Physical and Chemical Studies of Austenitic Alloys   269

It is stated that this device enables the investigator to study, on the basis of magnetic properties, changes in phase composition in heat-stable austenitic alloys of various composition.

Entin, S.D.; Kozlov, Engineer. Electromagnetic Instrument for Determining Ferrite in Welded Seams of Austenitic Steels   255

The authors state that with this instrument it is possible to determine the quantity of ferrite to within 0.2% if the total content in the specimen does not exceed 5%, and to within 0.5-o.7% if the total quantity does not exceed 15%.

AVAILABLE: Library of Congress   GO/ksv

Card 10/10

YEREMIN, N. I. (Candidate of Physical and Mathematical Sciences)

"Physical Methods Used in the Quality Control of Metals." p. 313 in book Modern Trends in the Field of Machine Building Technology; Collection of Articles, Moscow, Mashgiz, 1957 363 p.

The article presents a brief discussion of some of the latest methods of detecting structural defects in metals. The use of X-ray and Gamma-rays, ultrasonics, and magnetic and luminescent methods is described. There are no references.

137-58-2-3936

YEREMIN, N.I.

AUTHOR: Yeremin, N. I.

TITLE: On the $\gamma\rightleftarrows\alpha$ Phase Transitions on the Aging of Austenitic Nichrome Steels (O fazovykh prevrashcheniyakh $\gamma\rightleftarrows\alpha$ pri starenii austenitnykh khromonikelevykh staley)

ABSTRACT: Thermomagnetic and magnetic microstructural analysis was employed to study the processes of $\alpha_2\rightleftarrows\gamma$ phase transitions in EI572 and 4Kh14N14V2M steels in a depletion layer of austenite near the carbides. The thermomagnetic measurements were performed on an improved Akulov aniso- meter. It was shown that the α_2 phase begins to convert to austenite near the carbides at 450-500°C. The transition ends at about 700°. The $\gamma\rightarrow\alpha_2$ change proceeds at different temperatures in different steels and is accompanied by con- siderable thermal hysteresis (about 200°), and by partial irreversability. In cyclic treatment, there is a steady build- up of the incomplete reversability of the α_2 phase. Forma-

Card 1/2

137-58-2-3936

On the $\gamma \rightleftharpoons \alpha$ Phase Transitions (cont.)

tion of a ferritic phase in the aging of Cr-Ni steels at 450-850° does not occur during the aging time, but during cooling to room temperature. In addition, stresses in the α_2 phase and the austenite arise due to increase in volume during the $\gamma \rightarrow \alpha_2$ transition. The $\gamma \rightarrow \alpha_2$ transition proceeds until -180° and consequently is martensitic in nature. The relationship of the martensitic transition to alloy composition versus temperature was found. It was found that in a number of grade 18-8, 18-12 type steels, the $\gamma \rightarrow \alpha_2$ break-up proceeds through a metastable hexagonal θ phase.

V.R.

1. Chromium-iron-nickel alloys—Phase transitions—Magnetic analysis
2. Austenitic steels—Phase transitions—Magnetic analysis   3. Stainless steel —Phase transitions—Magnetic analysis

Card 2/2

137-58-2-3937

' YEREMIN, N.I.

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 2, p 237 (USSR)

AUTHOR: Yeremin, N. I., Lebedyanskaya, N. I.

TITLE: An Investigation of the $\gamma \to \delta$ and $\delta \rightleftarrows \sigma$ Phase Transformations by Magnetic Analysis of Microstructure (Issledvoaniye fazovykh prevrashcheniy $\gamma \to \delta$ i $\delta \rightleftarrows \sigma$ magnitnym mikrostrukturnym metodom)

PERIODICAL: V sb.: Fiz.-khim. issled. austenitn. splavov. Moscow, Mashgiz, 1957, pp 75-86

ABSTRACT: Magnetic analysis of microstructure (magnetic particle inspection) was employed to study the conditions of formation of the δ phase and its connection with the σ phase in austenitic grade 19-9, 25-10, 18-8-5, and 20-10-3 Cr-Ni steels. It was established that the temperature of formation of the δ phase is not identical in the various steels, as resistance to formation of the δ phase increases with diminishing Cr:Ni ratio. The rate of formation of the δ phase is significantly dependent upon the holding time in hardening. The σ phase is an intermetallic compound with a tetragonal lattice. The rate of formation of the σ phase in the δ phase is signifi-

