Tamman, W. Boehme, *Ann. Phys.*, 1932, 12, 820; H. Udin, A. Shaler, I. Vulff, *Journ. of Metals*, 1949, 1, 186). The method is based on the fact that the specimen expands at temperatures close to the melting point when it is loaded above a certain limiting value P_0 , while contraction due to surface tension is observed at loads below P_0 . Thus the zero creep load P_0 exactly balances the surface tension. Thus for foil we have the condition $P_0 = \sigma a$ where a is the width of the foil and σ is surface tension. The results of a preliminary study of creep for zinc foil coated

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L 62534-65

ACCESSION NR: AP5012648

4

with a gallium film 10^{-5} mm thick are shown in fig. 1 of the Enclosure. This shows that experiments of 1 and 3 hours duration yield identical results, while in longer experiments the results are distorted by the tendency of the foil to shrink even under extremely high loads. Measurements of surface tension are shown in fig. 2 of the Enclosure for pure zinc and for zinc foil covered with various quantities of gallium. Graphs are also given for surface tension and absorption as functions of the concentration of gallium in zinc, and for the relationship between elongation of zinc foil coated with lead (0.2μ) and load at 380°C . "The authors are deeply grateful to Professor A. A. Zhukhovitskiy, Doctor of physical and mathematical sciences Ye. D. Shchukin and Candidate of chemical sciences L. A. Kochanova for valuable comments during discussion of the results of the work." Orig. art. has: 4 figures, 1 table.

ASSOCIATION: Institut fizicheskoy khimii AN SSSR, Moscow (Institute of Physical Chemistry, AN SSSR)

SUBMITTED: 15Oct64

ENCL: 02

SUB CODE: SS, MM

NO REF SOV: 005

OTHER: 002

Card 2/4

L 62534-65

ACCESSION NR: AP5012648

ENCLOSURE: 01

0

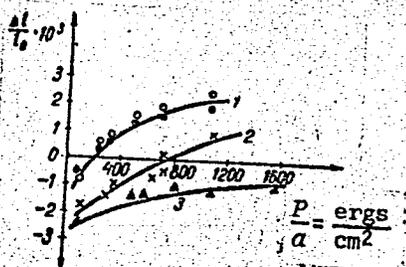


Fig. 1. Relationship between relative elongation of zinc foil coated with gallium (0.1 μ) and load at 380°C.
1---O---1 hr; 2---x---3 hrs;
3---Δ---5 hrs; 4---Δ---8 hrs.

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ACCESSION NR: AP5012648

ENCLOSURE: 02

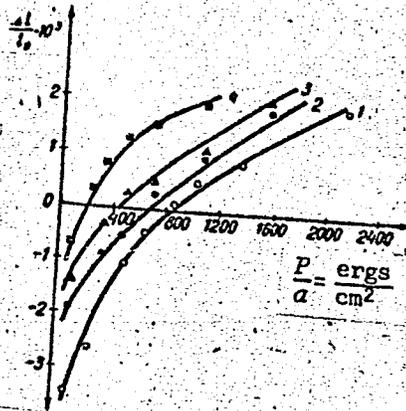


Fig. 2. Relative elongation of zinc foil coated with gallium layers of various thicknesses as a function of loading at 380°C and 3 hours isothermal holding. 1--zinc foil without coating; 2--~0.005 μ ; 3--~0.02 μ ; 4--~0.1 μ

Card $\frac{4}{4}$

LIKHTMAN, V.I.; BIKUCHANOVA, I.S.; ANDREYEVA, I.A.; REBININ, P.A., akademik

Decrease of the surface tension of solid metals when atoms of
surface-active metallic melts are adsorbed on their surface.

Dokl. AN SSSR 160 no.4:867-870 F '65.

1. Institut fizicheskoy khimii AN SSSR.

(MIRA 18:2)

BRYUKHANOVA, L.V.

Functional changes in the malpighian vessels of mosquitoes
Anopheles maculipennis sacharovi Favre related to various
physiological ages in the females. Med.paraz.i paraz.bol.
29 no.5:549-552 S-0 '60.

(MIRA 13:12)

1. Iz Nauchno-issledovatel'skogo protivochumnogo instituta Kav-
kaza i Zakavkaz'ya (dir. instituta V.N. Ter-Vartanov).
(MOSQUITOES)

BRYUKHANOVA, L.V.; SARDAR, Ye.A.; LEVI, M.I.

Method of determining the quantity of blood sucked by a
flea. Trudy Nauch.-issl. protivochum. inst. Kav. i Zakav.
no.5:28-32 '61. (MIRA 17:1)

BRYUKHANOVA, L.V.

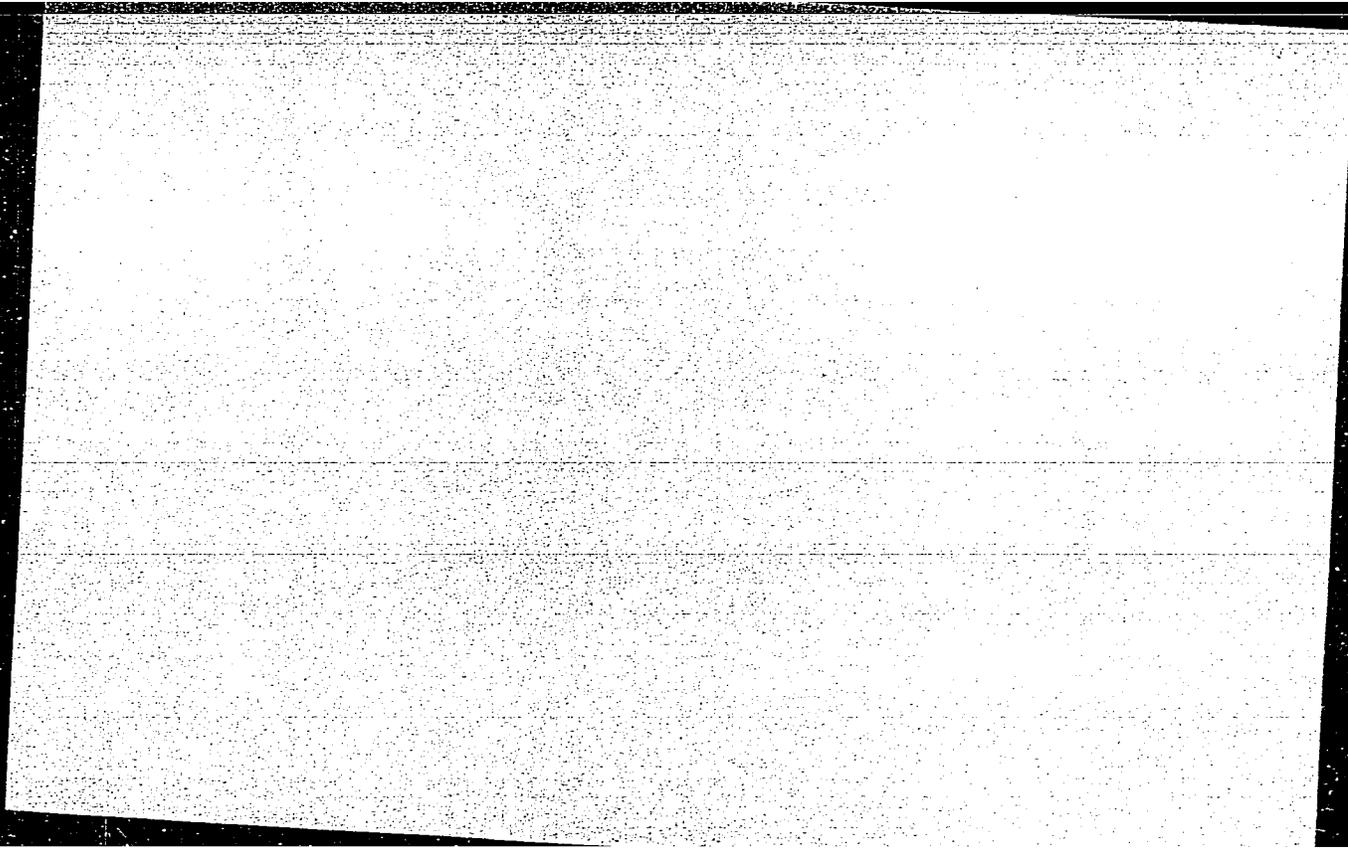
Fleas of carnivorous mammals in Ciscaucasia. Trudy Nauch.-
issl. protivochum. inst. Kav. i Zakav. no.5:98-105 '61
(MIRA 17:1)

BRYUKHANOVA, L.V.; DALSKAYA, N.F.

