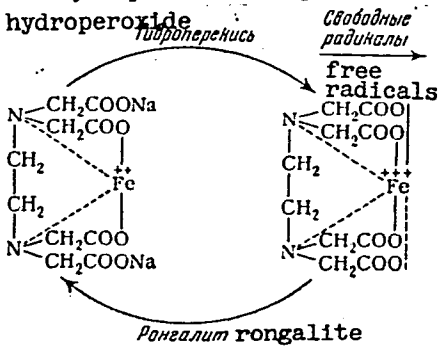
ntent in rubber is contra-indicated, since it causes premature oxidation and ging. A complex formed from the interaction of trilon B and ferrous sulfate is used as activator in the iron-trilon formulation. The purpose of the present work was to study the process of polymerization of butadiene with styrene carried out according to the iron-trilon and iron-pyrophosphate formulations, and to perfect these formulations for industrial use. Colophony soap and its mixture with fatty acid soap were used as emulsifiers. The scheme of the mechanism of the action of the system iron-trilon complex-hydroperoxide-rongalite is given:.



Card 2/5

26989

S/138/61/000/005/002/006
A051 'A129

Polymerization of butadiene with styrene in...

An iron-trilon formulation in two variants: for polymerization with colophony emulsifier and for polymerization with its mixtures with fatty-acid emulsifier at the ratio 1 : 1 was developed on the base of the conducted experiments. The formulations were checked under pilot plant conditions by S. L. Fisher, I. I. Radchenko, A. M. Permincv, E. G. Lazaryants, V. L. Tsaylingol'd et al. (report of VNIISK-NIIMSK, no. 013034, 1960). Four types of experimental batches of butadiene-styrene rubber were prepared: СКС-30АРК (SKS-30ARK) with colophony emulsifier (with a hardness of 600 - 800 g not containing mineral oil) and using a mixture of colophony and fatty-acid emulsifier at the ratio of 1 : 1, and also СКС-30АМРК (SKS-30AMRK) with a mixture of colophony and fatty-acid soap at a ratio of 1 : 1, containing 20 w.p. of ПН-6 (PN-6) oil with a Defoe hardness of 600 - 800 g (before introducing the oil 1,200 - 1,400 g) and containing 37.5 w.p. of PN-6 oil with a Defoe hardness of 600 - 800 g (before introducing the oil 2,000 - 2,200 g). The prepared rubbers SKS-30ARK and SKS-30AMRK had the following indices:

	SKS-30ARK	SKS-30AMRK-20
content of free colophony acids, %	6.3	5.5
content of bound colophony acids, %	0.35	0.15
iron content, %	0.017	0.012
Defoe hardness, g	540	650

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Polymerization of butadiene with styrene in... 26989

	SKS-30ARK	SKS-30AMRK-20
tear resistance, kg/cm²	281	256
relative elongation, %	680	550
residual elongation, %	24	22
elasticity, %	34	29

The iron-pyrophosphate formulation (report of Giprokauchuk no. 010017, 010851, 010889, 1955-56) was further investigated. For the polymerization of butadiene with styrene the following formulation was used: butadiene ... 70, styrene ... 30, dresinate 731 ... 4.5, hydroperoxide n-methane ... 0.08, $FeSO_4 \cdot 7H_2O$ ... 0.16, $K_4P_2O_7$ ... 0.18, sodium ethylenediaminetetraacetate (versen, trilon B) ... 0.01, daksad ... 0.15, $Na_3PO_4 \cdot 12H_2O$ ... 0.5, tertiary dodecylmercaptane (sulfol B-8) ... 0.18, water ... 200 (in w.p.). It is pointed out that with an increase in the regulating action of the diproxide the rate of polymerization dropped almost by 1.5 times. When using the monohydroperoxide of diisopropylbenzene the duration of the polymerization was 12 - 14 hrs, when replacing it by hydroperoxide of 1,1-diphenylethane 9 - 10 hrs. On the basis of the conducted work the formulation of iron-pyrophosphate using potassium soap of colophony was developed. This formulation was tested under pilot plant conditions (report of the VNIISK-NIIMSK, no. 013094,

1960). The prepared experimental butadiene-styrene rubber had the following indices: content of free colophony acids, % ... 5.8, content of bound colophony acids, % ... 0.25, content of iron, % ... 0.02, defoe hardness, g ... 550, tear resistance, kg/cm^2 ... 269, relative elongation, % ... 650, residual elongation, % ... 23, elasticity, % ... 29. In the conclusion the authors recommend sodium dimethyldithiocarbamate to be used as the interrupter of polymerization. There are 9 graphs and 5 references: 2 Soviet-bloc, 3 non-Soviet-bloc. The references to the English-language publications read as follows: R. Frank, J. Polym. Sci., 3, no. 1, 39 (1948); L. Howland, Rubb. World, 130, no. 5, 647 (1954); R. Brown et al., Ind. Eng. Chem., 46, no. 5, 1073 (1954).

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut sinteticheskogo kauchuka im. S. V. Lebedeva (All-Union Scientific Research Institute of Synthetic Rubber im. S. V. Lebedev)

15566
S/138/63/000/001/002/008
A051/A126

15.9261

AUTHORS: Fisher, S. L., Perminov, A. M., Radchenko, I. I., Poddubniy, I. Ya., Lobach, M. I., Belgorodskii, I. M.

TITLE: Production of butadiene-styrene (methylstyrene) rubbers according to an iron-trilon-rongalite composition using a colophony emulsifier

PERIODICAL: Kauchuk i rezina, no. 1, 1963, 9 - 15

TEXT: Effective compositions of polymerization have been introduced by the authors for emulsion rubbers-iron-pyrophosphate and iron-trilon-rongalite, satisfying industrial requirements. The suggested compositions are less sensitive to foreign admixtures contained in disproportionated colophony. The industrial production of the iron-trilon complex is easier than that of the iron-pyrophosphate complex. The described composition was used first at the Kuybyshev SR Plant in 1961 for the production of butadiene-methylstyrene rubber СКМС-30 АРКМ-15 (SKMS-30 ARKM-15). The suggested composition has been perfected by further intensifying the polymerization process and improving the rubber qualities. The experiments were conducted using: 92 - 94% butadiene-rectificate; 98% methylstyrene; 99.4% styrene; colophony, disproportionated with acidic number 165, con-

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taining abietene acids (1.8 - 2.5%); hyperis, containing 90.8% hydrogen peroxide; 90.8% monohydrogen peroxide diisopropylbenzene, containing 35% hydrogen peroxide; tertiarydodecylmercaptane, 95% concentrated. An autoclave of periodic action was used. The experimental results led to the following changes in the composition: 94 - 96% butadiene-rectificate; 98.5% methylstyrene, produced by dehydration of isopropylbenzene; disproportionated colophony, produced on a palladium catalyst by the continuous method with acidic number 163 - 164, and containing abietene acids - (2.5 - 4.9%); commercial stearene acid; 95% tertiary dodecylmercaptane d_{20}0.8616, D_{20}1.4685; softened water with a total hardness of 0.029 mg.equiv./l and iron content - 0.15 - 0.34%. The resulting SKMS-30 ARKM-15 commercial rubber is characterized by the absence of noticeable quantities of high-molecular fractions. It is similar to SKS-30 ARM-15 and SKMS-30 ARM 15 in its plastic properties mix scorching and spraying resistance. Studies have been conducted on the possibility of further reducing the emulsifier quantity in the production of butadiene--styrene and butadienemethylstyrene rubbers. It was found that: a) by reducing the emulsifier quantity from 5.8 to 5.2 weight parts, the polymerization duration does not change; b) by reducing the emulsifier quantity from 5.8 to 4.8 w.p., the duration remains the same if the trilon B is increased from 0.04 to 0.05 w.p.

Thus, the latex stability is not affected by the reduction in emulsifier. Therefore, the latter can be reduced by 10.17%. The application of the iron-trilon-rongalite polymerization composition has been recommended for the production of butadiene-styrene rubbers in other SR plants. There are 6 figures and 4 tables.

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S/138/63/000/003/001/008
A051/A126

AUTHORS: Akhmedov, G. G., Radchenko, I. I., Korchmarek, V. V.

TITLE: Polymerization of butadiene with styrene in an emulsion using the oxidation-reduction system hydroperoxide-iron-trilon complex-hydroquinone-sodium sulfite

PERIODICAL: Kauchuk i rezina, no. 3, 1963, 1 - 5

TEXT: A study was conducted on the possibility of using sodium sulfite as one of the components in an oxidation-reduction system. A new variation of the iron-trilon system was developed using sodium sulfite. The role played by the activators of this system was investigated. The experiments were carried out on 93 - 94% butadiene rectificate and 99.5% styrene. Potassium soap of disproportionated colophony was used as emulsifier. The effects of the main factors on the rate of polymerization under the influence of the system hydroperoxide-iron-trilon complex-hydroquinone-sodium sulfite were studied. Experiments showed that the hydroquinone in the investigated system may be replaced by benzoquinone with the same polymerizing effect. The mechanism of the polymerization

system studied is divided into three stages: 1) reduction of the trilon complex of the tri-valent iron by the hydroquinone, 2) oxidation of the trilon complex of the bi-valent iron forming free radicals of hydroperoxide, in turn causing the polymerization reaction, 3) reduction of the benzoquinone by the sodium sulfite. It is concluded that the newly developed oxidation-reduction system, using iron-trilon complex, hydroquinone and sodium sulfite as activators, can be used in an emulsion at 5°C, yielding a high polymerization rate. The system can be used in the production of synthetic rubber. There are 6 figures.

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L 17100-63 EPR/EWP(j)/EPF(c)/EWT(m)/BDS AFFTC/ASD Ps-4/Pc-4/
Pr-4 RM/WW

ACCESSION NR: AP3004251 S/0138/63/000/007/0004/0006

74
AUTHORS: Radchenko, I. I.; Lyashch, R. S. 72

TITLE: The regulatory and activating effect of Captax and Altax on the polymerization process of butadiene with styrene in emulsions (work completed in 1954)

SOURCE: Kauchuk i rezina, no. 7, 1963, 4-6

TOPIC TAGS: polymerization, regulator, activator, Captax, Altax, disulfide, mercaptane

ABSTRACT: The effect of various concentrations of excess sodium hydroxide on polymerization by Captax and Altax were investigated. Polymerization was conducted at 50C in rotating ampules, into which were introduced solutions of the initiator, potassium persulfate, and of the emulsifier, either Nekal or sodium stearate, followed by styrene with the regulator Captax or Altax, and butadiene. In the presence of 0.1% Ceptax an increase in free alkali from 0 to 0.2% caused the extent of polymerization to rise from 30% to 62%, while 0.3% Captax resulted in a drastic reduction in polymerization. Experiments conducted with 0.05% to 0.3% Captax in an identical excess alkalinity range of 0.05-0.1% resulted in a drop of deformation hardness of the polymer from 5900-4600 to 300-200. It was found that Altax also acts as an energetic regulator of polymerization at a low excess alkali range of

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ACCESSION NR: AP3004251

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0.05%-0.12%. The findings of the laboratory tests were substantiated by experiments conducted in a 40-liter autoclave for an average period of 35 hours, where 0.25% of either Captax or Altax were added by portions at several intervals. Rubbers of an average 50% polymerization extent were obtained with a deformation hardness of 2500-3200. It was also observed that the emulsifier Nekal did not affect the rate of polymerization by Captax, but sodium stearate activates polymerization by both Captax and Altax. Orig. art. has: 4 charts and 2 tables.