Card 1/2

1 37-58-2-3937

An Investigation of the (cont.)

cantly dependent upon the rate of diffusion of Cr in the δ phase. The rate
of transition of $\delta \rightarrow \sigma$ at first is very rapid, but then it slows down, so that
even for exceedingly long holding periods (up to 6000 hours), the δ phase
does not completely transform into the σ phase. Measurements of micro-
hardness have shown that formation of the σ phase induces a considerable
increase in brittleness. The phase composition of the steel was monitored
by x-ray analysis of the structure and by chemical etching. It is shown that
magnetic determination of the microstructure is less complex than x-ray
and metallographic methods.

V.R.

1. Stainless steel—Phase transitions—Magnetic analysis   2. Austenitic steels
—Phase transitions—Magnetic analysis

Card 2/2

137-58-2-3939

YEREMIN, N.I.

AUTHORS: Yeremin, N.I., Lashko, N.F., Lebedyanskaya, N.I.

TITLE: Phase Transofrmations in Austenitic Steels During Plastic
Deformation (Fazovyye prevrashcheniya v austenitnykh
stalyakh, proizkhodyashchiye pri plasticheskoy deformatsii)

PERIODICAL: V sb.: Fiz.-khim. issled. austenit. splavov. Moscow,
Mashgiz, 1957, pp 91-106

ABSTRACT: Magnetic microanalysis was employed to investigate phase
transformation occurring during cold plastic deformation in
the following austenitic steels: EI505, 1Kh19N9T, EI434,
4Kh74N14V2M, 19-9, EM405, EI407, Kh18N11B, 16-33-3,
EI388. It is shown that softening occurring on deformation
facilitates the $\gamma \rightarrow \alpha_2$ transition. Phase stresses are partic-
ularly great in the case of precipitation of the α_2 phase
along the boundaries of highly deformed grains. The process
of slip is accompanied by lattice distortion, and shear stress
results in viscous slip along the grain boundaries. Decompo-
sition of γ with formation of α_2 on the grain boundaries occurs
only in instances of slow deformation. In the event of signifi-

Card 1/2

137-58-2-3939

Phase Transformations in Austenitic Steels During Plastic (cont.)

cant deformation, the $\gamma \rightarrow \alpha_2$ transition appears along the boundaries of twins. The rate of transition increases rapidly as temperature drops, and precipitation of the α_2 phase results in hardening. The $\gamma \rightarrow \alpha_2$ transition is reversible. The temperature interval of reversible transition is below the temperature of crystallization. Ni, Cr, Mn, Mo, and C stimulate formation of an α_2 phase to different degrees. The solid γ-solution becomes less stable on precipitation of a carbide phase (Me, Cr)$_{23}$C$_6$ during aging. Metallographic and x-ray analysis of structure yielded concordant results.
Bibliography: 18 references.

V.R.

1. Austenitic steels—Phase transitions—Effects of deformation   2. Austenitic steels—Deformation   3. Austenitic steels—Phase transitions—Magnetic analysis

Card 2/2

1 37-58-2-3942

YEREMIN, N.I.

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 2, p 238 (USSR)

AUTHORS: Yeremin, N. I., Lashko, N. F.

TITLE: On the Distribution of Nitrogen Between Solid Solution and Second Phases in Austenitic Steels (O raspredelenii azota mezhdu tverdym rastvorom i vtorymi fazami v austenit-nykh stalyakh)

PERIODICAL: V sb.: Fiz.-khim. issled. austenitn. splavov. Moscow, Mashgiz, 1957, pp 131-136

ABSTRACT: The effect of N on the stabilization of austenite and the distribution of N between the solid solution and the precipitation phases in EI572 steel was investigated, wherein the N concentration attained 0.26%. To distinguish the effect of N on the suppression of an α phase of various types, a melt with a higher Cr concentration, facilitating formation of δ ferrite even at high N content (0.165%), was smelted. The specimens were subjected to a special form of heat treatment (Prosvirin, V. I., Saverina, I. A. V sb.: Voprosy metallove-deniya austenitnykh staley. Moscow, Mashgiz, 1952). A pre-cipitate was obtained by electrochemical separation of the

Card 1/2

137-58-2-3942

On the Distribution of Nitrogen (cont.)

phases. The carbide phase $Me_{23}C_6$ was separated from the carbide and carbonitride phases MeC and Me(CN) and the α phase by boiling in HCl. The precipitate was subjected to x-ray and microstructural analysis. N_2 introduced into EI572 steel remains in solid solution for the most part. Grade 19-9 steel tends to formation of δ ferrite yielding a σ phase on aging, when it contains ferrite formers. The presence of N_2 eliminates δ ferrite and the formation of a metastable δ phase arising on plastic deformation.