Observations on suslik fleas *Geratophyllus tesquorum* and *Neopsylla setosa* during hibernation of their hosts. Mat. k pozn. fauny i flory SSSR. Otd. zool. no.40:145-176 '65. (MIRA 18:9)

"APPROVED FOR RELEASE: 06/09/2000

CIA-RDP86-00513R000307130003-4



APPROVED FOR RELEASE: 06/09/2000

CIA-RDP86-00513R000307130003-4"

12

BRUYKHANOVA, N.A.
CA

PROCESSES AND PROPERTIES

Vitamin C content of stored sauerkraut. N. A. Bruykhanova. *Gigiena Sani.* 11, No. 5, 42-3(1946). When the sample was removed 1-2 days after opening the barrel the vitamin C contents of the sauerkraut and the brine were, resp., 23-45 and 20-45 mg./100g. If the barrel was kept open for 11-13 days before removal of the sample, the content dropped to 13-17 in the sauerkraut. Brine that had stood at 5-10° for 20 days after the sauerkraut was removed contained 22 mg. vitamin C per 100 g. After 8 months and 8 months plus 21 days the brine contents were 18 and 10, resp. Samples of sauerkraut taken from the different dining establishments varied in vitamin C contents from 0.4 to 38.0 mg./100 g.; this shows lack of standard storage conditions in the pantries. Sauerkraut is an excellent source of vitamin C provided it is properly prepd., stored, transported, and packed. It should be transported in tall, narrow jars exposing a small surface area, should be tightly packed, and the jar filled with brine to exclude air, and stored at 0°; the temp. should never exceed +10°. C. S. Shapiro

E-2

ASB-15A METALLURGICAL LITERATURE CLASSIFICATION

SEARCHED INDEXED SERIALIZED FILED

APR 19 1947

CA

12

Stabilizers of vitamin C and their use in mass nutrition.
N. A. Bryukhanova (Ministry Health, Moscow). *Gigiena i Sanit.* 1951, No. 9, 41-8.—Vitamin C stabilizers suitable for addition to food during or before its preparation are: starchy foods; protein materials like egg albumin; egg powder and casein; NaCl in acidic foods (sauerkraut, vegetable soups); and sucrose at 20% or higher concentration in preserves. Even 3% glucose shows a stabilizing effect. The effects show up better at 10 mg. % concentration of the vitamin than at lower levels (5 mg. %).
G. M. Kosolapov

Dissertations presented for science and engineering degrees in Moscow during 1951. Sub 9 May 1951, Acad Med Sci. USSR

Cond. Bio Sci

± 480

PROCESSING AND PROPERTIES INDEX

28

CA

Extraction of crystallized levulose. P. V. GOLOVIN, N. A. BRUYKIANOVA AND A. I. FRIDMAN. *Zhurnal Sakharnoi Prom.* 3, 140 2(1929).—A scheme is given for extg. cryst. levulose from chicory and artichoke. The raw material was washed and pressed with cold, then hot water. All juice collected was inverted by 0.2N and 0.5N H₂SO₄ at 70° during 30–45 min. and quickly cooled to 20°. The juice was then neutralized with CaO to pH 7.5–8.0 and filtered. The resulting filtrate (purity 58–68) could not be directly crystd. so it was first transformed into Ca levulosate. Milk of lime (5°) containing 2–7% CaO was cooled with ice, then the juice contg. not over 10% of sugar was added. The ratio of CaO to levulose was 1:1. A heavy white paste was obtained which was filtered and washed with ice water. The ppt. was suspended in H₂O, satd. with CO₂ and filtered. The sirup was coned. in the vacuum at 70°. CaCO₃ filtered out and the filtrate coned. at 55–60° to 81–86° Brix. This masscuite was agitated 30–45 min. and then held 2–3 days at rest to obtain max. crystn. The crystals were sepd., washed with diluted sirup and dried in a desiccator contg. P₂O₅. The mother liquor had a purity of about 80 and Brix of 78–80. After evapn. to 84.5 Brix, it crystd. further in 8 days. The purity of the final molasses was 55.8.

V. E. BAIKOV

METALLURGICAL LITERATURE CLASSIFICATION

PROCESSES AND PROPERTIES INDEX

65-111-2

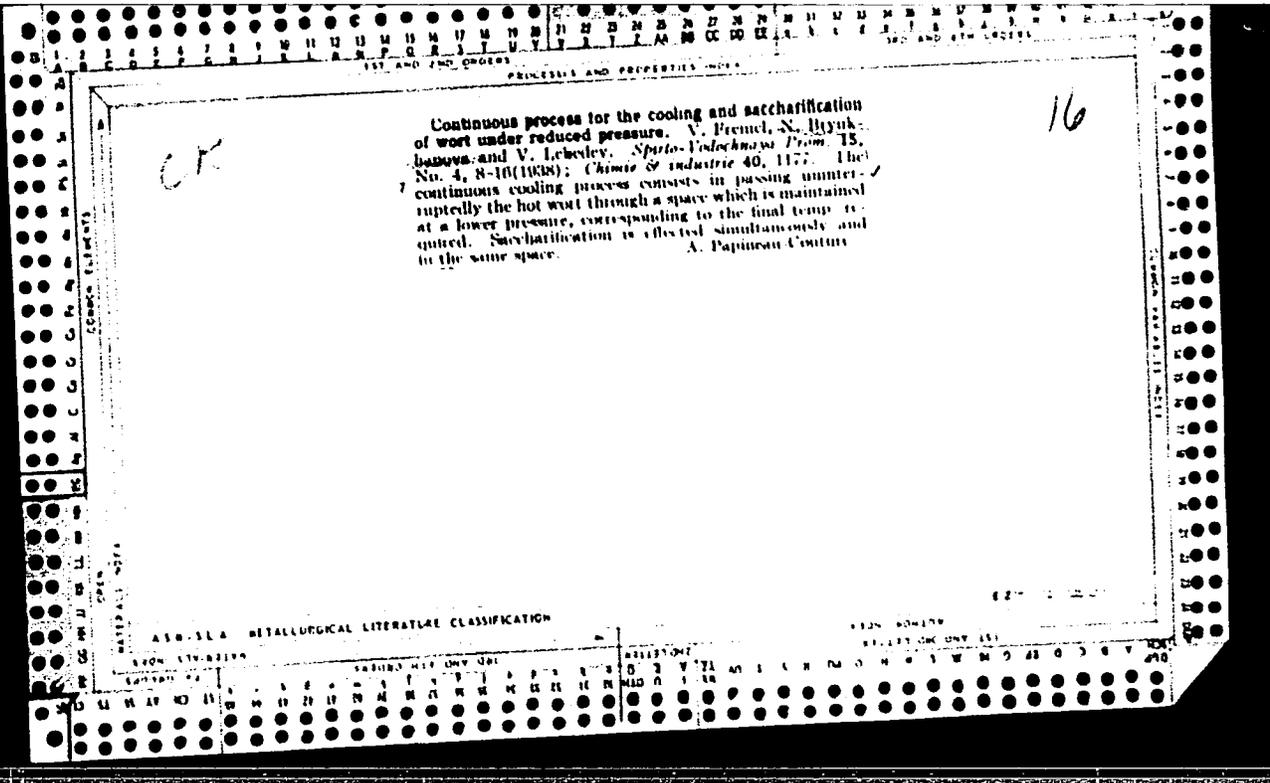
Bc

Extraction of crystallized levulose. P. V. GOLovin, N. A. BAYURMANOVA, and A. I. FRIDMAN (J. Appl. Chem., Russia, 1959, 3, 140-142).—Chicory or artichoke was washed and pressed with cold, and then hot, water, the juice being inverted with sulphuric acid, cooled, neutralized with lime to pH 7.5-8.0, and filtered. The juice containing not more than 10% of sugar was treated with cold milk of lime and the precipitate, after being collected and washed with ice water, was suspended in water and treated with carbon dioxide. After concentration in a vacuum, with intermediate removal of calcium carbonate, crystalline levulose was obtained.

CHEMICAL ABSTRACTS.

METALLURGICAL LITERATURE CLASSIFICATION

ASSOCIATION OF METALLURGICAL ENGINEERS



BRYUKHANOVA, N. A.

✓ Experimental study of the Savel'eva method for the determination of vitamin C in colored plant substances. N. A. Bryukhanova (State Sci. Research Vitamin Inst., Moscow). *Voprosy Pitaniya* 15, No. 8, 83-4 (1956).—The method of Savel'eva (C.A. 42, 5076e) for the detn. of ascorbic acid (I) in colored plant substances, such as red beets or blackberries, etc., was investigated. The plant pigments are destroyed before the I titration with KIO_3 -KI or 2,6-dichloroindophenol by adding a proper amt. of $BiNO_3$ (satd. in 20% HCl) to the exptl. sample (plant ext. with dil. HCl). The method gives accurate results only when the plant material contains more than 100 mg. % I. E. W.