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SUBMITTED: 00	DATE ACQ: 21Aug63	ENCL: 01
SUB CODE: CH	NO REF SOV: 002	OTHER: 001

Card 2/2

ACCESSION NR: AP4017160 S/0138/64/000/002/0005/0009

AUTHORS: Akhmedov, G. G.; Radchenko, I. I.; Korchmarek, V. V.

TITLE: Oxidation-reduction system of polymerization. Hydroperoxide-iron-Trilon complex-hydroquinone-sodium sulfite

SOURCE: Kauchuk i rezina, no. 2, 1964, 5-9

TOPIC TAGS: polymerization, rubber polymerization, butadiene styrene polymerization, oxidation reduction system, di isopropylbenzene hydroperoxide, iron Trilon complex, hydroquinone, sodium sulfite, sodium hydrosulfite, sodium hyposulfite, sodium monosulfide

ABSTRACT: This is a continuation of a previous article by the authors (Kauchuk i rezina, No. 3, 1, 1963). The present investigation also includes sodium hydrosulfite and sodium monosulfide. The polymerization was conducted on an emulsion of a mixture consisting, by weight, of 70 parts butadiene and 30 parts styrene at a temperature of 5C, using 5.8 parts of potassium rosinate as emulsifier and 0.15 parts of di-isopropylbenzene monohydroperoxide as initiator. To the mixture were added 200 parts of water, 1.36 parts of potassium chloride as an electrolyte, and

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ACCESSION NR: AP4017160

0.3 parts Leukanol as a dispersing agent. It was found that at a concentration of 0.60×10^{-3} moles sodium sulfite and 0.1×10^{-3} moles hydroquinone the extent of polymerization reached 60%. A double amount of hydroquinone and 0.65×10^{-3} moles of sodium sulfite raised it to 80%, but no polymerization occurred in the absence of hydroquinone. Sodium hyposulfite was only half as effective as sodium sulfite, and here also the presence of hydroquinone was essential for polymerization. On the other hand, neither sodium sulfide nor sodium hydrosulfite required hydroquinone in their performance, sodium hydrosulfite being the most effective of the series. The effectiveness of the iron-Trilon complex as compared to the iron-o-phenantroline and iron-alpha, alpha'-dipiridyl complexes in the polymerization of the butadiene-styrene emulsion was studied in the presence of hydroquinone and sodium sulfite. The iron-Trilon complex emerged as the most active. Orig. art. has: 5 charts and 2 formulas.

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SUBMITTED: 00 DATE ACQ: 23Mar64 ENCL: 00

Card 2/3 2

ACCESSION NR: AP4034468 S/0138/64/000/004/0001/0006

AUTHORS: Radchenko, I. I.; Bashkatov, T. V.; Fisher, S. L.; Rabinerzon, M. A.; Perminov, A. M.

TITLE: Improved production of butadiene-methylstyrene (styrene) rubbers

SOURCE: Kauchuk i rezina, no. 4, 1964, 1-6

TOPIC TAGS: rubber polymerization, styrene rubber, butadienemethylstyrene rubber, iron trilon rongalite, rubber resin emulsifier, peroxide rubber initiator, latex coagulation, granular rubber, tape rubber, molecular weight distribution, rubber SKS 30ARK, rubber SKS 30ARKM 27

ABSTRACT: Recent progress in the production of butadiene-methylstyrene (styrene) (BMS) rubber is reviewed. The use of the iron-trilon-rongalite activator complex resulted in an average 30-35% increase in the polymerization rate, and the application of more active initiators could bring further improvement. Data are presented on the effect of various fractions of resin on the BMS polymerization rate. The purified product was found to act as an accelerator, while the impurities exhibited inhibitory properties. The role of soaps as emulsifiers is

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ACCESSION NR: AP4034468

discussed, and the importance of a properly conducted coagulation process of the latex is stressed. The effect of neutral salts and acids is explained, and the advantage of obtaining a granular type BMS polymer is emphasized. A flow sheet and a description of the coagulation process in the manufacture of rubber SKMS-30ARKM-15 is given. The physicomechanical properties of this rubber and of experimental rubbers SKS-30ARK and SKS-30ARKM-27 are presented. The distribution of fractions of various molecular weights in the last two rubbers was studied by means of ultracentrifugal sedimentation. It was found that these rubbers were nearly identical in some physicomechanical properties with the foreign-made Europrene 1500 and 1712. Orig. art. has: 3 tables and 6 charts.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut sinteticheskogo kauchuka im. S. V. Lebedeva (All-Union Scientific Research Institute of Synthetic Rubber)

SUBMITTED: 00 DATE ACQ: 13May64 ENCL: 00

SUB CODE: MT NO REF SOV: 004 OTHER: 003

Card 2/2

L 44582-66 EWT(m)/EWP(j)/T IJP(c) WW/RM

ACC NR: AP6015674 (A) SOURCE CODE: UR/0413/66/000/009/0077/0077

INVENTOR: Sadykh-zade, S. I.; Sultanov, N. T.; Aliyeva, M. A.; Akhmedova, G. G.; Radchenko, I. I.; Reykh, B. N.; Krchmarek, V. V.

ORG: none

TITLE: Method for obtaining synthetic rubber. Class 39, No. 181295 [announced by Institute of Petrochemical Processes, AN Azerbaydzhan SSR (Institut neftekhimicheskikh protsessov AN Azerbaydzhanskoy SSR)]

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 9, 1966, 77

TOPIC TAGS: synthetic rubber, butadiene styrene rubber, copolymerization, polymerization initiator

ABSTRACT: An Author Certificate has been issued for a method of obtaining synthetic rubber by water-emulsion copolymerization of butadiene with styrene in an alkaline medium in the presence of conventional initiators, buffers, emulsifiers, and regulators. To improve the physical and mechanical properties of the rubber, the copolymerization

UDC: 678.762.2-139

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L 44582-66

ACC NR: AP6015674

is carried out in the presence of methyl α,β-dichloroisobutyrate as the third comonomer for butadiene. [Translation] [NT]

SUB CODE: 11/ SUBM DATE: 04Jun65/

Card 2/2

[redacted], L.I.

Automatic level indicator of cylindrical kiln charging.
Ogneupory 30 no.8:9-11 '65. (MIRA 18:8)

1. Semiluksky ogneuporny zavod.

SMIRNOV, S.S.; RUDNICHENKO, V.I.; RADCHENKO, I.P.; EYSMONT, I.I.

Mechanization of oil change in reductors. Koks i khim. no.16:35 '61. (MIRA 15:2)

1. Bagleyskiy koksokhimicheskiy zavod.
(Coke industry--Equipment and supplies)

RYSS, A.I.; RADCHENKO, I.V.

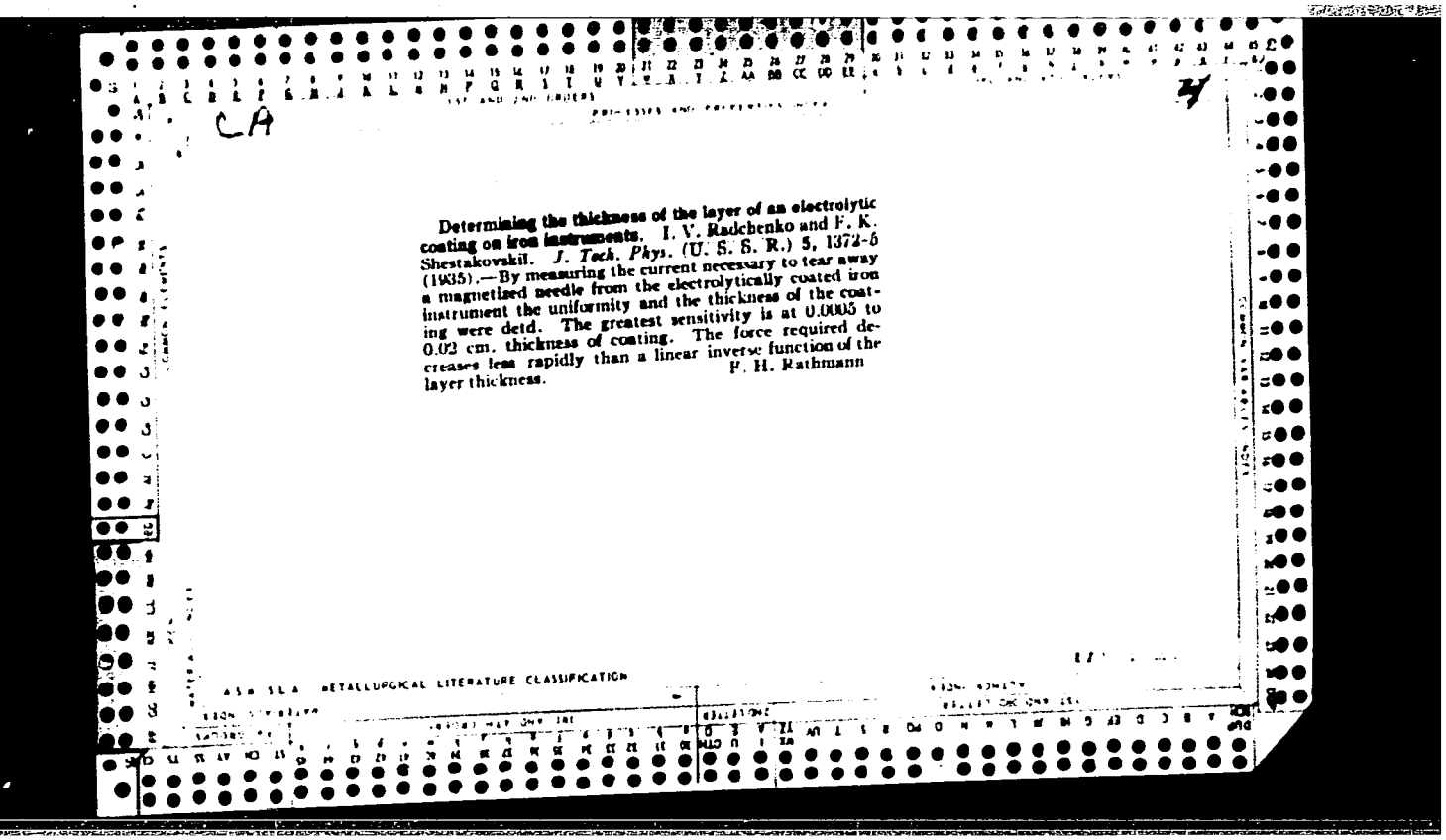
X-ray diffraction examination of nickel tetrafluoborate aqueous solutions. Zhur. strukt. khim. 6 no. 4:507-511 Jl-Ag '65 (MIRA 19:1)

1. Dnepropetrovskiy metallurgicheskiy institut. Submitted September 28, 1964.

LITVINENKO, I.V.; BIBIK, A.P.; RADCHENKO, I.V.