V.R.

1. Steel—Transformations—Nitrogen distribution   2. Austenite—Stabilization —Effects of Nitrogen

Card 2/2

137-58-2-3943

YEREMIN, N.I.

AUTHORS: Yeremin, N.I., Lashko, N.F., Lebedyanskaya, N.I.

TITLE: Phase Transformations in EI572 Steel During Forging (Fazo-
vyye izmeneniya v stali EI572 pri kovke)

ABSTRACT: The changes in the phase composition of EI572 austenitic
steel (19% Cr, 9% Ni, 0.26-0.36% C) were investigated with
the object of determining optimum conditions for heating and
cooling after forging. The processes of formation and change
in δ ferrite, ferrite in the vicinity of the carbide phase, and
ferrite arising as a result of plastic deformation, were also
studied. Separation of the carbide phases was performed by
making use of the selective solubility of carbides of the
$Mo_{23}C_6$ type in hot HCl. The type of carbide was determined
by x-ray structural analysis. Ferromagnetic phases were
identified by magnetic analysis of the microstructure. It was
shown that δ ferrite develops as a result of nonhomogeneous
dendritic crystallization; its amount may be reduced by homo-

Card 1/2

137-58-2-3943

Phase Transformations in EI572 Steel During Forging

genation at 1250°. To avoid formation of δ ferrite, the final stage of heating and forging of the bars should be conducted at a temperature $\leq$ 1150°. The major ferrite formers are C, Cr, Mo, and Ti. The maximum amount of metastable α ferrite is formed on slow cooling to 850° and depends upon the rate of diffusion of the alloying elements around the carbide inclusions. The change in the structure of the steel in the process of aging at 650° is attributable to the formation and growth of carbides of the $Mo_{23}C_6$ type. EI572 steel becomes less stable in the course of the aging process and acquires a tendency to formation of α ferrite. Aging of the steel consists of the precipitation of a carbide phase $(Nb, Ti)C$ and $(Cr, Ni, Fe, Mo, W)_{23}C_6$, and sometimes due to formation of a σ phase of the $(Cr, Mo)Fe$ type.

V. R.

1. Steel—Transformations—Effects of forging   2. Steel—Deformation

Card 2/2

YEREMIN, N.I.

137-58-3-5559

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 3, p 153 (USSR)

AUTHOR: Yeremin, N. I.

TITLE: On Structural Changes in the Surface Layer of Metal Subjected to High-temperature Oxidation (O strukturnykh izmeneniyakh v poverkhnostnom sloye metalla pri vysokotemperaturnom okislenii)

PERIODICAL: V sb.: Fiz.-khim. issled. austenitn. splavov. Moscow, Mashgiz, 1957, pp 172-183.

ABSTRACT: The oxide film (OF) formed on the surface of metal during its oxidation is the result of diffusion of ions through the layer of the oxides (O). The O's formed are "hole-type" semi-conductors of mixed conductivity. The movement of ions in the O lattice depends on the latter's deviation from the ideal state. Experimental investigation shows that the imperfect-lattice theory is not justified in the case of high-temperature oxidation of high-alloy Cr and Cr-Ni steels. Experimental material on the O of Metals (M) is essentially concerned with studies on the kinetics of the oxidation and the structure of the O's formed. Methods employed for these purposes in the investigations of

Card 1/2

137-58-3-5559

On Structural Changes in the Surface Layer (cont.)

oxidation do not yield good results owing to the diffusion of the alloying elements. Efforts are made to employ the magnetic microstructural method in the experimental studies of the diffusion of the alloying elements within the OF on steels with metastable austenite structure. The O layer, formed on Cr-Ni austenite steel at temperatures above 570°, is microscopically porous and, therefore, permits diffusion of ions through regions of O's adjacent to the M. It is established that local diffusion of M ions in the layer of M adjacent to the O's produces a local change in the composition of the solid solution, and that this, in turn, produces structural changes, i.e., phase decomposition. Changes occurring in the solid solution were studied by means of magnetic, microstructural, and thermo-magnetic analyses. By successively removing layers of M (by means of electropolishing) it is established that the phase decomposition decreases with increasing depth of M. The process of phase transformation $(\gamma - \alpha_2)$ occurring underneath the OL must be accompanied by an increase in volume and by the appearance of surface stresses, which should lead to a strengthening of the surface layer. Thermo-magnetic analysis data indicate that structural changes in the surface layer of M underneath the OL are attributable to the passage of Cr from solid solution into the OL.