Med L

BRYUKHANOVA, N.A.; SHCHIPITSYNA, D.P.

Micromethod for determining the ascorbic acid in whole blood.
Vop. pit. 20 no.4:60-65 J1-Ag '61. (MIRA 14:7)

1. Iz otdela vitaminov C i P (zav. * prof. N.S.Yarusova) Nauchno-
issledovatel'skogo instituta vitaminologii Ministerstva zdravookh-
raneniya SSSR, Moskva.
(ASCORBIC ACID) (BLOOD--EXAMINATION)

SHPINEL', V.S.; BRYUKHANOV, V.A.; DELYAGIN, N.N.

Temperature effect on the hyperfine structure of gamma-radiation. Zhur. eksp. i teor. fiz. 40 no.5:1525-1527 My '61.

1. Institut yadernoy fiziki Moskovskogo gosudarstvennogo universiteta.

(Gamma rays) (Spectrum, Atomic)

S/056/61/041/006/014/054
B113/B104

AUTHORS: Shpinel', V. S., Bryukhanov, V. A., Delyagin, N. N.
TITLE: Isomeric energy shifts of the 23.8-keV γ -transition in the
Sn¹¹⁹ nucleus
PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 41,
no. 6(12), 1961, 1767-1770

TEXT: The authors measured the isomeric shifts of the 23.8-keV γ -transition in the Sn¹¹⁹ nucleus in various tin compounds. An Sn^{119m}O₂ preparation served as source which was kept at room temperature. The absorber consisted of various crystalline tin compounds and was kept at nitrogen or room temperature. In SnF₂, the absorption line is split into two components due to quadrupole interaction of the excited Sn¹¹⁹ nucleus with the gradient of the electric field in the crystal. The isomeric shift δ with respect to the energy of the γ -transition in the SnO₂ crystal was determined at room temperature. There was no quadrupole splitting in the absorption spectrum of the SnCl₂ crystal. Besides in β -Sn and SnO,

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Isomeric energy shifts of the ...

S/056/61/041/006/014/054
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quadrupole splitting was only observed in SnF_2 : $\Delta = (15.5 \pm 2.5) \cdot 10^{-8}$ ev. Δ did not much depend on temperature. Measurements of energy shifts for various compounds showed that there were no distinct rules governing the isomeric shifts of the 23.8-kev γ -transition in the Sn^{119} nucleus. It may be assumed that for bivalent compounds the two p-electrons in the outer shell of the tin atom play a special role in the chemical bond; the valency electrons of the following shell, the two s-electrons, affect the chemical bond in tetravalent compounds only, and lead to a sharp change of the isomeric shift. Hence, it follows that the density of the s-electron wave function in the region of the nucleus is lower in tetravalent than in bivalent compounds. Comparing the isomeric shift of bi- and tetravalent tin compounds one may put down:

$E_{\text{II}} - E_{\text{IV}} \sim (R_{\text{exc}}^2 - R_0^2) [|\Psi(0)|_{\text{II}}^2 - |\Psi(0)|_{\text{IV}}^2]$, where R_{exc} and R_0 are the effective radii of the charge of the Sn^{119} nucleus in the excited and ground state, $\Psi(0)$ the electron wave function in the region of the nucleus. $R_{\text{exc}}^2 > R_0^2$, i.e., the effective radius of the charge distribution grows when the Sn^{119} nucleus is excited. Since quadrupole interaction exists, the magic proton core of the Sn^{119} nucleus is not spherically

Card 2/3

Isomeric energy shifts of the ...

S/056/61/041/006/014/054
B113/B104

symmetric. There are 2 figures, 1 table, and 9 references: 5 Soviet and 4 non-Soviet. The four references to English-language publications read as follows: O. C. Kistner, A. W. Sunyar. Phys. Rev. Lett., 4, 412, 1960; S. De Benedetti, G. Lang, R. Ingalls. Phys. Rev. Lett., 6, 60, 1961; I. R. Walker, G. R. Wertheim, V. Jaccarino. Phys. Rev. Lett., 6, 98, 1961; A. J. F. Boyle, D. St. P. Bunbury, C. Edwards. Proc. Phys. Soc., 77, 1062, 1961.

ASSOCIATION: Institut yadernoy fiziki Moskovskogo gosudarstvennogo universiteta (Institute of Nuclear Physics of the Moscow State University)

SUBMITTED: July 1, 1961

Card 3/3

-- KRAVCHENKO, A.A.; BRYUKHANOVA, V.I.

Retropharyngeal abscess complicated by a cerebellar abscess.
Vest. otorin. 22 no.4:98-99 Je-Ag '60. (MIRA 13:12)
(PHARYNX--ABSCESS) (CEREBELLUM--ABSCESS)

TESLENKO, P.I., polkovnik meditsinskoy sluzhby; FEDOROV, K.V.,
podpolkovnik meditsinskoy sluzhby; BRYUKHANSKIY, P.G.,
mayor meditsinskoy sluzhby

Acaricidic properties of polychlorpinene. Voen.-med. zhur.
no. 6:84 Je '60. (MIRA 13:7)

(PINENE)

BATEMAN, Harry (1882-1946); BRUKHATOV, L.N. [translator]; KOSHLIYAKOV,
N.S., red.

[Mathematical theory of the propagation of electromagnetic
waves] Matematicheskaya teoriya rasprostraneniya elektromagnitnykh
voln. Pod red. N.S.Koshliakova. Moskva, Gos. izd-vo fiziko-
matem. lit-ry, 1958. 179 p. Translated from the English.

(MIRA 14:9)

(Electromagnetic waves)

BRUKHATOV, N. L.

SA

A 53

1325. Anisotropy of the Magnetic Energy in Single Crystals of Nickel as a Function of Temperature. N. L. Brukhatov and L. V. Kirensky. *Phys. Zeits. A Sowjetunion*, 12: 5, 67-69, 1937.

In English.—The energy constant of the magnetic anisotropy of a single crystal of Ni as a function of temperature has been investigated by measuring the mechanical moments exerted on the sphere-shaped crystal by the magnetic field. It has been established that the anisotropy constant can be represented very accurately in a large temperature interval by the empirical interpolation formula $K = K_0 e^{-\alpha T}$, where $K_0 = 40 \times 10^6 \text{ erg/cm}^3$; $\alpha = 0.0000341/\text{grad}^2$. This relation satisfies Nernst's theorem, as $(dK/dT)_{T=0} = 0$. It cannot, however, be extended to high temperatures in the region of the Curie point, since the disappearance of the anisotropy constant at the actual Curie point does not result from this relation. Nevertheless, already at about 400° K. very small values of K result, which becomes practically zero. The results of the experiments have been compared with the theory of Akulov [see Abstract 3349 (1936)] which is based on an application of classical statistics. Akulov's theoretical relation represents the general character of the temperature curve K correctly, deviations in detail appearing in the region of low temperatures, as was to be expected.

AUTHORS.

458-15A METALLURGICAL LITERATURE CLASSIFICATION

2

ca

Effect of temperature on the energy of magnetic anisotropy of ferromagnetic crystals. N. L. Brinkhantov and I. V. Kirenski. *Tech. Phys. U. S. S. R.* 3, 171-83(1934) (in English).—The magnetic dynamometer, developed by Akulov and B., was used to measure the mech. moments exerted by a magnetic field on small spheres turned from Ni monocrystals. Measurements were made at various temps. from -196.5° to $+90^{\circ}$ and values of the const. of anisotropy are tabulated for more than 60 temps. Over a wide range of temp. the anisotropy const., K , is given by the empirical relation $K = K_0 e^{-\alpha T}$, where $K_0 = 40 \times 10^3$ and $\alpha = -0.000084$. This satisfies the requirement of Nernst's heat theorem that $(dK/dT) = 0$ for $T = 0$, but does not apply near the Curie point. The results are discussed in the light of Akulov's theory of magnetism, based on classical statistics, and the limitations of this theory are brought out. W. W. Shiffer

METALLURGICAL LITERATURE CLASSIFICATION

2

BRUKHATOV N.L.
ca

PROCEDURES AND PROPERTIES INDEX

Normal magnetization component of nickel mono-crystals in connection with the hysteresis losses in a rotating magnetic field. A. A. Brukhatov and N. L. Brukhatov. *J. Exptl. Theoret. Phys. (U. S. S. R.)* 9, 984-93 (1938).— Exptl. data in the form of curves are given. There are found explicitly 3 forms of the magnetization vector as predicted theoretically by Akalov (C. A. 23, 3535; 30, 5113*). The Barkhausen discontinuity is due to transverse irreversible inversion of large spin complexes of whole crystal regions leading to a decrease in the normal component. Hysteresis loss on remagnetization is very small in small fields or at satm. For the intermediate region where the loss in the (100) plane is a max. the normal component is always pos. and periodically approaches zero. The normal component is a max. in the directions $22^{\circ}30' + (90/4)$ to the (100) axis. The spin splits into 2 components. The discrepancies obtained with the ballistic and the mech.-moments methods for the measurement of the component of magnetization are due to a peculiar viscosity effect produced by the rotating magnetic field on the Ni monocrystals during remagnetization.