Welding of glazed microwire onto thick glazed conductors.
Prib. i tekh.eksp. 10 no.5:252-253 S-O '65.
(MIRA 19:1)

1. Dnepropetrovskiy metallurgicheskiy institut. Submitted Jan. 15, 1965.

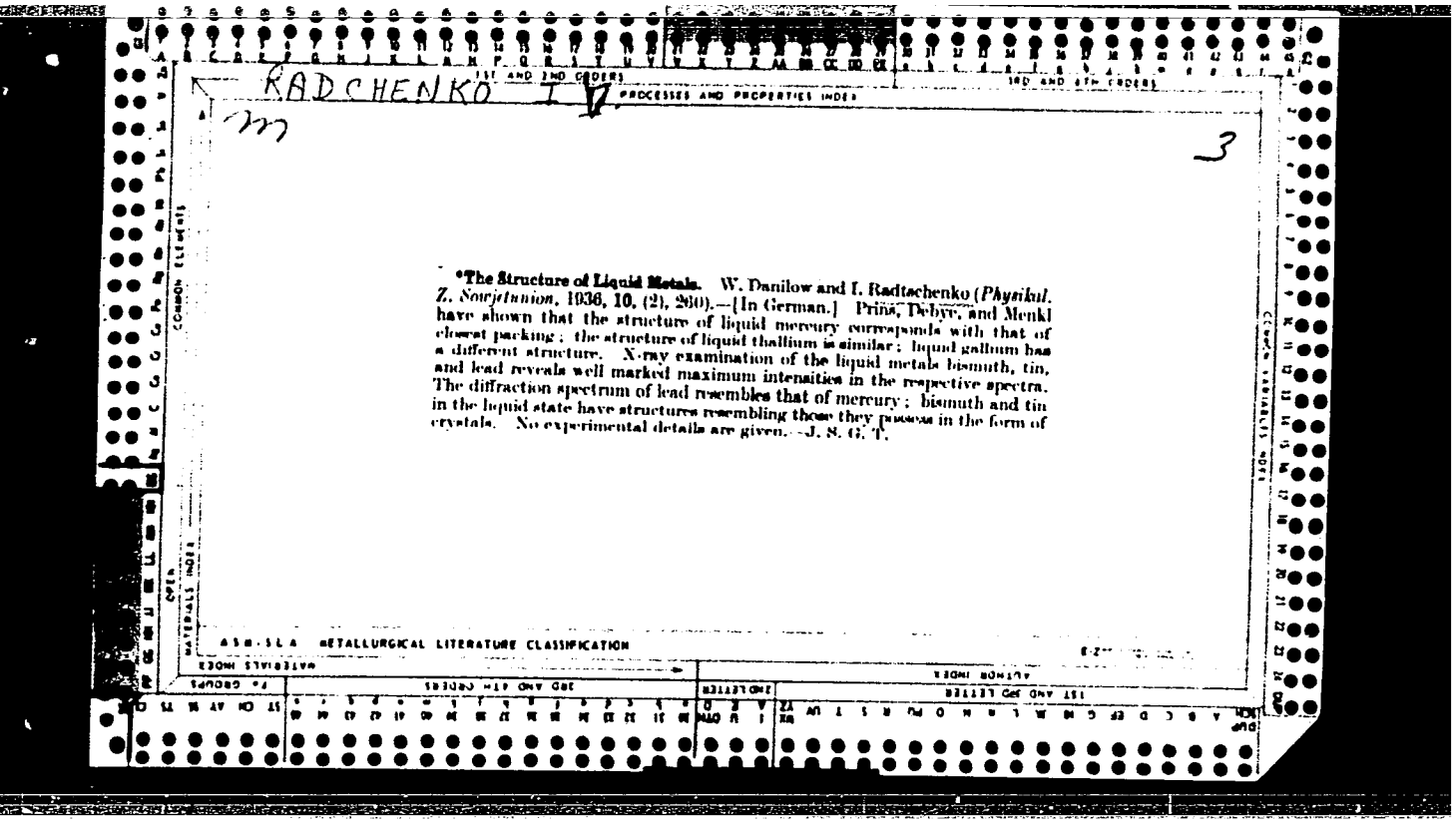


CA

Determining the thickness of the layer of an electrolytic coating on iron instruments. I. V. Radchenko and F. K. Shestakovskii. *J. Tech. Phys.* (U. S. S. R.) 5, 1372-5 (1935).—By measuring the current necessary to tear away a magnetized needle from the electrolytically coated iron instrument the uniformity and the thickness of the coating were detd. The greatest sensitivity is at 0.0005 to 0.02 cm. thickness of coating. The force required decreases less rapidly than a linear inverse function of the layer thickness.

F. H. Rathmann

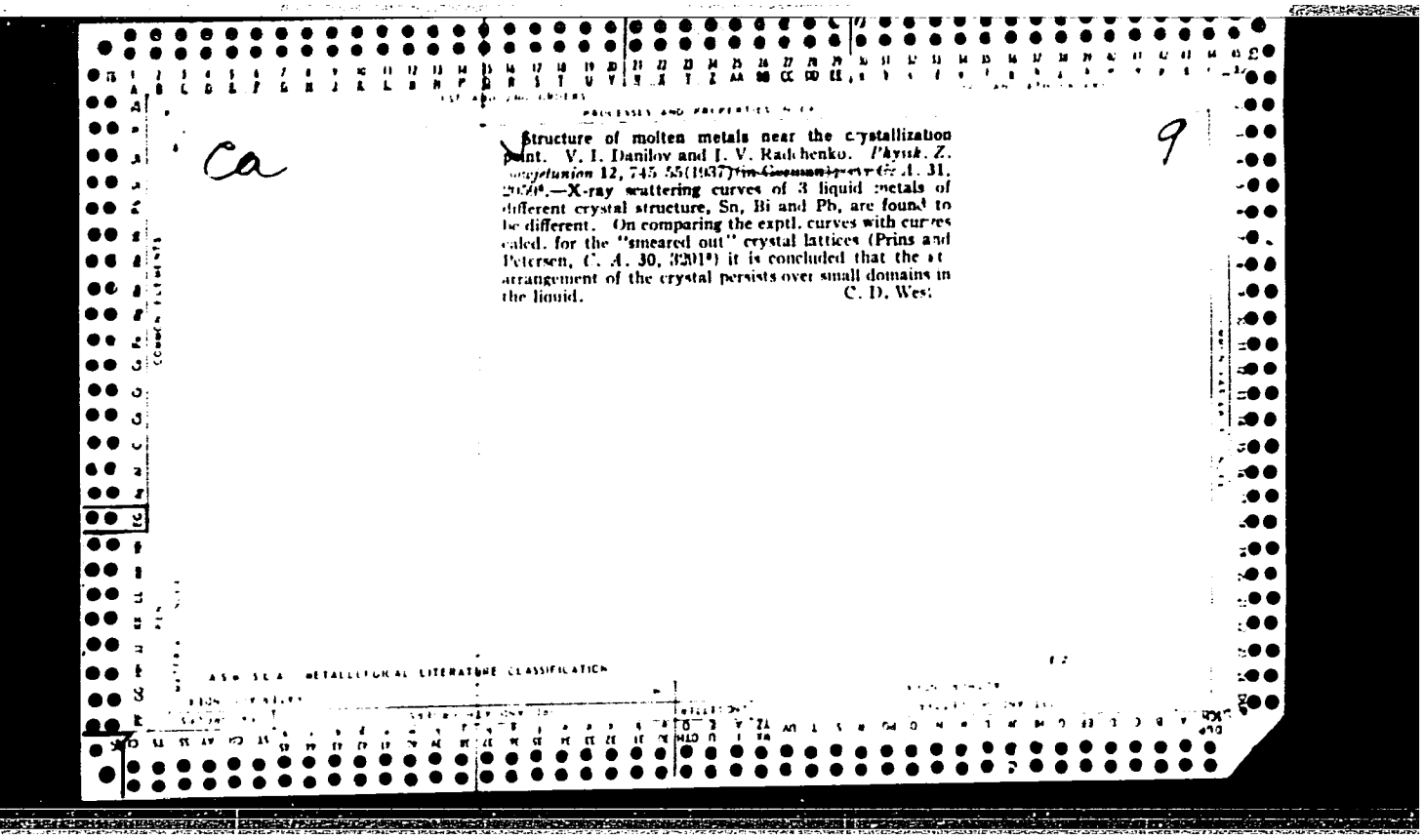
ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



RADCHENKO I V

3

*The Structure of Liquid Metals. W. Danilow and I. Radtschenko (*Physikal. Z. Sowjetunion*, 1936, 10, (2), 260).—[In German.] Prins, Debye, and Menkl have shown that the structure of liquid mercury corresponds with that of closest packing; the structure of liquid thallium is similar; liquid gallium has a different structure. X-ray examination of the liquid metals bismuth, tin, and lead reveals well marked maximum intensities in the respective spectra. The diffraction spectrum of lead resembles that of mercury; bismuth and tin in the liquid state have structures resembling those they possess in the form of crystals. No experimental details are given.—J. S. G. T.