V. G.

Card 2/2

137-58-6-13826

Translation from: Referativnyy zhurnal, Metallurgiya, Nr 6, p 375 (USSR)

AUTHOR: Yeremin, N. I.

TITLE: Physical Methods of the Quality Control of Metals (Fizicheskiye metody kontrolya kachestva metallov)

PERIODICAL: V sb.: Sovrem. napravleniya v obl. tekhnol. mashinostr.
             Moscow, Mashgiz, 1957, pp 313-332

ABSTRACT: A survey. The following methods of physical detection of defects were examined: X-ray and γ-ray examination, magnetic, ultrasonic, and luminescence methods. The advantages, drawbacks, and field of applicability of each are indicated. The characteristics of domestic apparatus for the quality control of metals are described.
                                                                    A.F.

1. Metals--Quality control   2. Metals--Testing equipment

Card 1/1

YEREMIN, N. I.

25(6)   PHASE I BOOK EXPLOITATION   SOV/2555

Nauchno-tekhnicheskoye obshchestvo priborostroitel'noy promyshlen-
nosti. Ukrainskoye respublikanskoye pravleniye

Novyye metody kontrolya i defektoskopii v mashinostroyenii i pri-
borostroyenii [doklady Respublikanskoy konferentsii] (New Methods
of Inspection and Flaw Detection in the Machinery and Instrument-
manufacturing Industries [Reports of the Conference Held at Kiyev,
1956]) Kiyev, Gostekhizdat USSR, 1958. 264 p. 4,700 copies printed.

Sponsoring Agency: Akademiya nauk USSR.

Ed.: A. Amelin; Tech. Ed.: P. Patsalyuk; Editorial Board: I.I.
Greben', B.D. Grozin, A.I. Zhmudskiy, G.N. Savin (Resp. Ed.), I.D.
Vaynerman (Dep. Resp. Ed.), and A.A. Shishlovskiy.

PURPOSE: This book is intended for engineers, scientific workers, and
technicians dealing with problems of inspection and flaw detection.

COVERAGE: This is a collection of scientific papers presented at a
conference sponsored by the Academy of Sciences, UkrSSR, and the
Nauchno-tekhnicheskoye obshchestvo priborostroitel'noy promyshlen-
nosti, Ukrainskoye pravleniye (Ukrainian Branch, Scientific and
Technical Society of the Instrument-manufacturing Industry). The
papers deal with modern methods of inspection and flaw detection
used in the machinery- and instrument-manufacturing industries.
The subjects discussed include the use of electron microscopes
in the investigation of metal surfaces; X-ray, gamma-ray, lumines-
cense, magnetic, and ultrasonic methods of flaw detection; use of
radioactive isotopes; X-ray diffraction methods of metal analysis;
and the use of interferometers for measuring length and thickness
and determining the coefficient of linear thermal expansion. No
personalities are mentioned. References follow several of the
papers.

Genkin, V.M., Engineer, Gor'kiy "Krasnoye Sormovo" Plant. X-ray
Diffraction Quantitative Phase Analysis Using Standard X-ray
Photographs   70

Chaudakiy, A.I., and L.M. Pakchanin, Candidate of Physical and
Mathematical Sciences, Kiyev State University imeni Shevchenko.
Problems of Physical Strength and Crack Formation in Case-hardened
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Yevgrafov, A.V., Engineer, and P.M. Voloshin, Moscow TsNIITMASh.
Methods and Equipment for Luminescent Flaw Detection   78

Vakulov, B.M., Engineer, Avtozavod, E. Gor'kiy (Gor'kiy Automo-
bile Plant). Experience Gained at the Laboratory for Spectral
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Yeremin, N.I., Candidate of Physical and Mathematical Sciences,
TsNIITMASh. New Developments in the Field of Magnetic-particle
Flaw Detection and Magnetic Metallography   87