F. H. Rathmann

ASB-51A METALLURGICAL LITERATURE CLASSIFICATION

EDOM BOWLOY

EDOM STIVIRAVE

EDOM NIP ONV OR

EDOM ONV 151

EDOM ONV 151

BRYUKHATOV, N. L.

LC

36289

USSR/Physics
Anisotropy
Ferromagnetism

Sep/Oct 1947

36TR0
"The Dependence of the Anisotropic Ferromagnetic Energy of Mono-crystal and Poly-crystal Materials on Temperature," N. L. Bryukhatov, Scientific Research Institute of Physics, Moscow State University, 10 pp

"Izv Ak Nauk, Ser Fizich" Vol XI, No 5

Discusses the very important aspect of a quantitative determination of texture. Describes the experiments the author conducted and also makes reference to the works of other scientists in this same field. He submits this article because of the wide variety of uses
LC
36189

USSR/Physics (Contd)

Sep/Oct 1947

to which this data can be put, i.e., for determining the path of a magnetization curve, for calculating the hysteresis loss, and for the study of the effect of elastic tensions on the individual physical properties of metals. K. V. Grigorov, Ural Branch of the Academy of Sciences at Sverdlovsk, attaches a short note to this article.

BRYUKHATOV, N. L.

AUTHOR: Bryukhatov, N. L.

48-9-13/26

TITLE: An Investigation of the Hysteresis Losses in Rotating Magnetic Fields in a Magnetite Monocrystal Before and After Phase Transformation (Issledovaniye poter' na gisteresis vo vrashchayushchikhsya magnitnykh polyakh v monokristalle magnetita do i posle fazovogo prevrashcheniya).

PERIODICAL: Izvestiya AN SSSR Seriya Fizicheskaya, 1957, Vol. 21, Nr 9, pp. 1268-1274 (USSR.).

ABSTRACT: In this paper the connection between the antiparallel spins of the two groups of magnet cations with the crystal lattice is investigated. After the hysteresis losses in rotating fields have been determined, the process of the transition of the spin from its combination with the lattice to the combination with the external magnetic field is investigated. The measurement of the hysteresis losses Q_{rot} in a rotating magnetic field at room temperature shows, that its course is analogous to that of the hysteresis losses in the nickel monocrystal. They display a maximum in a field of 1000 Oe ($8,5 \text{ erg.cm}^{-3}$) and from 2000 Oe onwards, where the rotation process originates, they tend towards zero in correspondence with Akulov's theory. The

Card 1/3

48-9-13/26

An Investigation of the Hysteresis Losses in Rotating Magnetic Monocrystal Before and After Phase Transformation.

results of the measurements of the hysteresis losses at the temperature of liquid nitrogen and on cooling the crystal in a magnetic field are given. An explanation for the increase of the hysteresis losses in strong magnetic fields in magnetic crystals which have been cooled without a magnetic field is laid down. Under the influence of the low temperature the redistribution of the electron density in the lattice takes place without place change of the kations themselves, by this disturbing the cubic symmetry and transforming it to a orthorombic one. Moreover, the force of combination of the spins with the lattice is modified, which means, that the anisotropy forces are modified. In the case of low temperature the modification of the combinations of the spins of threevalent kations, with the crystal lattice, which are deposited in the interspace of the tetrahedrons is of such a type, that for these spins the transition from their combination with the lattice starts only in that magnetic field, where this transition for the spins of the kations, which are deposited in the octahedron interspaces, has already terminated. From the curves obtained here it can be seen that the hysteresis losses in magnetic fields of the order of magnitude of 3000 Oe show such a development.

Card 2/3

There are 11 figures and 23 references, 3 of which are Slavic.

An Investigation of the Hysteresis Losses in Rotating Magnetic Fields in a Magnetic Monocrystal Before and After Phase Transformation. 48-9-13/26

ASSOCIATION: Chair for Physics of the Moscow Institute for Railroad Traffic.
(Kafedra fiziki Moskovskogo instituta zheleznodorozhnogo transporta).

AVAILABLE: Library of Congress.

Card 3/3

Б Р Ю К Х А Т О В, Н. Л.

28(1) PHASE I BOOK EXPLOITATION SCV/3150

Vserossiyskaya konferentsiya professorov i prepodavateley pedagogicheskikh institutov
Primeneniye ultrazvukov i ikh issledovaniya, veshchestva: trudy konferentsii, Yuzhnyy (Application of Ultrasonics for Analysis of Substances, Transactions of the All-Russian Conference of Professors and Teachers of Pedagogical Institutes, Nr 7) Moscow, Izd. MOPI, 1958. 283 p. 1,500 copies printed.

Tech. Ed.: S. F. Zhitov; Eds.: V. F. Mozdrev, Professor, and B. B. Kudryavtsev.

PURPOSE: This book is intended for physicists, technicians, aeronautical engineers and other persons concerned with ultrasonics.

COVERAGE: The book contains twenty eight articles which treat ultrasonic phenomena in five general categories: 1) historical data on the development of ultrasonics in the Soviet Union over the past forty years; 2) the speed of sound in suspensions of varying concentration and number and type of components and the relationship between sound velocity and the compressibility of electrolytes; 3) ultrasonic investigations of physical and chemical properties of materials and the determination of physical and chemical constants, e. g. density of aqueous solutions, adiabatic compressibility, molarity of solutions (with given temperatures), viscosity, surface tension, saturation pressure and also ultrasonic investigation of the carbon content and petrographic state of rocks; 4) industrial application of ultrasonics, and enhancing the susceptibility of clean synthetic fibers to dyeing, etc.; and 5) apparatus which produce ultrasonic waves. No personalities are mentioned. References accompany each article.

Kibrikov, I. G. and Yu. P. Svyatkov. The Problem of the Compressibility of Solutions of Electrolytes 65

Larionov, M. I., M. A. Dmitriyeva, and G. V. Goryachko. Investigation of the Physical and Chemical Properties of Aqueous Solutions of Dimethyl Formamide in the Temperature Interval From 20 to 90°C With the Ultrasonic and Other Methods 75

Opushchennikov, M. E. Investigation of the Speed of Ultrasonic Waves in the First Order 91

Orlovich, A. P. The Dependency of the Absorption of Ultrasonic Sound Upon its Intensity 101

Orlovich, Ye. M. The Use of Ultrasound to Create Periodic Structures 105

Pravukator, M. L., and G. P. D'yakov. Some New Magnetostrictive Materials 111

Sviridov, A. V. Ultrasonic Method of Determining the Saturation Pressure of Plastic Liquids 121

Orlovich, A. P. Ultrasonic Method of Investigating the Crystallization Process of Paraffinic Petroleum Products 127

Matveyev, A. K., and Ye. G. Martynov. Speed of Propagation of Transverse Ultrasonic Waves in Tuna 135

Kitilov, O. D. Emulsification of Flootation Reagents by Ultrasonic Waves 143

Orlovich, A. P. Investigation of the Effect of Sound and Ultrasound on the Physical and Hygienic Properties of Fibers During Purification Process 149

Goryachko, G. V., M. A. Dmitriyeva, and N. I. Larionov. Application of Ultrasound During Dyeing of Polyacrylonitrile Fiber of the "Nitron" Type 161

68205

SOV/58-59-5-11520

9.3120

Translation from: Referativnyy Zhurnal Fizika, 1959, Nr 5, pp 229 - 230 (USSR)

AUTHORS: Bryukhatov, N.L., D'yakov, G.P.