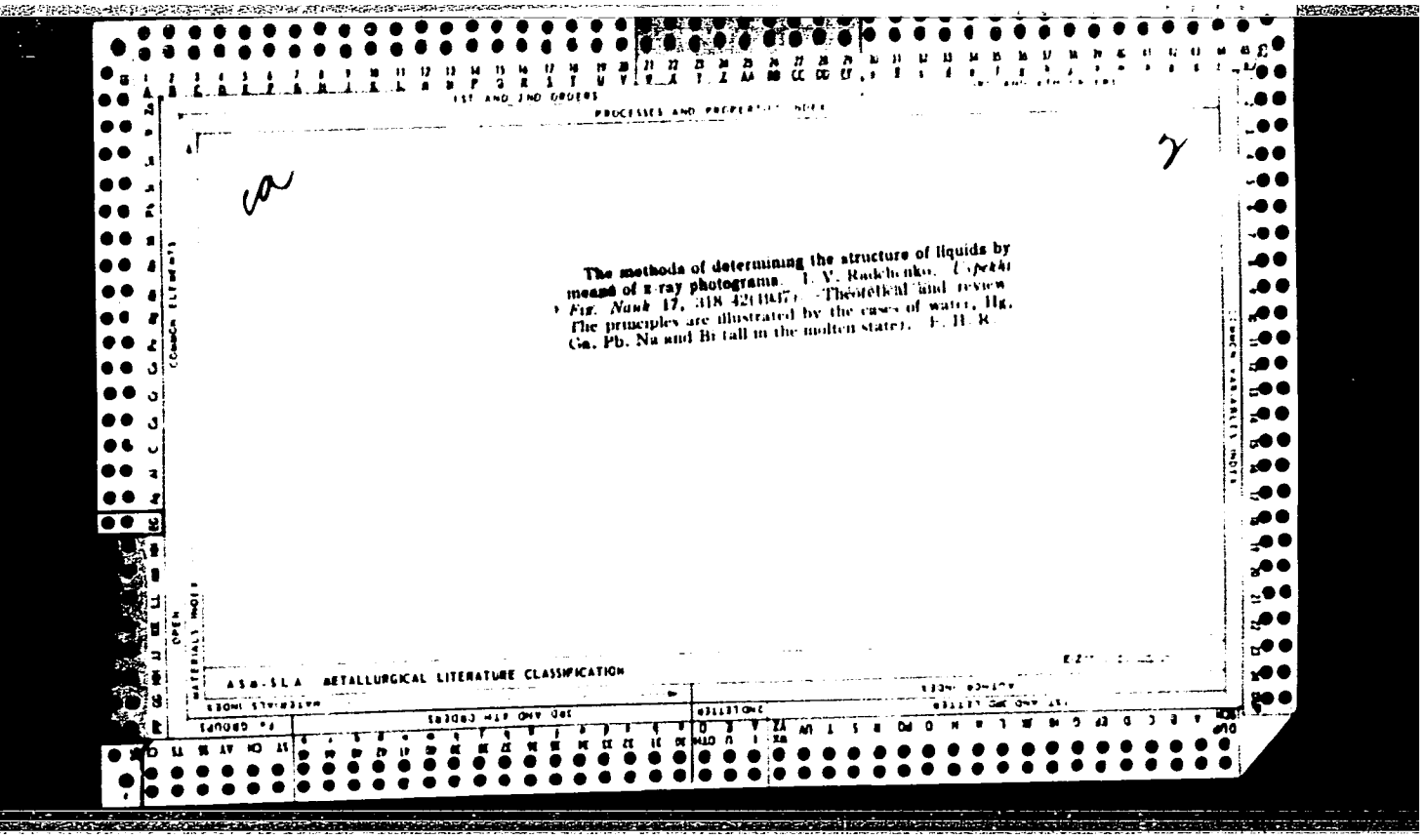


Ca

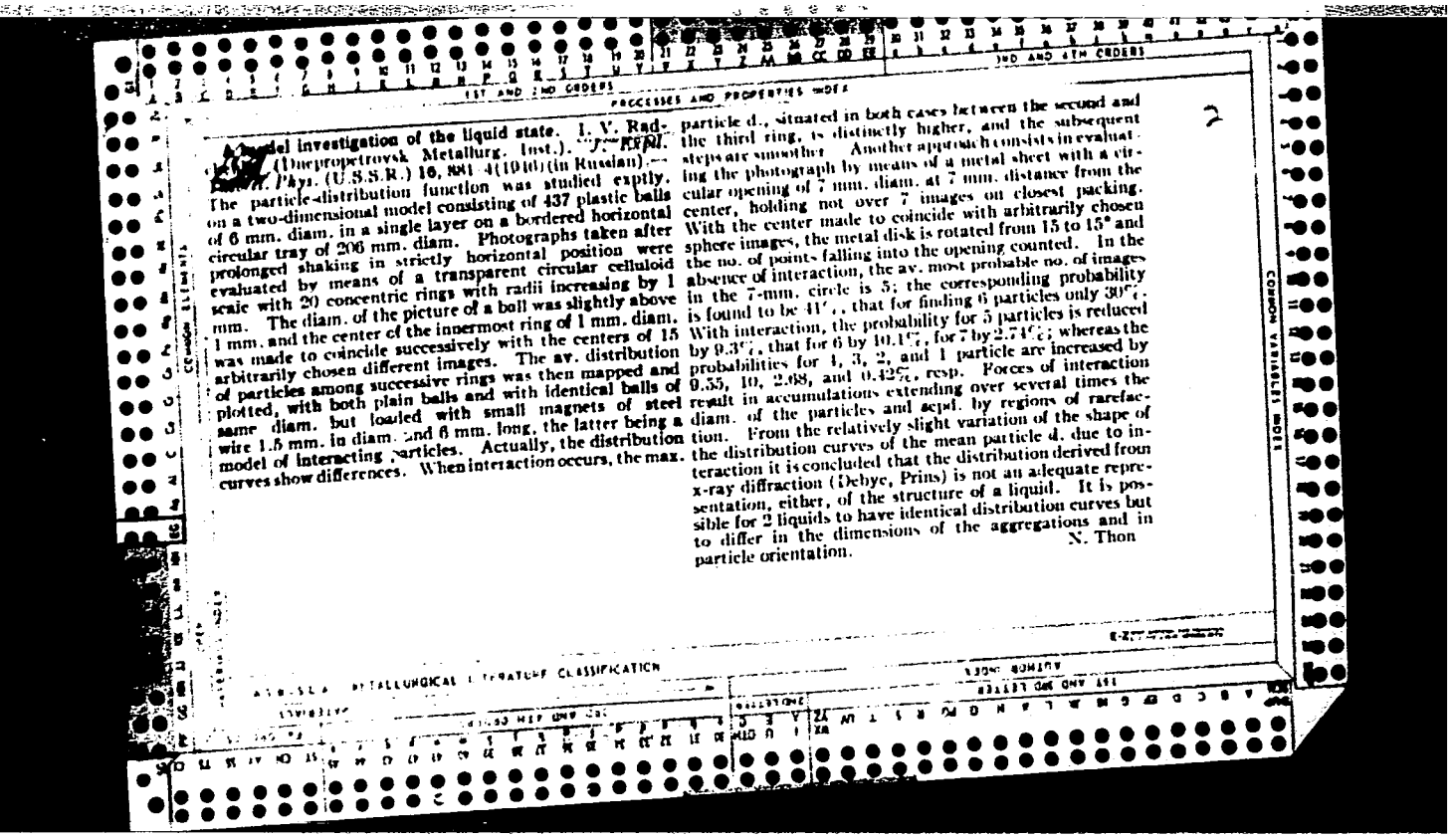
9

Structure of molten metals near the crystallization point. V. I. Danilov and I. V. Radchenko. *Physik. Z. Sowjetunion* 12, 745-55(1937)—X-ray scattering curves of 3 liquid metals of different crystal structure, Sn, Bi and Pb, are found to be different. On comparing the exptl. curves with curves calcd. for the "smeared out" crystal lattices (Prins and Petersen, *C. A.* 30, 3201[9]) it is concluded that the st arrangement of the crystal persists over small domains in the liquid. C. D. Wes

ASM SEA METALLURGICAL LITERATURE CLASSIFICATION



The methods of determining the structure of liquids by means of x-ray photograms. I. V. Radchenko. *Uspekhi Fiz. Nauk* 17, 318-42(1937). Theoretical and review. The principles are illustrated by the cases of water, Hg, Ga, Pb, Na and Br (all in the molten state). E. H. R.



Model investigation of the liquid state. I. V. Radchenko (Dnepropetrovsk Metallurg. Inst.). *Zhur. Fiz. Khim.* (U.S.S.R.) **16**, 881–4(1940)(in Russian).—The particle-distribution function was studied exptly. on a two-dimensional model consisting of 437 plastic balls of 6 mm. diam. in a single layer on a bordered horizontal circular tray of 206 mm. diam. Photographs taken after prolonged shaking in strictly horizontal position were evaluated by means of a transparent circular celluloid scale with 20 concentric rings with radii increasing by 1 mm. The diam. of the picture of a ball was slightly above 1 mm. and the center of the innermost ring of 1 mm. diam. was made to coincide successively with the centers of 15 arbitrarily chosen different images. The av. distribution of particles among successive rings was then mapped and plotted, with both plain balls and with identical balls of same diam. but loaded with small magnets of steel wire 1.5 mm. in diam. and 6 mm. long, the latter being a model of interacting particles. Actually, the distribution curves show differences. When interaction occurs, the max. particle d., situated in both cases between the second and the third ring, is distinctly higher, and the subsequent steps are smoother. Another approach consists in evaluating the photograph by means of a metal sheet with a circular opening of 7 mm. diam. at 7 mm. distance from the center, holding not over 7 images on closest packing. With the center made to coincide with arbitrarily chosen sphere images, the metal disk is rotated from 15 to 15° and the no. of points falling into the opening counted. In the absence of interaction, the av. most probable no. of images in the 7-mm. circle is 5; the corresponding probability is found to be 41%, that for finding 6 particles only 30%. With interaction, the probability for 5 particles is reduced by 9.3%, that for 6 by 10.1%, for 7 by 2.74%; whereas the probabilities for 4, 3, 2, and 1 particle are increased by 9.55, 10, 2.68, and 0.42%, resp. Forces of interaction result in accumulations extending over several times the diam. of the particles and acpd. by regions of rarefaction. From the relatively slight variation of the shape of the distribution curves of the mean particle d. due to interaction it is concluded that the distribution derived from x-ray diffraction (Debye, Prins) is not an adequate representation, either, of the structure of a liquid. It is possible for 2 liquids to have identical distribution curves but to differ in the dimensions of the aggregations and in particle orientation.

N. Thon

RADCHENKO, I. V.

USSR/Physics Feb 1948
Fluid Dynamics

"Mechanical Properties of Fluids," I. V. Radchenko, 8 pp

"Priroda" Vol. XXXVII, No 2

Explains terms "hardness," "brittleness," "compressibility," "tensile strength" as applied to fluids and describes associated phenomena. Mentions numerous practical applications, e.g. design of propeller blades, supersonic sounding devices, etc.

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CA

2

Model study of the distribution of free volume in a liquid. I. V. Radchenko and F. Shestakovskii (Dnepropetrovsk Metallurg. Inst.). *Zhur. Eksptl. Teoret. Fiz.* 19, 121–5 (1949).—The no. and the "coördination no." of voids between steel balls allowed to distribute themselves at random in 2 dimensions, on a glass plate surrounded by a frame, was detd. statistically as the av. of 30 expts. in each case; by definition, only voids surrounded by more than 3 balls, i.e. with a coördination no. of at least 4, are considered, inasmuch as a void surrounded by 3 balls corresponds to close packing and therefore is not actually a hole. Analogous detns. were made under conditions imitating radially sym. forces; this was done by wetting the balls, which made them stick together on contact. Conditions imitating repulsive forces were realized by coating the balls with paraffin and immersing them 1/3 of their height in water. Finally, dipolar forces were imitated by magnetizing the balls. That this model actually does correspond to a liquid, and not to a defective solid, follows from the d. of distribution of the balls, which amounted in the 4 cases, to 87, 85, 83, and 81% of the d. corresponding to close packing; this is less than the two-dimensional d. of distribution calcd. for a no. of liquid metals (K, Na, Hg, Zn, Cd, Sn, Pb, Tl) near the f.p., and which ranges from 96.4 to 97.8%. Consequently, the model used can be considered as that of a liquid. The consts. show that, in all 4 cases, the coördination no. 4 is by far the most frequent (75, 60, 64, and 55%). Presence of an interaction force of any kind always decreases the no. of holes with coördination no. 4. Holes with a coördination no. of 8 or higher are not found in the absence of interaction, but with interaction one does find coördination nos. of 8 and 9; such voids can be viewed as cracks in the liquid which occasionally can be filled with vapor. Voids with high coördination nos. are mostly not empty, but do include a ball (vapor mol.) without contact with the wall of the void. The total no. of holes is always decreased by interaction. Thus, interaction forces of any kind increase the mech. force of a liquid, but, on the other hand, counteract the "healing" of voids and increase their dimensions. N. Thon

I. V. Radchenko

Distr: 4E4c/4E4j

Study of the liquid state by a model. I. V. Radchenko and F. K. Shestakovskii. *Stroenie i Fiz. Svoistva Veshchestva v Zhidkom Sostoyanii* (Kiev: Izdatel. Univ.) *Sbornik* 1954; *Referat. Zhur., Khim.* 1956, Abstr. No. 25035.—To clarify the effect of interaction force on distribution of particles and the diffraction with a model (wood disks floating on the liquid surface in a flat glass container, photographed for light transmission), the effect of the central forces of interaction between the particles and their distribution was studied. Expts. with the model made it possible to observe gradual change of the diffraction from one of x-ray scattering by gases to one caused by crystals. The effect on the diffraction by the regularity caused by dipole and central forces varied. If the dipole forces diffused the 2nd and 3rd max., the central forces inversely strengthened them. When clarified (with the model expts.), the effect on the particle distribution of the inter-forces between the particles of 2 components forming a mixt., the following was established: if the forces of attraction between similar particles are weaker than those between dissimilar particles, a uniform distribution of all particles occurs; if the forces of attraction between similar particles are greater than that between dissimilar particles, a distribution of particles similar to the distribution in solid eutectic alloys occurs. Based upon x-ray investigations, this result may be compared with the distribution of particles in the liquid alloys. N. V.

RADCHENKO, I. V.