Zhigadlo, A.V., Candidate of Technical Sciences, Institut. n/ya

126, Moskva (Institute, Post Office Box 126, Moscow). Improved
Methods and Equipment for Magnetic Inspection of Ferromagnetic
Parts   106

Landa, V.A., Engineer, Moscow TMIT. Instruments for a Magnetic
Quality Control Method of the Heat Treatment of Tools Made From
High-speed Steels   114

Entin, S.D. Candidate of Technical Sciences, Moscow TsNIITMASh.
Application of a Magnetic Method for Investigating Heat-resistant
Austenitic Alloys   121

Pisarenko, A.V., Candidate of Technical Sciences, and V.P.
Prikhod'ko, Engineer, Kiyev Electric Welding Institute imeni
Ye.O. Paton. Ultrasonic Structural Analysis of Metals   126

Gubanova, M.A. Candidate of Technical Sciences, and I.N. Yermolov,
Moscow TsNIITMASh. Ultrasonic Flaw Detection in Metals

Gurvich, A.K., Engineer, Leningrad NII of Bridges. Ultrasonic   134
Card 5/9

129-58-7-6/17

AUTHOR: Yeremin, N. I., Candidate of Technical Sciences

TITLE: Investigation of the Dispersion of Ferromagnetic
            Separations in Austenitic Alloys Determined from the
            Demagnetization Curves (Issledovaniya dispersnosti
            ferromagnitnykh vydeleniy v austenitnykh splavakh
            po krivym razmagnichivaniya)

PERIODICAL: Metallovedeniye i Obrabotka Metallov, 1958, Nr 7,
            pp 27-30 + 1 plate (USSR)

ABSTRACT: It was recently established that fine ferromagnetic
            powder particles have a high coercive force. In such
            particles no domain boundaries are formed and, therefore,
            the ordinary mechanism of magnetization caused by the
            displacement of boundaries cannot proceed. The change
            in the magnetization can take place only as a result of
            coherent rotation of the spins which takes place
            predominantly in intensive fields. There is reason to
            assume that in many hardened alloys possessing a fine
            heterogeneous structure with a fine dispersion of ferro-
            magnetic separations inside a non-magnetic phase, single
            domain particles exist. Such a conception on the single
Card 1/5   domain separations can prove useful for understanding

Investigation of the Dispersion of Ferromagnetic Separations in
Austenitic Alloys Determined from the Demagnetization Curves

numerous metallurgical problems. The domain theory
leads to the conclusion that the most important informa-
tion on the structural state of single domain separations
can be obtained from the demagnetization curves. The
characteristics of such curves give indications not only
on the dimensions of these separations but also on the
magnetic anisotropy of all the four types (crystalline
anisotropy, stress anisotropy, anisotropy of the shape of
separations and surface anisotropy). Therefore, the
authors investigated the dispersion of the ferromagnetic
separations in austenite on the basis of the demagnetization
curves on the steel 18Cr = 18Ni with a gradually increasing
dispersion of the ferrite separations. This was achieved
by an appropriate heat treatment of the preliminarily
deformed specimens leading to inverse $\alpha_2 \rightarrow \gamma$ transformation. The
results of the changes in the magnetic properties during
demagnetization as a function of holding time and of the
degree of deformation are entered in a table, p.29, and
the demagnetization curves are plotted in the graphs.
Card 2/5   Figs.1-4. The graph, Fig.1, shows the demagnetization

129-58-7-6/17

Investigation of the Dispersion of Ferromagnetic Separations in
Austenitic Alloys Determined from the Demagnetization Curves

curves of three steel specimens after 10, 25 and 40%
plastic deformation by drawing.   The character
of the demagnetization curves of the coercive force and
of the residual magnetization correspond fully with the
change of the plastic deformation, i.e. with the work
hardening. The graph, Fig.2, shows the demagnetization
curves of the same specimens after two-hour annealing
at 650°C; the two-hour heat treatment brought about a
sharp increase in the coercive force. The demagnetization
curves (Fig.3) relate to steel specimens annealed at an
equal temperature for durations of 6, 14 and 22 hours.
Increase of the annealing time progressively reduces the
coercive force (Fig.4). This indicates the emergence
of a new factor, most probably the influence of the
anisotropy in the shape of the single domain ferrite
separations which are formed from the multi-domain
separations during their dissolution. Decrease in the
residual magnetization, which is almost linearly linked
with the volume of the ferromagnetic phase, confirms that
Card 3/5 the breaking up into finer separations proceeds with