TITLE: Some New Magnetostrictive Materials

PERIODICAL: V sb.: Primeneniye ul'traakust. k issled. veshchestva. Nr 7, Moscow, 1958, pp 111 - 120

ABSTRACT: The authors suggest a method for the thermomechanical treatment of polycrystalline nickel, which leads to the formation of a "cube texture". The treatment consists in cold rolling with intense reduction and subsequent annealing in hydrogen at 1,100°C with slow cooling. High-purity electrode nickel is used as the starting material. The crystallographic "cube texture" is characterized by an orientation of the (100) axis in the direction of rolling. When the magnetograms of the mechanical moments of textured nickel are compared with those of single-crystal nickel, it is seen that in the case of the above-mentioned treatment the percentage of regularly-oriented crystals amounts to 90%. In connection with this the measured magnetic-field dependence of magnetostriction for textured nickel is close to the corresponding dependence for the single crystal. The

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SOV/58-59-5-11520

Some New Magnetostrictive Materials

authors compared the magnetostriction curves for high-purity nickel subjected to thermomechanical treatment with those for the ordinary nickel employed for magnetostriction transducers; the curves for textured nickel are steeper. In addition, saturation magnetostriction for textured nickel attains a value of 50×10^{-6} , while for ordinary nickel it amounts to $\sim 30 \times 10^{-6}$. An experimental magnetostriction transducer was built from nickel subjected to the described treatment. The properties of this transducer were compared with those of a standard emitter. The comparison showed that the textured-nickel emitter is more efficient and requires a smaller magnitude of excitation current. The receiving sensitivity of the textured-nickel transducer is also markedly higher than the sensitivity of a standard receiver. The bibliography contains 11 titles.

I.P. Golyamina 

Card 2/2

AUTHORS: Bryukhatov, N. L., Grinchar, N. A., SOV/48-22-10-14/23
~~Yekamasov, I. Ya.~~

TITLE: Magnetic Analysis of the Deformation Texture of Cold Rolling
and of the Recrystallization in Pure Electrolytic Nickel
(Magnitnyy analiz tekstury deformatsii kholodnoy prokatki
i rekristallizatsii v chistom elektroliticheskom nikele)

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1958,
Vol 22, Nr 10, pp 1237 - 1243 (USSR)

ABSTRACT: In the present paper the authors developed a magnetic
analysis of the deformation texture produced by cold rolling
and of the recrystallization in pure electrolytic nickel.
Besides, they examined the influence of the purity of the
metal, of the conditions of cold rolling, of temperature and
duration of annealing on the development and the nature of
the texture as well as of the internal stresses. In the
analysis of the cold rolling of nickel according to the
data of x-ray analyses the group of the orientated crystal
grains corresponding to the texture (110) and [112] as well
as the group corresponding to the texture (112) [111] must
be considered. The change of the sign of the second harmonics

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Magnetic Analysis of the Deformation Texture of
Cold Rolling and of the Recrystallization in Pure
Electrolytic Nickel

SOV/48-22-10-14/23

in the magnetograms of mechanical moments, which occurs at low cooling under the influence of annealing, is explained by the relative number of oriented crystal grains in the one and in the other group as well as by the degree of development of the internal stresses. Measuring results showed that in very pure (H0000) nickel under the influence of cold rolling in the case of spontaneous shrinkage (15 - 20 passes) unto 94 - 95% a texture exhibiting predominantly the group (112), [111] with well expressed internal stresses forms. In the case of successive shrinkage (200 passes) unto 90% at low internal stress in the same nickel a texture exhibiting a regular distribution of the crystal grains in both groups is produced. Such a perfect "monocrystallization" can be attained only when not more than 0.03% of impurities are contained. In technical nickel of the type H2 in which the total impurity content amounts to 2.5% under the influence of cold rolling and of a spontaneous shrinkage of 76% and unto more than 90% a texture with predominantly the group (110), [112] exhibiting

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Magnetic Analysis of the Deformation Texture of
Cold Rolling and of the Recrystallization in Pure
Electrolytic Nickel

SOV/48-22-10-14/23

considerable internal stresses forms. High-temperature annealing only insignificantly modifies the texture of cold rolling and does not lead to the formation of a clear "cubic texture". The internal stresses having been produced by cold rolling, in very pure nickel are completely removed by annealing at 400°. In technical nickel on the other hand the stresses even by annealing at 1000° can only be decreased but not removed completely. There are 6 figures, 4 tables, and 10 references, 8 of which are Soviet.

ASSOCIATION: Kafedra fiziki Moskovskogo instituta inzhenerov
zheleznodorozhnogo transporta (Chair of Physics at the
Moscow Institute for Railroad Transportation Engineers)

Card 3/3

BRYUKHATOV, N.I.; KOZHEVNIKOV, G.I.

Use of a magnetic sonde in the analysis of magnetic anisotropy in
rolled ferromagnetic materials. Zav.lab. no.11:1319-1322 '59.
(MIRA 13:4)

1.Moskovskiy institut inzhenerov zheleznodorozhnogo transporta.
(Iron --Magnetic properties)

BRYUKHATOV, N.L., prof., doktor fiz.-mat.nauk; KOZHEVNIKOV, G.I., inzh.

New magnetic rod method for the analysis of the crystal
structure and strains in rolled ferromagnetic materials, and
electrical and other alloyed steels. Trudy MIIT no.122:
103-111 '59. (MIRA 13:5)
(Magnetic testing) (Steel alloys--Testing)

24 (3), 24 (6)

AUTHORS: Bryukhatov, N. L., Grinchar, N. A. SOV/20-126-5-21/59

TITLE: A Magnetic Method of Investigating Internal Stresses in Cold-rolled Nickel Sheets (Magnitnyy metod issledovaniya vnutremnikh napryazheniy v listakh kholodnokatannogo nikelya)

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 126, Nr 5, pp 990 - 993 (USSR)

ABSTRACT: The possibility of determining the amount of internal stresses by the magnetic method is connected with the influence exercised by these stresses upon the course of the magnetization curve as well as upon the coercive force. The various possibilities are first described in short. The second part of the article deals with the calculation of internal stresses. The authors derived a general expression for the moment of torsion $M = M_1 + M_2 + M_\sigma$. M_1 and M_2 are the moments produced by the orientations of the crystallographic axes of two crystallite groups. M_σ is the moment produced in the metal by internal stresses. Formula (6) is derived for M . The second part of the article presents results of measurement concerning internal stresses

Card 1/2

A Magnetic Method of Investigating Internal Stresses SOV/20-126-5-21/69
in Cold-rolled Nickel Sheets

and their distribution in the individual depths. The authors investigated sheets of highly pure (N-0000) nickel (0.03% impurities containing 0.012% cobalt). The curves of the mechanical moments were plotted by means of a dynamometer, both at room temperature and at that of liquid nitrogen. Results are given in figure 1, i.e., the results obtained before electrical polishing, after the first, the second, and the third polishing at 18-19°. Similar investigations were made with a number of samples. A table contains numerous results of measurement of four different samples. The results are briefly discussed in conclusion. There are 1 figure, 1 table, and 10 references, 6 of which are Soviet.

ASSOCIATION: Moskovskiy institut inzhenerov zheleznodorozhnogo transporta im. I. V. Stalina (Moscow Institute for Railroad Engineers imeni I. V. Stalin)

PRESENTED: March 20, 1959, by I. I. Artobolevskiy, Academician

SUBMITTED: March 20, 1959
Card 2/2

SAMOYLOV, V.N., dots.; BRYUKHATOV, N.L., prof., red.

[Ultrasonic waves and principles of ultrasonic flow
detection] Ul'trazvuk i printsipy ul'trazvukovoi defektoskopii.
Pod red. N.L.Briukhatova. Moskva, Mosk. in-t inzhenerov zhel-
dor. transp. im. I.V.Stalina, 1961. 62 p. (MIRA 15:3)
(Ultrasonic waves) (Ultrasonic testing)

S/048/61/025/012/013/022
B117/B104

AUTHORS: Bryukhatov, N. L., and Grinchar, N. A.
TITLE: Study of magnetorotation hysteresis in cold-rolled and recrystallized nickel
PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya fizicheskaya, v. 25, no. 12, 1961, 1486 - 1491

TEXT: High purity cold-rolled electrolytic nickel (99.97%) with a reduction of 90% was used to study magnetorotation hysteresis. Applying this treatment to high-purity nickel causes internal stress and leads to the formation of the "texture of the cold-rolled material" with uniform distribution of crystallites according to the (110) [112] and (112) [111] groups. The formation of the "cubic texture" is due to collective recrystallisation resulting from a 2-hr annealing in vacuum at 1100°C (specimen no. 17) and at 1120°C (specimen no. 74). The specimens used were disk-shaped, 0.125 mm thick and 15 mm in diameter. Three specimens were investigated, all cut from the same cold-rolled nickel sheet. ✓

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Study of magnetorotation ...