Distr: 4E4j

X-ray study of supercooled diphenyl ether. I. V. Radchenko and P. K. Shestakovskii. *Stroenie i Fiz. Svoistva Veshchestva v Zhidkom Sostoyanii* (Kiev: Izdatel. Univ.) *Sbornik* 1954, 63–8; *Referat. Zhur., Khim.* 1956, Abstr. No. 25036.—The structure of Ph_2O was investigated by x-rays at temps. higher than its m.p. and when supercooled (15° higher than its crystn. temp. and 10° below it). Supercooling Ph_2O does not cause abrupt changes in the scattering angles of x-rays compared with those that are observed with other substances (liquid Bi and supercooled C_6). The change observed is considerably less for Ph_2O than for simple liquids (Hg). Therefore, there is no reason to assume that on supercooling the structure of Ph_2O undergoes substantial changes. This is substantiated by the fact that properties, such as surface tension, sp. heat, and vapor pressure related to the liquid structure, do not change abruptly in the case of Ph_2O when passing the crystn. point without crystn.

N. Vasileff

RADCHENKO, I.V.

6

1096

SCATTERING OF X RAYS BY METHANOL - WATER MIXTURES. I. V. Radchenko and F. K. Shestakovskii. (Dnepropetrovskii Metallurgical Inst.). Zhur. Fiz. Khim. 29, 1456-8(1955) Aug. (In Russian)

Water - methanol mixtures with methanol weight concentration of 20, 30, and 50%, and pure water and absolute methanol were studied. All experiments were made at 13°C temp. Results based on comparison of curves obtained from the angular distribution of x-ray-scattering intensity caused by water mixtures with methanol have proved that presence of methanol molecules strengthen the water structure by inducing stronger molecular associations. (R.V.J.)

PH

(1)

PA - 2287

AUTHOR: RADCHENKO,I.V.

TITLE: The Structure of Liquid Metals. (Stroyeniyw zhidkikh metallov, Russian).

PERIODICAL: Uspekhi Fiz.Nauk, 1957, Vol 61, Nr 2, pp 249-276 (U.S.S.R.)

Received: 4 / 1957 Reviewed: 4 / 1957

ABSTRACT: The present work is arranged as follows:
Introduction: The near and the remote order, on the method of the radiographic determination of the function of density $\varrho(r)$ and the function of probability $W(r)$. Experimental conditions for the radiography of liquid metals.
The most important results of the investigation of the structure of liquid metals: Mercury: At temperatures near crystallization point the structure of liquid mercury corresponds to its structure in the crystallized state and the number of coordinates is equal to that in the crystal, i.e. 6. The most probable radius of the sphere of coordinates amounts to 3 Å. With an increase of temperature the number of coordinates increases to 8 - 10 and increases to 12 at high temperatures.
Metals with tight packing of atoms in a solid state: Gold, lead, thallium, indium, cadmium, aluminum and zinc.
Alkali metals: Sodium, potassium, lithium, rubidium, and cesium. (Up to now rubidium and cesium have been investigated only qualitatively).

Card 1/2

The Structure of Liquid Metals. PA - 2287

Metals with loose packing of atoms in a solid state: Gallium, bismuth, germanium, antimony, selenium, tellurium, zinc.

Summary: According to the results of radiographic and neutronographic investigations the following may be stated: Packing of atoms in a liquid metal is connected in the known manner with its packing in a solid state. Here the character of this connection depends upon the type of the metal. The coordination number of all metals after melting either increases or remains unchanged. Conclusions as to the decrease of the coordination number is not sufficiently reliable because this conclusion is connected with the secondary maximum at the curve of the atomic distribution. This maximum, however, may be due to a faulty determination of the intensity curve. The type of packing in liquid metals is probably conserved up to high temperatures which exceed melting temperature considerably. The causes leading to the errors occurring on the occasion of the determination of the curves of atomic distribution ought to be further investigated. Besides, methods for the investigation and elimination of these errors should be worked out. (48 illustrations).

ASSOCIATION: Not given
PRESENTED BY:
SUBMITTED:
AVAILABLE: Library of Congress
Card 2/2

SHAPOVALOV, I.M.; RADCHENKO, I.V.

Roentgenographic investigation of copper acetate solutions in water [with summary in English]. Ukr. fiz. zhur. 3 no.6:815-819 N-D '58. (MIRA 12:6)

1.Dnepropetrovskiy metallurgicheskiy institut.
(Copper acetate) (X rays)

RADCHENKO, I. V.

PHASE I BOOK EXPLOITATION SOV/4720

Radchenko, Ivan Vasyl'yevych (Vasil'yevich)

Molekulyarna fizyka (Molecular Physics) 3d ed., rev. and enl. Kharkiv, Vyd-vo Kharkivs'koho derzhav. univ-tu imeni O. M. Hor'koho, 1959. 538 p. 3,000 copies printed.

Resp. Ed.: M. Ye. Hurtovyy; Ed.: M. I. Prokopenko; Tech. Ed.: A. S. Trokhymenko.

PURPOSE: This book is intended for university students of physics and mathematics and has been authorized as a textbook by the Ministerstvo vyshchoyi i seredn'oy spetsial'noyi osvity URSR (Ministry of Higher and Secondary Special Technical Schools UkrSSR). It can also be used by students and teachers of physics in secondary schools.

COVERAGE: The book discusses progress of present-day molecular physics. Attention is given to work of Soviet scientists on

~~Card 1/21~~

S/185/62/007/005/009/013
D407/D301

AUTHORS: Lytvynenko, H.V., and Radchenko, I.V.

TITLE: Thermal conductivity of aqueous solutions of electrolytes as a structural-sensitive property

PERIODICAL: Ukrayins'kyy fizychnyy zhurnal, v. 7, no. 5, 1962, 539 - 547

TEXT: The apparent molal thermal conductivity of an infinitely diluted electrolytic solution is considered. The relation between the thermal conductivity of aqueous electrolytic solutions and the ionic radius is discussed from the point of view of the structure of the solution. The concept of apparent molal thermal conductivity φ_λ was introduced by A.F. Kapustinskiy and I.I. Ruzavin (Ref. 10: ZhFKh, 30, 548, 1956). The formula for φ_λ, proposed in Ref. 10, is however inadequate, since its principal term is not related to the thermal conductivity. The authors propose a new formula for φ_λ, which is free of the above shortcoming. They used, for the coefficient of thermal conductivity λ_r, the equation

Card 1/3

values of A^{o} and B. 3) Multi-charge ions with small r_{aq} have large negative values of A^{o} and B. A comparison of the obtained results with the other properties of ions, shows that all negatively-hydrated ions reduce the thermal conductivity of the solution. By considering the influence of negatively-hydrated ions on the structure of the solution and on the translational motion of its molecules, the authors conclude that the thermal conductivity of aqueous electrolytic solutions is (unlike the viscosity) more sensitive to structural changes in the solution, than to changes in the translational motion. There are 6 figures, 3 tables and 19 references: 10 Soviet-bloc and 9 non-Soviet-bloc.

ASSOCIATION: Dnipropetrovs'kyy metalurhiynyy instytut (Dnipropetrovs'k Metallurgical Institute)

SUBMITTED: January 16, 1962

Card 3/3

RADCHENKO, I.V.

Forty-five years of X-ray diffraction analysis of liquids. (MIRA 16:1)
Ukr. fiz. zhur. 7 no.8:820-826 S '62.
(X rays--Diffraction) (Liquids)

SHAPOVALOV, I.M.; RADCHENKO, I.V.; LESOVITSKAYA, M.K.

X-ray diffraction study of aqueous sulfate solutions. Zhur.strukt. khim. 4 no.1:10-13 Ja-F '63. (MIRA 16:2)

1. Dnepropetrovskiy metallurgicheskiy institut.
(Alkali metal sulfates) (X rays—Diffraction)

RYSS, A.I.; RADCHENKO, I.V.

X-ray study of aqueous solutions of tetrafluoboric acid. Zhur. strukt.khim. 4 no.5:659-663 S-O '63. (MIRA 16:11)

1. Dnepropetrovskiy metallurgicheskiy institut.

S/185/63/008/001/016/024
D234/D308

AUTHORS: Gulivets, M. I. and Radchenko, I. V.

TITLE: A new method of normalization of the experimental intensity curve of x ray scattering

PERIODICAL: Ukrayins'kyy fizychnyy zhurnal, v. 8, no. 1, 1963, 106-107

TEXT: On condition that the number of scattering centers in a sufficiently large volume is constant, the authors deduce an expression for the normalizing factor

$$\lim_{r_m \to \infty} \frac{\int_0^{\infty} \frac{J_{inc} + \sum_k F_k^2(s)}{f_e^2(s)} \left\{ \frac{\sin sr_m}{sr_m} - \cos sr_m \right\} ds}{\int_0^{\infty} \frac{J(s)}{f_e^2(s)} \left\{ \frac{\sin sr_m}{sr_m} - \cos sr_m \right\} ds} = 1 \qquad (7)$$

Card 1/2

A new method of ...

F_k being the atomic form factor of the k-th atom, J_{inc} the intensity of incoherent scattering, J_e the experimental intensity, f_e^2 the scattering by electrons. This expression gives 1.01 for Au and 0.996 for Hg instead of 1.

ASSOCIATION: Dnipropetrovs'kyy metalurhiynyy instytut (Dnepropetrovsk Metallurgical Institute)

SUBMITTED: July 12, 1962

Card 2/2

RYSS, A.I.; RADCHENKO, I.V.

X-ray study of the aqueous solutions of sodium tetrafluoroborate. Zhur. strukt. khim. 5 no.4:530-533 Ag '64. (MIRA 18:3)

1. Dnepropetrovskiy metallurgicheskiy institut.

L 16126-65 EWT(m) ASD(a)-5/AFETR JD/JW/RM

ACCESSION NR: AP5000697 S/0181/64/006/012/3750/3751

AUTHORS: Gal'pern, V. V.; Radchenko, I. V. B

TITLE: Temperature dependence of the dark electric conductivity of stilbene

SOURCE: Fizika tverdogo tela, v. 6, no. 12, 1964, 3750-3751

TOPIC TAGS: stilbene, electric conductivity, dark current, temperature dependence, activation energy, solid phase, liquid phase

ABSTRACT: This investigation was stimulated by the lack of published data on the conductivity of bulk stilbene. In view of the brittleness of stilbene single crystals the measurements were made with polycrystals made from single crystals to ensure purity. The procedure is briefly described. An electrode system with a guard ring was used to determine the volume current. The sample was heated at a rate of 10--15 deg/hr and kept at constant temperature for about

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L 16126-65
ACCESSION NR: AP5000697

2

a half hour before each measurement. The temperature was kept constant within 0.1°. The stationary current was measured with a vacuum-tube electrometer at an external field intensity ~10^3 V/cm. The results for two samples are shown in Fig. 1 of the enclosure. The average values obtained for the conductivity and for the thermal activation energy are (2.0 ± 0.5) x 10^{-2} ohm^{-1} cm^{-1} and 1.70 ± 0.05 eV, respectively. Measurements were also made of the electric conductivity of stilbene near the melting point and in the liquid state. The conductivity of the liquid is approximately 300 times higher than that of the solid. Supercooling of liquid stilbene was observed.
"The authors thank N. N. Spendiarov for growing the single crystals and for many valuable hints." Orig. art. has: 1 figure.

ASSOCIATION: Dnepropetrovskiy metallurgicheskiy institut (Dnepropetrovsk Metallurgical Institute)

SUBMITTED: 22Jul64 ENCL: 01
SUB CODE: SS, EM NR REF SOV: 001 OTHER: 003

Card 2/3

L 16126-65

ENCLOSURE: 01

ACCESSION NR: AP5000697

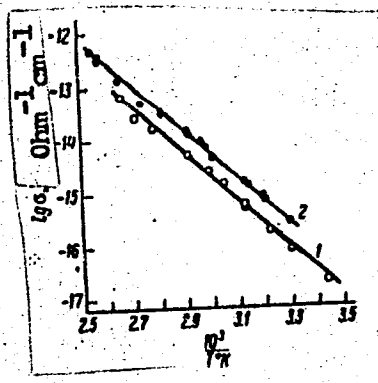

Fig. 1. Temperature dependence of specific electric volume conductivity of polycrystalline stilbene with different activation energies and resistivities

Card 3/3

RYSS, A.I.; RADCHENKO, I.V.

X-ray diffraction study of aqueous solutions of tetrafluoboric acid and some of its salts. Ukr. fiz. zhur. 9 no.4:416-420 Ap '64. (MIRA 17:8)

1. Dnepropetrovskiy metallurgicheskiy institut.

L 18331-65 EWT(1)/EEC(t) Peb IJP(c)/ESD(gs)/ESD(t) GG
ACCESSION NR: AP5000628 S/0185/64/009/011/1233/1239

AUTHOR: Ponyatenko, M. A. (Ponyatenko, N. A.); Radchenko, I. V.

TITLE: Effect of Li^+, Na^+, K^+, Rb^+, Cs^+, Ag^+, and NH_4^+ ions on the Raman scattering spectrum of the NO_3^- ion in melts and in aqueous solutions of nitrates

SOURCE: Ukrayins'ky*y fizy*chny*y zhurnal, v. 9, no. 11, 1964, 1233-1239

TOPIC TAGS: ion interaction, Raman scattering spectrum, Raman scattering

ABSTRACT: In order to study interactions between ions, Raman scattering spectra of NO_3^- ions in melts of $LiNO_3$, $NaNO_3$, KNO_3, $RbNO_3$, $CsNO_3$, $AgNO_3$, and NH_4NO_3 were investigated at temperatures ranging from the melting point of each salt up to 550C, as well as in aqueous solutions of these salts at concentrations ranging from weak to saturated and at temperatures ranging from 28 to 100C. It was found that the frequency of fully symmetrical oscillations ν_1 of the NO_3^- ion under the influence of surrounding cations in solutions and in melts varied linearly, depending on $r_k/r_a(1/s)$, where r_k is the

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L 18331-65
ACCESSION NR: AP5000628

univalent radius of the cation, r_a is the univalent radius of the anion, and s is the screening factor of the cation. A comparison of the Raman scattering spectrum of a KNO_3 melt with the spectrum of this salt in an aqueous solution shows that the frequency ν_1 of the NO_3^- ion is the same in both cases. The conclusion is drawn that water molecules have the same effect on the frequency ν_1 of the NO_3^- ion oscillations as the K^+ ion. All other ions of the investigated series may be divided into two groups: 1) Li^+ and Na^+, which affect the NO_3^- ion oscillations more strongly than water molecules; and 2) Rb^+, NH_4^+, Cs^+, and Ag^+, which have a weaker effect on those oscillations than water molecules. If these assumptions correspond to reality, then the frequency ν_1 should depend on the concentration of the salt in solution as well as on the number of cations of a given type which surround an NO_3^- ion. Such dependence is observed very clearly in the case of Li^+ and Ag^+ ions. Orig. art. has: 3 figures, 2 formulas, and 1 table.

ASSOCIATION: Dnipropetrovs'ky*y metalurgichny*y insty*tut
(Dnepropetrovsk Metallurgical Institute)

Card 2/3

L 18331-65

ACCESSION NR: AP5000628

SUBMITTED: 11Feb64 ENCL: 00 SUB CODE: NP, OP

NO REF SOV: 003 OTHER: 016 ATD PRESS: 3155

Card 3/3

L 9615-66 EWP(e)/EWT(m)/EWP(v)/T/EWP(t)/EWP(k)/EWP(b)/EWA(c) JD/HM/WH

ACC NR: AP5027049 SOURCE CODE: UR/0120/65/000/005/0252/0253

AUTHOR: Litvinenko, I. V.; Bibik, A. P.; Radchenko, I. V.

ORIG: Dnepropetrovsk Metallurgical Institute (Dnepropetrovskiy metallurgicheskiy institut)

TITLE: The welding of glass-coated microwires to thick glass-coated connectors

SOURCE: Pribory i tekhnika eksperimenta, no. 5, 1965, 252-253

TOPIC TAGS: glass coating, microwire, welding technology, welding

ABSTRACT: This note describes a new method for welding the end of a glass-coated copper microwire to a glass-coated thicker platinum wire. The welding proceeds under the glass layer and the weld proper remains reliably isolated by a continuous glass layer. The proposed method has been used successfully in the construction of a sensor for heat conduction determination in current conducting liquids using the nonstationary heated filament method. The microwire used was 20 and 12 μ in diameter (resistivity of 70 and 200 ohm/m, respectively) and had coatings 10 and 4 μ thick. Orig. art. has: 3 figures.

UDC: 621.791.762:621.08

SUB CODE: IE, MT / SUBM DATE: 15Jan65 / ORIG REF: 001/ OTH REF: 002

Card 1/1

GULIVETS, N.I.; LUTSKIY, A.Ye.; RADCHENKO, I.V.

X-ray diffraction study of liquids with hydrogen bonds between molecules. Part 1: Formic and acetic acids. Zhur. strukt. khim. 6 no.1:27-31 Ja-F '65. (MIRA 18:12)

1. Dnepropetrovskiy metallurgicheskiy institut i Khar'kovskiy politekhnicheskiy institut. Submitted July 10, 1963.

RADCHENKO, I.V., RYSS, A.I.

X-ray diffraction study of aqueous solutions of ammonium and lithium tetrafluoroborates. Zhur. strukt. khim. 6 no.2:182-187 Mr-Ap '65. (MIRA 18:7)

1. Dnepropetrovskiy metallurgicheskiy institut.

RYSS, A.I.; RADCHENKO, I.V.

X-ray diffraction study of aqueous solutions of magnesium tetrafluoborate. Zhur. struk. khim. 6 no.3:449-450 My-Je '65.

(MIRA 18:8)

1. Dnepropetrovskiy metallurgicheskiy institut.

KASCHIEVA, T.V., red.; [illegible]

Coordination numbers of ions in aqueous solutions according to the X-ray diffraction data when the hydration of a hydroxonium ion in HBF_4 solutions is taken into account. Zhur.strukt.khim. 6 no.5:771-773 S-O '65.

(MIRA 18:12)

1. Dnepropetrovskiy metallurgicheskiy institut. Submitted January 4, 1965.

L 00363-66 EWT(l)/EWP(e)/EPA(s)-2/EWT(m)/EWP(i)/EPF(n)-2/EPA(w)-2/T/EWP(k)/EWP(b)/ETC(m) WW/GG/WH

ACCESSION NR: AP5021608 UR/0286/65/000/013/0077/0077 35 B

AUTHORS: Litvinenko, I. V.; Bibik, A. P.; Radchenko, I. V. 44,55 44,55 44,55 44,55

TITLE: Detector for determining the thermal conductivity of liquids by the method of heating a filament under nonstationary thermal conditions. Class 42, No. 172519

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 13, 1965, 77

TOPIC TAGS: thermal conductivity, fluid

ABSTRACT: This Author Certificate presents a detector for determining the thermal conductivity of liquids by the method of heating a filament under nonstationary thermal conditions. The detector consists of a thin wire-heater which at the same time serves as a resistance thermometer (see Fig. 1 on the Enclosure). To obtain the possibility for producing measuremnets of the thermal conductivity of conducting liquids without a significant increase in detector thickness, the detector is made of a microwire in glass insulation. Orig. art. has: 1 diagram.

ASSOCIATION: none

SUBMITTED: 16Mar64

NO REF SOV: 000 ENCL: 01 SUB CODE: TD,ME

OTHER: 000

L 00363-66
ACCESSION NR: AP5021608

ENCLOSURE: 01

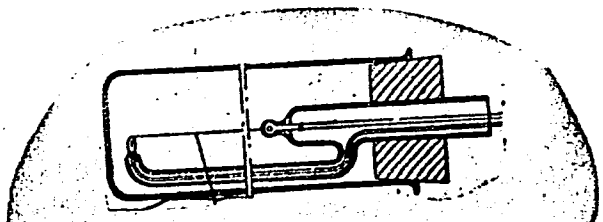

Fig. 1. microwire in glass insulation

Card 2/2

RADCHENKO, I. A.

... casing scrap at the Kirov metallurgical plant. Met. i gornorud. prom. no.5:33 S-O '64. (MIRA 18:7)

RADCHENKO, K.K. Cand. Agricult. Sci.

Dissertation: "New Method for Exploitation of Irrigating Systems without Financing by the State." All-Union Sci Res Inst of Hydraulic Engineering and Soil Improvement, 25 Feb 47.

SO: Vechernyaya Moskva, Feb, 1947 (Project #17836)

RADCHENKO, K. K.

"New Method for Exploitation of Irrigating Systems Without Financing by the State," Sub. 25 Feb 47, All-Union Sci Res Inst of Hydraulic Engineering and Soil Improvement.

Dissertations presented for degrees in science and engineering in Moscow in 1947.

SO: Sum.No.457, 18 Apr 55

RADCHENKO, K.M.

Rated parameters of cold rolling strip mills. Sbor.st.UZTM no.1: 172-184 '58. (MIRA 11:12)
(Rolling mills)

RADCHENKO, K.M.

PHASE I BOOK EXPLOITATION SOV/4063

Tret'yakov, Andrey Vladimirovich, and Konstantin Mikhaylovich Radchenko

Izmeneniye mekhanicheskikh svoystv metallov i splavov pri kholodnoy prokatke (Changes in Mechanical Properties of Metals and Alloys Subjected to Cold Rolling) Sverdlovsk, Metallurgizdat, 1960. 84 p. Errata slip inserted. 3,200 copies printed.

Ed.: M.A. Benyakovskiy; Ed. of Publishing House: N.N. Tsymbalist; Tech. Ed.: Ye.D. Turkina.

PURPOSE: The book is intended for technical personnel of metallurgical and machinery plants and for staff members of design and scientific research institutes. It can also be used by students of schools of higher technical education.

COVERAGE: The book contains data on the mechanical properties of cold-rolled ferrous and nonferrous metals and alloys at varying degrees of deformation. Methods of determining mechanical properties by tensile tests are described. The effect of some para-

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Changes in Mechanical (Cont.)

meters of cold rolling on ultimate strength, yield point, and unit elongation is examined. No personalities are mentioned. There are 44 references: 30 Soviet, 9 English, and 5 German.

TABLE OF CONTENTS:

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Ch. 1. Determination of the Mechanical Properties of Cold-Rolled Metals and Alloys 5

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Ch. 3. Effect of Parameters of Cold Rolling on Mechanical Properties of Metals and Alloys 18

Ch. 4. Change in Mechanical Properties of Metals Due to Degree of Deformation 22

Changes in Mechanical (Cont.)

Curves of Variations of Ultimate Strength, Yield Point, and Unit Elongation With Percentage Reduction in Cold Rolling 24

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AVAILABLE: Library of Congress

VK/pw/jb
8-1-60

Card 3/3

RADCHENKO, K.M.