S/048/61/025/012/013/022
B117/B104

Magnetograms of the momenta were plotted at room temperature before the commencement of heat treatment and the curves of the hysteresis losses of magnetorotation were constructed as a function of the actual field. The shape of the curves were almost identical. Furthermore, the specimens were annealed in vacuo for half an hour. As a result of this treatment which diminishes internal stress to a different extent, also the hysteresis losses measured at room temperature were diminished correspondingly. The smallest losses were achieved with two disks exhibiting cubic texture. An empirical relation

$$Q_R = A \exp(-BH) H \quad (1)$$

was established. It describes the course of hysteresis losses, beginning from the point of anisotropy on the magnetization curve which corresponds to the range of highest losses. For specimens with cubic texture and for a spherical monocrystal the relation (1) describes the course of losses, beginning with the weakest fields. It has been shown that by calculating the constants A and B from experimental data, this relation permits to determine the number of N (N = number of spin complexes per unit volume
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Study of magnetorotation ...

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(1 cm³), transferred to a metastable state by the rotating magnetic field) and the lag angle ψ . The following values have, e. g. been found for cold rolled polycrystalline nickel:

	no. 73	no. 57	no. 62	no. 73 annealed
ψ	14°14'	13°15'	8°20'	4°10'
N	1.69.10 ¹⁸	1.34.10 ¹⁸	1.33.10 ¹⁸	1.35.10 ¹⁸

For specimens with "cubic texture" and for monocrystals:

	no. 17	no. 74	monocrystal
ψ	4°	4°40'	10°
N	7.2.10 ¹⁷	3.6.10 ¹⁷	3.5.10 ¹⁷

The results obtained show that the splitting of spins of magnetic domains into complexes whose transition to the metastable state and activation is most easily achieved in monocrystal mosaics, proceeds along a plane parallel to the face of the cube. In this case losses occur already in Card 3/4

S/048/61/025/012/013/022
B117/B104

Study of magnetorotation ...

the weakest fields (~ 3 oe). In the case of cold-rolled nickel exhibiting interior stresses, the splitting of the spins is rendered much more difficult, disregarding the fact that the plane of rotation of the magnetic field exhibits 8 directions of weakest magnetization. Losses begin to increase considerably in fields which correspond to the "point of anisotropy" on the magnetization curve. In the case of specimens exhibiting the "texture of cold-rolled material" the course of losses occurring in weak fields can be described by the empirical relation $Q_R = a \exp(bH)$. H. N. Akulov (Uch. zap. MGU, no 2, 137 (1934); Ferromagnetizm Gostekhteor. izdat. M., 1939) is mentioned. There are 5 figures and 26 references: 15 Soviet and 11 non-Soviet. The four most recent references to English-language publications read as follows: Brailsford, F., J. Inst. Electr. Engrs, 83, 566 (1938); 84, 399 (1939); Beck F., McKeehan L., Phys. Rev., 42, 715 (1932); McKeehan L., Clash R., Phys. Rev., 45, 839 (1934); Clash R., Beck F., Phys. Rev., 47, 158 (1935).

ASSOCIATION: Kafedra fiziki Moskovskogo instituta inzhenerov zheleznodorozhnogo transporta (Department of Physics of the Moscow Institute of Engineers of Railroad Transportation)

Card 4/4

BRYUKHATOV, N.L.; GRINCHAR, N.A.

Losses due to magnetic rotation hysteresis in rolled
ferromagnetic materials. Izv. vys. ucheb. zav; fiz. no.1:
122-130 '63: (MIRA 16:5)

1. Moskovskiy institut inzhenerov zheleznodorozhnogo transporta.
(Hysteresis) (Magnetic materials)

ACCESSION NR: AP4043379

S/0181/64/006/008/2510/2514

AUTHORS: Bryukhatov, N. L.; Pakhomova, N. L.; Potakova, V. A.

TITLE: On the effect of thermomagnetic working on the anisotropy and electric resistivity of iron-nickel ferrites

SOURCE: Fizika tverdogo tela, v. 6, no. 8, 1964, 2510-2514

TOPIC TAGS: magnetic anisotropy, ferrite material, electric resistivity, orientation, metalworking

ABSTRACT: In order to ascertain which ions participate in the production of the preferred orientation in thermomagnetic working of iron-nickel ferrites with a small excess of iron, the authors investigated single-crystal and polycrystalline samples for anisotropy and electric resistivity. The investigations reported to date do not indicate the mechanism whereby induced uniaxial magnetic anisotropy is produced by thermomagnetic working. The methods of

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ACCESSION NR: AP4043379

producing the samples and their compositions are described. The magnetic crystalline and induced anisotropies were investigated by a torque method, and the electric resistivity was measured by a two-probe compensation method. The results show that during the course of the thermomagnetic working of the ferrites pairs of magnetically-interacting ions become oriented along the tetragonal axis of the spinel lattice, and this results in the induced magnetic anisotropy and in a reduction of the electric resistivity. The induced anisotropy increases with the increasing content of Fe^{2+} ions. The main role in the orientation process is played by the Fe^{2+} ions, since the orientation produced by diffusion of the ions. The electric resistance tests show that samples which do not have many ions of Fe^{2+} do not respond to thermomagnetic working. When these ions are present, the thermomagnetic working reduces the electric resistivity. The change in electric resistivity is thus also connected with the ordering of the Fe^{2+} ions. Orig. art. has: 3 figures, 3 formulas, and 3 tables.

Card 2/3

ACCESSION NR: AP4043379

ASSOCIATION: Moskovskiy institut inzhenerov zheleznodorozhnogo
transporta (Moscow Institute of Railway Transport Engineers)

SUBMITTED: 23Dec63

SUB CODE: SS

NR REF SOV: 001

ENCL: 00

OTHER: 007

Card 3/3

BRYUKHATOV, N.L.; PAKHOMOVA, N.L.

Induced anisotropy in crystals of iron-nickel ferrites with
an excess of iron. Kristallografiia 9 no.4:521-526 J1-Ag '64.
(MIRA 17:11)

1. Moskovskiy institut inzhenerov zheleznodorozhnogo transporta.

BRYUKHATOV, N.L.; PAKHOMOVA, H.L.; POTAKOVA, V.A.

Effect of thermomagnetic treatment on the anizotropy and electric
resistance of iron-nickel ferrites. Fiz. tver. tela 6 no.8:2510-
2514 Ag '64. (MIRA 17:11)

1. Moskovskiy institut inzhenerov zheleznodorozhnogo transporta.

BRYUKHATOV, N.L.; PAKHOMOVA, N.L.

Isothermal magnetic reversal of iron-nickel ferrites by rotation.
Izv. vys. ucheb. zav.; fiz. 8 no.6:130-133 '65.

(MIRA 19:1)

1. Moskovskiy institut inzhenerov zheleznodorozhnogo transporta.
Submitted May 23, 1964.

L 10767-67

ACC NR: AT6028979

during the thermomagnetic treatment of iron-nickel ferrites with a low concentration of Fe^{2+} ions an orientation of the ferrous ion pairs occurs. The axes of the interacting pairs are located along edges of a cube. Thus, the ferrous ions form a simple cubic lattice. Quantitative distribution of the ion pairs is determined by the angles between the magnetic field and the edges of the cube. The monocrystalline specimen employed in this study was prepared by T. M. Perekalina in the Crystallographic Institute, AN SSSR. Orig. art. has: 9 figures.

SUB CODE: 11, 20/

SUBM DATE: 22Dec65/

OTH REF: 007

Card 2/2

KUTSURUBA, Ivan Vasil'yevich; BRYUKHATOVA, N.L., prof., red.

[Physical principles of the operation of magnetic amplifiers]
Fizicheskie osnovy raboty magnitnykh usilitelei. Pod red.
N.L.Briukhatova. Moskva, Mosk. in-t inzhenerov zhel-dor.
transp. im. V.I.Stalina, 1961. 44 p. (MIRA 15:3)
(Magnetic amplifiers)

NECHAYEVA, E.G., ed.; ISYUHBATOVA, N.B., prof., ed.

[Electrostatics; summary of lectures] Elektrostatika;
konspekt lektsii. Moskva, Mosk. in-t inzhenerov zhel-
dor. transp., 1961. 73 p. (MIRA 18:8)

BRYUKHER, E.

Preparation of carrier-free Ac^{228} (MsTh_2) and Ra^{228} (MsTh_1)
by the ion exchange method. Radiokhimiia 5 no.1:142-143
'63. (MIRA 16:2)
(Actinium isotopes) (Radium isotopes)
(Ion exchange)

S/186/63/005/001/013/013
E075/E436

AUTHOR: Bryukher, Z.