Optimum rated diameter for the working rolls on cold rolling strip mills. Prokat. proizv. no.2:25-29 '60. (MIRA 14:11)
(Rolls(Iron mills))

BENYAKOVSKIY, Mark Aleksandrovich; BROVMAN, Mikhail Yakovlevich. Prinimal uchastiye RADCHENKO, K.M.

[Using tensiometry in rolling mill practice] Primenenie tenzometrii v prokatke. Moskva, Metallurgiia, 1965. 143 p. (MIRA 18:4)

RADCHENKO, K.M., inzh.

Zone of the deformation limit. Mat. i gornorud. prom. no.3:64-67 My-Je '63. (MIRA 17:1)

1. Institut avtomatiki Gosplana UkrSSR.

TEN'TYEV, V.; MAYER, P.; FAYZRAKHMANOV, M.; KALOSHIN, S.; RADCHENKO, L.; AKHMETOV, M.; MUSIN, A.Ch., kandidat tekhnicheskikh nauk, otvetstvennyy redaktor; OSADCHIY, F.Ya.; POPOKINA, Z.P., tekhnicheskiy redaktor

[Experience in oil well drilling with pneumatic percussion rotary equipment] Opyt bureniia skvazhin pnevmaticheskim udarno-vrashchatel'nym sposobom. Alma-Ata, Izd-vo Akademii nauk Kazakhskoi SSR, 1956. 79 p. (MLRA 9:7)

(Oil well drilling)

RADCHENKO, Leonid Aleksandrovich; BONDARENKO, O., vedushchiy redaktor; PATSALYUK, P., tekhnicheskiy redaktor

[Automatic control of electric drives.] Avtomaticheskoe upravlenie elektroprivodom; rukovodstvo k laboratornym zaniatiiam. Kiev, Gos.izd-vo tekhn.lit-ry USSR, 1957. 271 p. (MLRA 10:5)

(Automatic control)
(Electric driving)

RADCHNKO, L.A.

Reversivity of loaded electric drives in a generator-engine system. (MIRA 11:3)
Izv. KPI 22:413-419 '57. (Electric driving)

SOV/112-59-1-696

8(0)

Translation from: Referativnyy zhurnal. Elektrotekhnika, 1959, Nr 1, p 92 (USSR)

AUTHOR: Radchenko, L. A., and Marushak, V. Ye.

TITLE: Investigation of Generator Forced Excitation With Allowance for Eddy Currents

PERIODICAL: Izv. Kiyevsk. politekhn. in-ta, 1957, Nr 22, pp 435-445

ABSTRACT: An investigation of the delaying effect of eddy currents in various types of 1.6-14.5-kw generators is presented; the generators operate in the automatic-control system of a "generator-motor" system of electrical drive. The investigation has revealed the following: (1) with a high excitation forcing, the equivalent component of the eddy-current effect grows and delays the transient phenomena; (2) the eddy-current effect can be determined from oscillograms of the generator field current and flux; (3) the dynamic inductance of field windings that droops with higher field forcing must be taken into account.

A.M.B.

Card 1/1

RADCHENKO, L.A.

Automatization of floating dredgers. Izv. KPI 26:269-281 '57. (MIRA 11:6)

1.Kafedra elektrifikatsii promyshlennykh predpriyatiy Kiyevskogo politekhnicheskogo instituta.
(Dredging machinery) (Automatic control)

RADCHENKO, L.A.

Vsesoyuznoye ob"yedinennoye soveshchaniye po avtomatizatsii proizvodstvennykh protsessov v mashinostroyenii i avtomatizirovannomu elektroprivodu v promyshlennosti. 3d, Moscow, 1959

Elektroprivod i avtomatizatsiya promyshlennykh ustanovok; trudy soveshchaniya (Electric Drive and Automation in Industrial Systems; Transactions of the Conference) Moscow, Gosenergoizdat, 1960. 470 p. 11,000 copies printed.

General Eds.: I.I. Petrov, A.A. Sirotin, and M.G. Chilikin; Eds.: I.I. Sud, and E.F. Silayev; Tech. Eds.: K.P. Voronin, and O.Ye. Larionov.

PURPOSE: The collection of reports is intended for the scientific and technical personnel of scientific research institutes, plants and schools of higher education.

COVERAGE: The book is a collection of reports submitted by scientific workers at plants, scientific institutes and schools of higher education at the third Joint All-Union Conference on the Automation of Industrial Processes in Machine Building and Automated Electric Drives in Industry held in Moscow on May 12-16, 1959. The Conference was called by the Academy of Sciences USSR, the Gosplan SSSR (State Planning Commission USSR), the GNTK SSSR, the Gosudarstvennyy Komitet po avtomatizatsii i mashinostroyeniyu (State Committee on Automation and Machine Building) and the Natsional'nyy Komitet SSSR po avtomaticheskomu upravleniyu (USSR National Committee on Automatic Controls) and prepared by the Nauchno-tekhnicheskiy komitet po avtomatizirovannomu elektroprivodu (Scientific and Technical Committee on Automated Electric Drives), the MEI (Moscow Institute of Energetics), the VNIIEM, the IAT (Institute of Automation and Telemechanics) of the Academy of Sciences USSR, and the Komissiya po tekhnologii mashinostroyeniya Instituta mashinovedeniya AN SSSR (Commission on the Technology of Machine Building of the Institute of Science of Machines of the Academy of Sciences USSR). It was the purpose of the Editorial Board to arrange the reports in a way which would ensure a relatively systematic presentation of theoretical and practical problems relating to electric drives and automatic controls of industrial mechanisms used in various branches of industry. Basic problems of automated electric drive and their solution are outlined. The book also contains articles on electric machinery and means of automation. Considerable attention is paid to noncontact automatic control systems, including systems with semiconductor devices and magnetic amplifiers, and to computers intended both for the analysis and the synthesis of linear and nonlinear automatic regulation and control systems. Reports already published in journals or official publications have been considerably abbreviated; those which have appeared in volume V of BII EP transactions or in the journal "Elektrichestvo" are marked with an asterisk. No personalities are mentioned. References accompany some of the papers.

PART I. GENERAL PROBLEMS CONCERNING THE THEORY AND PRACTICE OF ELECTRIC DRIVE AND AUTOMATION OF CONTROL

Kagan, B.M., Doctor of Technical Sciences, T.G. Sorokin, Professor, Doctor of Technical Sciences, Yu.V. Mordvinov and Ye.B. Plamodyalo, Engineers. Automation of the Calculations of Electric Drives by Means of Electronic Digital Computers* 41

Baltrushevich, A.V., Engineer. Stability of One Type of Digital Servo-systems 44

Beyngol'd, Yu.R., Engineer. Investigation of the Dynamic Properties of a Motor-Generator System by the Method of Experimental Frequency-Response Characteristics 49

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Suvorov, G.V., Engineer. Graphic Method of Designing Transient Processes in an Automatic Regulation System 68

Shraytman, B.M., Engineer. Determining Amplitude-Phase Characteristics of an Automated Electric Drive on the Basis of Transient Functions 69

Kadymov, Ya.B., Candidate of Technical Sciences. Problems of Electric Drives of Mechanisms Containing Links With Distributed Parameters 70

Agafonov, Yu.P., Engineer. Effect of Transient Electromagnetic Processes on Pulse Regulation Dynamics of Squirrel-Cage Induction Motors 76

Radchenko, L.A., Candidate of Technical Sciences, Docent. Dynamics of Induction Electric Drives Controlled According to V.S. Kulebakin's Scheme 77

Drobyasko, S.F., Candidate of Technical Sciences. Absorbing Brake Equilibrium in Electric Drives With Individual Generating Sets 78

Basharin, A.V., Professor, Doctor of Technical Sciences. Graphic Method of Synthesis of Electric-Drive Automatic-Control Systems 79

Rosenblat, M.A., Doctor of Technical Sciences, and M.A. Boyarchenkov, Engineer. Reversing D-C Drive With Magnetic Amplifiers 86

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RADCHENKO, Leonid Andrianovich; DEMCHUK, I.S., inzh., red.; FOMICHEV, A.G., red. izd-va; GVIRTS, V.L., tekhn. red.

[Ultrasonic techniques in the manufacture of electronic devices; a survey] Ul'trazvukovye metody v tekhnologii proizvodstva elektronnykh priborov; obzor. Leningrad, 1961. 69 p. (MIRA 15:3)

(Electronic apparatus and appliances)
(Ultrasonic waves--Industrial applications)

RADCHENKO, L.A. (Kiyev)

Method for braking asynchronous electric motors in a network with a single-armature converter with transistor rectifiers. Izv.AN SSSR. Otd.tekh.nauk.Energ.i avtom. no.2:42-46 Mr-Ap '62. (MIRA 15:4)
(Electric motors, Induction)

RADCHENKO, Leonid Aleksandrovich; KLEMIN-SHARONOV, V.A., kand. tekhn. nauk, retsenzent; OLEFIR, F.F., kand. tekhn. nauk, retsenzent; KOVAL'CHUK, A.V., inzh., red. izd-va; SHAFETA, S.M., tekhn. red.

[Control of automated electric drives] Upravlenie avtomatizirovannym elektroprivodom; posobie po laboratornym rabotam. Kiev, Gostekhizdat USSR. Pt.1. 1963. 338 p. (MIRA 16:9)

(Electric driving) (Electric motors)

IVANOV, Anatoliy Aleksandrovich, kand. tekhn. nauk; RADCHENKO, L.A., kand. tekhn. nauk, retsenzent; NEMCHUNOVA, O.A., red. izd-va; MATUSEVICH, S.M., tekhn. red.

[Laboratory work on electric machinery and electrical equipment of industrial enterprises] Laboratornye raboty po elektricheskim mashinam i elektrooborudovaniiu promyshlennykh predpriiatii. Izd.2., perer. i dop. Kiev, Gostekhizdat USSR, 1963. 514 p. (MIRA 17:1)
(Electric machinery)
(Electric apparatus and appliances)

BUDNITSKIY, A.B.; VENIKOV, V.A.; GIZILA, Ye.P.; GREBEN', I.I.; IYERUSALIMOV, M.Ye.; KALNIBOLOTSKIY, M.L.; KONDRA, B.N.; LOYEV, Ye.G.; NESTERENKO, A.D.; PAVLOV, V.M.; POSTNIKOV, I.M.; POBEGAYLO, K.M.; RADCHENKO, L.A.; SVECHNIKOV, L.V.; SYROMYATNIKOV, I.A.; FEDOSEYEV, A.M.; FEDCHENKO, I.K.; KHODOROV, S.Ye.; CHIZHENKO, I.M.; TSUKERNIK, L.V.

Professor Vasilii Grigor'evich, 1904 -; on his 60th birthday. Elektrichestvo no.4:93-94 Ap '64. (MIRA 17:4)

RALCHENKO, L.A.; SHVETS, V.I.

Study of an excitation stage with dynamic capacitance using a plane nondimensional parameter technique. Elektrichestvo no.10:15-17 O '64. (MIRA 17:12)

1. Kiyevskiy politekhnicheskiy institut.

GAL'PERIN, Ada Naumovna; DOBROVOL'SKAYA, Valentina Ivanovna; KELLER, Oleg Konstantinovich; LUBYANITSKIY, Grigoriy Davidovich; RADCHENKO, L.A., red.