TITLE: Preparation of Ac^{228} and Ra^{228} (MsTh_1) without carrier
by an ion exchange method

PERIODICAL: Radiokhimiya, v.5, no.1, 1963, 142-143

TEXT: MsTh_1 was separated from Th by passing 0.08 M $\text{Th}(\text{NO}_3)_4$ (an old Merk reagent) in 0.5 M ammonium lactate through cation exchanger Dowex 50X8 in the NH_4^+ form. The resin adsorbs MsTh_1 and Th is eluted. Previously a large proportion of Th was removed from $\text{Th}(\text{NO}_3)_4$ by extraction from 8 N HNO_3 solution with tri-n-butyl phosphate. To separate MsTh_2 from MsTh_1 , the latter was adsorbed on resin Dowex 50X12 in the NH_4^+ form and MsTh_2 was eluted with 0.65 M ammonium lactate at room temperature. Subsequently, MsTh_2 solution at pH = 1 was passed through resin Dowex 50X12 to separate ThB and ThC from MsTh_2 . ThB and ThC were eluted with 2 N HCl and MsTh_2 with 7 N HCl. MsTh_2 thus isolated contained less than 0.2% radioactive impurities. The yield of MsTh_2 in relation to the original quantity of $\text{Th}(\text{NO}_3)_4$ was 70 to 80%. There are 2 figures.

Card 1/1 SUBMITTED: September 25, 1962

BRYUKHIN, A. N.; STEPANOV, N. D.

Weaving

More about the constant speed of warping.
Tekst. prom. 12, No. 8, 1952.

9. Monthly List of Russian Accessions, Library of Congress, November 1952. UNCLASSIFIED.

BRYUKHIN, A.N.;

Problem of using single-thread loops in knitted fabrics. Leg.prom.
14 no.5:38-39 My '54. (MIRA 7:6)

1. ^{Сетчатые} ^{или} ^{петли} ^{петли} Zamestitel' direktora po nauchnoy chasti NIILTEKMAsh.
(Knitting)

BRYUKHIN, I.O. (st. Kuvandyk)

Improvements for snow plows. Put' i put. khez. no.2:29 F '57.
(Railroads--Snow protection and removal) (MLRA 10:4)

BRYUKHIN, O.I.

Improved monorail truck. Put' i put.khoz. no.6:6 Je '57. (MIRA 10:7)

1. Stantsiya / Kuvandyk Orenburgskoy dorogi.
(Railroads--Equipment and supplies)

BRYUKHIN, O.I.

Device for uncoupling snow removal machinery. Put' i put.khoz. 7
no.2:29 F '63. (MIRA 16:2)

1. Nachal'nik maaterskikh stantsii Kuvandyk, Kuybyshevskoy dorogi.
(Railroads—Tools and implements)

BRYUKHIN, O.N. (stantsiya Kuvandyk)

Notes on a snow plow. Put' 1 put.khoz. no.9:38 S '57. (MIRA 10:10)
(Railroads--Snowplows)

KLYUCHNIKOV, V.D., assistant; BRYUKHNIN, V.A., student

Device for the determination of the angle of friction. Sbor.
dokl.Stud,nauch.ob-va Fak.mekh.sel'.Kuib.sel'khoz.inst.no. 1:
45-47 '62. (MIRA 17:5)

1. Kuybyshevskiy sel'skokhozyaystvennyy institut.

PROCESSES AND PROPERTIES INDEX

BRYUKHONENKO S. S.

11F

Methods of obtaining hormones of organisms. V. D. Yankovskii and S. S. Bryukhonenko. Byull. Nauch.-Issledovatel. Kazim.-Farm. Inst. 1931, 2:23 8; Chem. Zentr. 1932, 1, 1391; cf. C. A. 24, 8093. Many compds. prevent coagulation of the blood. These compds., known as stabilizers, are weak org. acids. The stabilizing doses are in vitro in percentage (in vivo per kg. wt.): heparin 2 (3); Benzochitrosa 2 BL, 80 (inactive); Benzochitrosylach 8 BSN, 90 (200); Bayer 2 85, 200 (250); H-Saure 100 (inactive); naphtholtrisulfonic acid 100 (inactive); aminobenzoic acid 200 (inactive). The stabilizing action on the blood is greater the lower the disocn. const. of the compd. considered. The group of "ultra-weak" acids reacts with the "ultra-weak" bases, which coagulate oxalated blood, to form complex compds. insol. in water. Since the org. hormones usually possess weakly acid or weakly basic properties or both, expts. were carried out to det. whether the "ultra-weak" acids and bases available would react with hormones to form insol. double compds. These expts. were carried out with insulin. The insulin was pptd. from the crude prepn. by treating its 0.5% soln. in 0.01 N HCl with a dil. aq. soln. of Benzochitrosa 2 BL (3.95:500) dropwise with stirring until the centrifuged soln. gave no further ppt. The ppt. was washed with 0.01 N HCl, dissolved in 0.01 N NH₄, centrifuged, filtered, pptd. with N HCl (the concn. in the soln. must not exceed 0.05 N), and centrifuged. The red-violet ppt. of Benzochitrosa-insulin was then washed with 0.01 N HCl and dried in a stream of

(over)

ASB-SEA METALLURGICAL LITERATURE CLASSIFICATION

and in urinary acidity (titratable acid--N11.) ran parallel in the same direction. V. The effect of local cooling and warming on the morphological composition of the blood. The mechanism of changes in the peripheral blood picture. P. A. ASHMARIN, I. A. ALKSEKOV-BERKMAN AND R. A. VLADIMIROVA. *Ibid* 303-14.—Heating of the hand in dry air to 40-50° increased the no. of leucocytes. Cooling produced opposite effects. The position of the arm while taking a blood sample had a considerable effect upon the morphologic blood picture. W. A. PRAZEWKO

BRYUKHONENKO, S.S., prof. (Moscow)

"Therapeutic use of amino acids in neuropsychic diseases" by
A.L. Andreev. Reviewed by S.S. Briukhonenko. Vrach, delo no.3:
327-328 Mr'58 (MIRA 11:5)
(AMINO ACIDS)
(ANDREEV, A.L.)

БРУКОВИЧЕВ, С. С.

Theoretical problems of blood circulation 143

Novye khirurgicheskie apparaty i instrumenty i opyt ikh primeneniye (New SURGICAL Equipment and Instruments and Experience in Their Use) NO. 1, Moscow, 1957. A collection of Papers of the Scientific Research Inst. for Experimental Surgical Equipment and Instruments.

NIERKHA 1

BRYNIN, S. S., SHCHERBAKOVA, T. T., PENESTROV, S. A.,
LAPCHINSKI, A. A., LEVITSKAYA, L. A., NASHCHENSKAYA, L. A., SAVCHENKO, E. D.

Artificial blood circulation and its clinical and experimental use. 147

Noye khirurgicheskie apparaty i instrumenty i opyt ikh primeneniye (New
SURGICAL Equipment and Instruments and Experience in Their Use) NO. 1,
Moscow, 1957 A collection of Papers of the Scientific Research Inst.
for Experimental Surgical Equipment and Instruments.

NIIEKKA!

BRYUKHONENKO, Sergey Sergeevich (1890-1960); MESHALKIN, Ye.N.,
doktor med. nauk, prof., otv. red.; LAPCHINSKIY, A.G.,
st. nauchn. sotr., red.; FUCHKOV, N.V., prof., red.;
PERESTORONIN, S.A., red.; YANKOVSKIY, V.D., doktor med.
nauk, red.

[Artificial blood circulation; a collection of works
problems of artificial blood circulation] Iskusstvennoe
krovoobrashchenie; sbornik rabot po voprosam iskusstven-
nogo krovoobrashcheniia. Moskva, Nauka, 1964. 282 p.
(MIRA 17:9)

ACC NR: AM5008926

BOOK EXPLOITATION

UR/

Bryukhonenko, Sergey Sergeyevich (Professor)

Artificial blood circulation? collection of papers on problems of artificial blood circulation (Iskusstvennoye krovoobrashcheniye; sbornik rabot po voprosam iskusstvennogo krovoobrashcheniya) Moscow, Izd-vo "Nauka", 1964. 282 p. illus., biblio. (At head of title: Akademiya nauk SSSR. Sibirskoye otdeleniye. Institut eksperimental'noy biologii i meditsiny). 2500 copies printed. Editor of the publishing house: Ye A. Kolpakova; Technical editors: A. A. Kiseleva, I. N. Dorokhina; Editorial board: Doctor of Medical Sciences Professor Ye. N. Meshalkin (managing editor), Senior Scientific Colleague A. G. Lapchinskiy, Professor N. V. Puchkov, S. A. Perestoronin, Doctor of Medical Sciences V. D. Yankovskiy

TOPIC TAGS: artificial blood circulation, blood circulation, central nervous system, medical equipment, medical experiment

PURPOSE AND COVERAGE: The great pathophysiological and talented inventor S. S. Bryukhonenko founded the practice of artificial blood circulation and devoted his life to its study. As long ago as 1924, Bryukhonenko developed an apparatus for artificial blood circulation, calling it an "autojector". He also did important basic work on anticoagulants. Inasmuch as most of Bryukhonenko's studies were published only in periodicals and collections (often of small circulation), a group of colleagues have collected the most important, and some heretofore unpublished, and present them in

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WDC: 612.13:615.47

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this book.

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SUB CODE: 06

/SUBM DATE: 01Jul64 /SOV REF: 082

/OTH REF: 014

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BRYUKHOV, A., inzh.-podpolkovnik

Equipment of the control center of an airplane maintenance
unit. Av. i Kosm. 47 no.12:76-77 D '64 (MIRA 18ai)

SOV/5892

PHASE I BOOK EXPLOITATION

Konferentsiya po elektronike sverkhvysokoy chastoty
Trudy (Transactions of the Conference on Superhigh-Frequency Elec-
tronics) Moscow, Gosenergoizdat, 1959. 271 p. 3,500 copies
printed.

Sponsoring Agency: Vsesoyuznyy nauchnyy sovet po radiofizike i radio-
tehnike AN SSSR.

Eds. (Title page): I. S. Dzhitig, Professor, and Ye. G. Soloviyev,
Candidate of Technical Sciences; Ed.: S. Akalunin; Tech. Ed.:
G. Ye. Lariomov.

PURPOSE: This book is intended for scientific and technical personnel
concerned with the development and operation of superhigh-frequency
devices.

COVERAGE: The book contains a number of papers dealing with the more
important problems of superhigh-frequency electronics. The papers
were submitted at the Conference on Electronics called by the
Vsesoyuznyy nauchnyy sovet po radiofizike i radiotekhnike AN SSSR
(All-Union Scientific Council for Radiophysics and Radio Engineer-
ing, AS USSR) and the Council for Radiophysics and Radio Engineer-
Modern Engineering, Ministry of Defense, USSR) and held in Moscow
in 1957. The reports deal with the following topics: problems
of the theory and calculation of the delay systems of traveling-
wave and backward-wave tubes; certain phenomena occurring in a
cylindrical electron beam during its propagation in a uniform mag-
netic field; the focusing of long beams by means of periodic magnetic
and electric fields; and some problems concerning reflex klystrons.
Modern types of cathodes for superhigh-frequency devices are de-
scribed. No personalities are mentioned. References accompany
most of the reports.

Alonskaya, M. M., V. G. Gabzharov, A. S. Dumayev, S. A. Zismanovskiy, M. L. Lyubimov, G. P. Maslkin, and G. P. Shtekhnolov. Klystron Amplifier of the 10-Centimeter Band With 20-Milliwatt Pulse Power	58
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BRYUKHOV, A.M., agronom

Efficiency covering quality of high-speed plowing in turning over
stubble. Zemledelie 24 no.2:78-79 F '62. (MIRA 15:3)
(Plowing)

BRYUKHONOV, A.V.

Results of processing the repeated phototheodolite surveys of 1956 and 1957 conducted on the glaciers of the southern slope of Mount Elbrus.
Inform.sbor. o rab. Geog. fak. Mosk. gos. un. po Mezhdunar. geofiz.
godu no.2:73-82 '58. (MIRA 15:10)
(Elbrus, Mount—Photographic surveying)

BRYUKHOV, Boris Fedorovich; STRABYKIN, A.N., red.; SKLYAROVA, Ye.I.,
tekh.red.

[Economy of Kirov Province and prospects for its future
development] Ekonomika Kirovskoi oblasti i perspektivy ee
razvitiia. Kirov, Kirovskoe knizhnoe izd-vo, 1959. 68 p.

(MIRA 13:4)

(Kirov Province--Economic conditions)

BUTKIN, V.D., kand.tekhn.nauk; TELESHOV, A.S., inzh.; BRYUKHOV, B.F., inzh.

Dependence of roller bit operation indices on the conditions of
boring. Gor.zhur. no.10:36-38 0 '64. (MIRA 18:1)

1. Nauchno-issledovatel'skiy i proyektno-konstruktorskiy institut
po dobyche poleznykh iskopayemykh otkrytym sposobom, Chelyabinsk.

BUTKIN, V.D., kand. tekhn. nauk; TELESHOV, A.S., inzh.; BRYUKHOV, B.F., inzh.

Resistance and wear of roller bits depending on the hardness of
rocks. Gor. zhur. no.9:46-48 S '65. (MIRA 18:9)

SPIRIN, P. (Sverdlovsk); KOSYAKOV, P. (Sverdlovsk); BRYUKHOV, G.
(Sverdlovsk)

Works of the Department of Economic Research of the Ural
Branch of the Academy of Sciences of the U.S.S.R. Vop. ekon.
no.11:157-160 N '63. (MIRA 17:2)

ORLOV, G.M., BOVIN, A.I., BRYUKHOV, S.A., IL'IN, B.A., MAYOROV, V.F.,
PASYUTIN, I.A., RAYEV, O.A., ROOS, L.V., NIKIFOROV, A.S., red.;
GORYUNOVA, L.K., red. izd-va, SIDEL'NIKOVA, L.A., red. izd-va,
SHAKHOVA, L.A., red. izd-va; BACHURINA, A.M., tekhn. red.

[Forest industries in Canada] Lesnaya promyshlennost' Kanady.
Moskva, Goslesbumizdat, 1957. 246 p. (MIRA 11:11)
(Canada--Lumbering)

SLOBODIN, V.M.; IVANYUK, Yu.I.; KUZOVLEV, P.M.; NAGAYEV, Yu.A.; LUPAREVA, T.F.;
MESHCHANINOV, S.I.; BRYUKHOV, Yu.A.; SYCHEVA, F.A.; KOSYAKOV, P.O.,
red.; ZANOVA, N.N., red. izd-va; TAMKOVA, N.F., tekhn. red.

[Distribution and specialization of agriculture in Chelyabinsk
Province] Razmeshchenie i spetsializatsiia sel'skogo khoziaistva
Cheliabinskoi oblasti. Sverdlovsk, AN SSSR, 1963. 204 p.
(MIRA 16:12)

1. Akademiya nauk SSSR. Ural'skiy filial, Sverdlovsk. Otdel
ekonomicheskikh issledovaniy.
(Chelyabinsk Province--Agriculture--Economic aspects)

A. E. BRYUKHINA and I. SH. MELUGA

" Investigation of Some Delay Systems of the Pin Type" from Annotations
of Works Completed in 1955 at the State Union Sci. Res. Inst; Min. of Radio Engineering
Ind.

So: B-3,080,964

BRYUKHOVETS, D.F.

Interaction of the traction system of ballooned tractors with soil.
Avt. i trakt. prom. no.12:21-24 D '57. (MIRA 11:1)

1. Moskovskiy avtomekhanicheskiy institut.
(Tractors--Testing)

BRYUKHOVETS, D.F., kand. tekhn. nauk; EGLIT, I.M., inzh.

Device for testing tractor transmissions. Trakt. i sel'khoz-
mash. 33 no.10:19-21 0 '63. (MIRA 17:1)

1. Moskovskiy avtomekhanicheskiy institut.

BRYUKHOVETS, D. F. Cand Tech Sci -- (diss) ^{Relation between} "~~Interrelation~~ of the running
system of pneumatic-tire tractors and ^{the} soil." Mos, 1958. 13 pp (Min of Higher
Education USSR. Mos Automechanical Inst), 100 copies (KL, 14-58, 112)

ERYUKHOVETS, Dmitriy Fedotovich; VASIL'YEV, A.M., kand. tekhn.
nauk, retsenzent; MASLOV, D.P., nauchn. red.;
SMIRNITSKAYA, O.M., red.

[Assembling and testing motor vehicles, tractors and
motorcycles] Sborka i ispytaniia avtomobilei, traktorov
i mototsiklov. Moskva, Vysshiaia partiinaia shkola, 1965.
361 p.
(MIRA 18:9)

PRIDOROZHKO, V.; BRYUKHOVETSKAYA, N.; FAYNBERG, S.; MOSTOVAYA, A.

Workers of flour mills in the struggle for high work indices.
Muk.-elev. prom. 29 no.6:17-18 Je '63. (MIRA 16:7)

1. Luganskoye upravleniye khleboproduktov (for Pridorozhko, Bryukhovetskaya). 2. Glavnyy inzh. Chernovitskoy mel'nitsy No.3 (for Faynberg). 3. Nachal'nik tsekha Chinkentskoy mel'nitsy No.1 (for Mostovaya).

(Flour mills--Labor productivity)