[Small transistorized ultrasonic unit with a 100 watt power capacity for universal technological use] Malogabaritnaia ul'trazvukovaia ustanovka moshchnost'iu 100 vt universal'nogo tekhnologicheskogo primeneniia na poluprovodnikovykh triodakh. Leningrad, 1965. 24 p. (MIRA 18:7)

L 00366-66 EWT(d)/T/EED-2/EWP(1) IJP(c) BB/GG/GS
ACCESSION NR: AT5013573 UR/0000/64/000/000/0265/0273

AUTHOR: Volodin, G. M.; Radchenko, L. G.

TITLE: The correction of grouped code errors

SOURCE: AN SSSR. Institut elektromekhaniki. Avtomatika, telemekhanika i priborostroyeniye (Automatic control, remote control, and instrument manufacture). Moscow, Izd-vo Nauka, 1964, 265-273

TOPIC TAGS: interference reduction, binary code, error correction

ABSTRACT: Atmospheric, industrial, and other types of interference are usually correlated, and the distortion they cause in the communication channels are usually grouped within brief intervals of time. When transmitting information in binary sequence these interferences produce, most often, distortions of one or several adjacent symbols. The present paper describes an approach to the correction of such distortions. The errors are detected and corrected by means of displacement registers coupled with logic circuits. Such circuits are described by algebraic equations with coefficients from a finite field of residues over a simple modulus. In the case of 10 - 12 consecutive errors s and a cycle length n of 400 - 500, the correcting power of coding polynomials can be determined man-

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L 00366-66
ACCESSION NR: AT5013573

ually. For larger values of s and n one must use computers. Orig. art. has: 29 formulas and 4 figures.

ASSOCIATION: None

SUBMITTED: 24Oct64 ENCL: 00 SUB CODE: DP

NO REF SOV: 003 OTHER: 001

Card 2/2

[redacted]

Plots for agrobiological experiments. Izd. 2., ispr. Moskva, Gos. ucheb.pedagog. izd-vo, 1953. 51[illegible] s.

RADCHENKO, L.I., inzh.

Nomogram for plotting rectangular and T-shaped sections of reinforced concrete elements flection. Bet. i zhel.-bet. no.9:378 S '57. (MIRA 10:11)

(Reinforced concrete--Tables, calculations, etc.)
(Nomography (Mathematics))

RADCHENKO, L.I.

Phytochemical analysis of Lagochilus gypsaceus and L. seravschanicus. Aptech. delo 12 no.3:24-26 My-Je '63 (MIRA 17:2)

1. Krasnodarskaya krayevaya kontrol'no-analiticheskaya laboratoriya Glavnogo aptechnogo upravleniya Ministerstva zdravookhraneniya SSSR.

[illegible], I. M.

BARCHENKO, I. M. -- "The Effect of the Wear Resistance of the Cutting Edge of a Chisel on the Productivity of Pneumatic-Shock Drilling of Oil Wells under the Conditions of the Sokol and Bystrushin Mines." Acad Sci Kazakh SSR. Inst of Metallurgy and Ore Dressing. Alma-Ata, 1955. (Dissertation for the Degree of Candidate in Technical Sciences)

SO: Knizhnaya letopis', No 1, 1956

YUMATOV, Boris Petrovich, doktor tekhn. nauk; FILIPKOV, N.A., kand. tekhn. nauk, dots., retsenzent; KUDRYASHOV, V.A., kand. tekhn. nauk, dots., retsenzent; RADCHENKO, L.M., dots., kand. tekhn. nauk, retsenzent; FILUS, A.I., dots., kand. tekhn. nauk, retsenzent; KAZAKOV, V.N., gornyy inzh., retsenzent; NOSSMIT, A.M., otv. red.

[Mining machinery for working placer deposits] Gornye mashiny dlia razrabotki rossypei. Moskva, Nedra, 1964. 374 p. (MIRA 18:2)

1. Kafedra Irkutskogo politekhnicheskogo instituta (for Kudryashov, Radchenko, Filus, Kazakov).

AUTHOR: Radchenko, L. N. (Engineer). 97-57-9-17/17

TITLE: Nomograms for the Selection of Standard Rolled Steel Sections for Bent Reinforced Concrete Elements. (Nomogramma dlya podbora pryamougol'nykh i tavrovykh secheniy izgibayemykh zhelezobetonnykh elementov).

PERIODICAL: Beton i Zhelezobeton, 1957, Nr.9. p.378 (USSR).

ABSTRACT: It is often necessary to determine the cross-section of longitudinal reinforcement when the sections of the structural members are given, as well as loading and permissible stresses of materials. The illustrated nomogram was calculated on the basis of loading (in accordance with SNiPu) for reinforced concrete elements for floors in residential building constructed from concrete and steel of any mark. This nomogram could easily be enlarged for calculations of units with higher loading. A practical example of application is given.

AVAILABLE: Library of Congress.

Card 1/1 1. Concrete-Reinforced-Construction 2. Steel-Selection 3. Mathematics-Theory

RADCHENKO, L.N., inzh.

Testing multiribbed ceiling panels with inserts. Nov.v stroi. tekh. no.13:97-115 '59. (MIRA 13:4)
(Concrete slabs--Testing)

USHAKOVA, K.N.; POPOVA, A.V.; DANYUKOVA, A.V.; RADCHENKO, L.N.;
Prinimali uchastiye: SERGEYEVA, T.F., inzh.; CHUGUNOVA, V.V.,
inzh.

Preparation of acetate silk from a water-acetone solution of acetylcellulose. Khim.volok. no.1:71-72 '63. (MIRA 16:2)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo volokna (for Ushakova, Popova, Sergeyeva). 2. Serpukhovskiy zavod (for Danyukova). 3. Nauchno-issledovatel'skaya laboratoriya pryadil'no-tkatskoy fabriki im. Dzerzhinskogo (for Radchenko).

(Rayon) (Cellulose acetates)

RADCHENKO, L.R.; DOLGORYATOV, Yu.A., red.; ZLOBIN, M.V., tekhn. red.

[Breeding dairy catle on the Panfilov Collective Farm] Molochnoe zhivotnovodstvo kolkhoza imeni Panfilova. Alma-Ata, Kazakhskoe gos. izd-vo, 1956. 10 p. (MIRA 11:7)

1. Zaveduyushchiy molochnotovarnoy fermoy kolkhoza imeni Panfilova, rayona imeni 28 gvardeytsev Taldy-Kurganskoy oblasti (for Radchenko).
(Kazakhstan--Dairy cattle)

PANASYUK, Dmitriy Iosifovich, kand.veterin.nauk; RADCHENKO, L.Z., red.; DEYEVA, V.M., tekhn.red.

[Dictyocaulus infection in sheep] Diktiokaulez ovets. Moskva, Gos.izd-vo sel'khoz.lit-ry, 1960. 66 p.
(Sheep--Diseases) (MIRA 13:11)

SNIGUR, Mariya Ivanovna; RADCHENKO, Mariya Fedorovna; KAZNACHEY, R.Ya., red.; BYKOV, N.M., tekhn. red.

[Hygienic evaluation of honey and methods for its study] Gigienicheskaia otsenka meda i metody ego issledovaniia. Kiev, Gls. med. izd-vo USSR, 1961. 67 p. (MIRA 15:4)
(HONEY)

RADCHENKO, M.G.; ZABELINA, Z.V.; SERGEYEV, V.S.

Bacteriological indices for cold hors d'oeuvres. Vop. pit. 21 no.2:86-87 Mr-Ap '62. (MIRA 15:3)

1. Iz Nauchno-issledovatel'skoy i TSentral'noy sanitarno-pishchevoy laboratorii Upravleniya obshchestvennogo pitaniya, Leningrad.

(FOOD--MICROBIOLOGY)

RADCHENKO, Margarita Iosifovna; KUSHEV, G.L., otvetstvennyy redaktor; ALEKSANDRIYSKIY, V.V., redaktor; ALFEROVA, P.F., tekhnicheskiy redaktor

[Flora of Dolina and Tentek formations in the Karaganda Basin] Flora dolinskoi i tentekskoi svit Karagandinskogo basseina. Alma-Ata, Izd-vo Akademii nauk Kazakhskoi SSR, 1956. 40 p. (MLRA 9:12)

1. Chlen-korrespondent AN KazSSR (for Kushev)
(Karaganda Basin--Paleobotany)

RADCHENKO, Margarita Iosifovna; NALIVKIN, D.V., akademik, glavnyy red.; BUBLICHENKO, N.L., doktor geol.-mineral.nauk, otv.red.; NEYBURG, M.F., doktor geol.-mineral.nauk, red.; VLASOVA, S.M., red.izd-va; KRYNOCHKINA, K.V., tekhn.red.

[Paleontological basis of the Paleozoic stratiography of the Rudnyy Altai] Paleontologicheskoe obosnovanie stratigrafii paleozoia Rudnogo Altaia. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po geol. i okhrane nedr. No.8. [Plant remains of the Carboniferous of the Rudnyy Altai] Rastitel'nye ostatki karbona Rudnogo Altaia. 1958. 54 p. (MIRA 12:4)
(Rudnyy Altai--Paleobotany)

PONOMAREV, P.M.; RADCHENKO, M.I.

New data on the stratigraphy of Carboniferous sediments in the Irtysh Valley. Izv.AN Kazakh.SSR.Ser.geol. no.3:32-43 '58. (MIRA 12:1)

(Irtysh Valley--Geology, Stratigraphic)

18(0)
AUTHORS: Butenko, G. F., Radchenko, M. I. SOV/89-6-2-15/28

TITLE: The Calculation of the Thermal Conductivity of Molten Metals (O raschete teploprovodnosti rasplavlennykh metallov)

PERIODICAL: Atomnaya energiya, 1959, Vol 6, Nr 2, pp 205 - 207 (USSR)

ABSTRACT: Since there are only few data available on the thermal conductivity of molten metals, they can be obtained for high temperatures only by extrapolation. The graphic solution of this extrapolation is difficult due to the temperature dependence of the thermal conductivity of molten metals. The extrapolation of the electric resistance, however, is not difficult since within a wide temperature range the variation may be considered linear. Now an attempt is made to deduce one single temperature dependence of the Lorentz(Lorents) function for a number of thermodynamically similar metals in order to determine the thermal conductivity from the extrapolated electric resistance values according to the equation $\lambda = L.T/r$, where λ denotes the thermal conductivity, L the Lorentz function, T absolute temperature, and r the electric

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resistance. The calculations are carried out for aluminum, tin, zinc, and lead, while mercury, cadmium and bismuth were not taken into account due to lacking experimental data on the electric resistance. The validity of the deduced nondimensional Lorentz function can be confirmed only by further experimental data. There are 3 figures and 5 references.

SUBMITTED: April 11, 1958

S/170/60/003/006/006/011
B013/B067

AUTHORS: Butenko, G. P., Radchenko, M. I.

TITLE: Application of the Theory of Thermodynamic Similarity for Determining the Physical Properties of Liquid Metals

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, 1960, Vol. 3, No. 6, pp. 66 - 71

TEXT: For thermodynamically similar substances it is possible to determine, without experiments, the physical properties of one of the substances from the properties of a similar substance under similar conditions. The theory of thermodynamic similarity shows that thermodynamically similar substances are bound to be universal functions of their parameters of state. The Lorentz function (8) is deduced, and from its similarity to Bachinskiy's formula (9) for the viscosity coefficient it is concluded that viscosity and Lorentz function are determined by the interaction of molecules. An equation $\mu/\mu_{pl} = \left(\frac{L}{L_{pl}}\right)^{3/2}$ (18) is derived for the relationship between the dimensionless viscosity and the

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