129-58-7-6/17

Investigation of the Dispersion of Ferromagnetic Separations in
Austenitic Alloys Determined from the Demagnetization Curves

increasing annealing time. For elucidating the causes
of the change of the coercive force magneto-metallographic
analysis was applied. The results of this analysis
(Figs.5a and b, plate facing p.41) indicate that the
increase in coercive force at this initial stage of ageing
(up to two hours) is due to the sub-division of the ferro-
magnetic separations, i.e. to the loss of the magnetic
contacts which leads to a weakening of the magnetic
effect, i.e. to an increase of H_c. Fig.5B indicates
that this sub-division develops further with increasing
ageing duration. In addition to the general regular
shift of the demagnetization curves, a slight deflection
from this is also observed, for instance after 22 hours
heat treatment. Apparently this is due to a non-uniform
density in the distribution of the spearations and the
fact that the loss of orientation of the ferrite
separations does not take place simultaneously. Thus
the conception of single domain separations in austenitic
steels which may contain ferrite separations opens up a
Card 4/5 new field in physical metallurgy. On the basis of this

129-58-7-6/17
Investigation of the Dispersion of Ferromagnetic Separations in
Austenitic Alloys Determined from the Demagnetization Curves

conception it is possible to arrive at conclusions about
the physical constants of the separations and,
consequently, on the degree of hardening and softening
of alloys from studying the demagnetization curves.
There are 5 figures and 1 table.

(Note: This is a complete translation with the exception
of the figure captions and table headings)

ASSOCIATION: TsNIITMASh

Card 5/5

PHASE I BOOK EXPLOITATION   SOV/2332

24(3)

Yeremin, Nikolay Ivanovich, and Pavel Mikhaylovich Yelchin

Magnetizm v tekhnike (Magnetism in Engineering) /Moscow/,
Moskovskiy rabochiy, 1959. 94 p. 12,000 copies printed.

Ed.: S. Gurov; Tech. Ed.: A. Lil'ye.

PURPOSE: This book is intended for the general reader

COVERAGE: The book explains in popular form the importance and
uses of applied magnetism. The physical nature of magnetic
phenomena is also explained in general terms. There is a
reading list of 9 Soviet works on p. 95. No personalities
are mentioned.

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Magnetism in Engineering   SOV/2332

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AVAILABLE: Library of Congress (QC753.E7)

                                                            JP/ec
Card 2/2   10-16-59

YEREMIN, N.I.

Obtaining gallium from the wastes of the aluminum industry. Obog.
rud 4 no.1:16-17 '59.   (MIRA 14:8)
          (Aluminum industry--By-products) (Gallium)

YEREMIN, N. I.

YEREMIN, N.I.

YEREMIN, N. I.

YEREMIN, N.I., kand.fiz.-mat.nauk; YELCHIN, P.M., inzh.; KOMAROVSKIY, A.G., kand.tekhn.nauk; CHEBURKOVA, Ye.Ye., kand.tekhn.nauk; SHMELEV, B.A., kand.tekhn.nauk; ENTIN, S.D., kand.tekhn.nauk

Physical and chemical methods for the investigation in the phase analysis of alloys. [Trudy] TSNIITMASH 100:90-106 '59.   (MIRA 13:7)

(Alloys)

YEREMIN, N. I., Cand Tech Sci -- (diss) "Study of physicochemical pro-
perties and the treatment of the technology of gallium recovery from
products of aluminum production." Leningrad, 1960. 21 pp; (Ministry
of Higher and Secondary Specialist Education RSFSR, Leningrad Orders
of Lenin and of Labor Red Banner Mining Inst im G. V. Plekhanov);
200 copies; price not given; printed on duplicating machine; (KL,
17-60, 153)

YEREMIN, N. I.

Card 3/4

Card 2/4

Card 1/4

COVERAGE: The book contains a summary of work conducted by the personnel of
[TsNIITMASh] in the field of mechanical machining and quality control of parts.
Included is a discussion on the correct combination of depth, feed, and speed
in cutting with maximum capacity of the machine tool. Also considered are
the development of machining methods in rough and semifinishing production, and
the application of ultrasonic devices for flaw detection and measurement of
wall thickness. In personalities are mentioned. References follow some of
the chapters.

PURPOSE: This book is intended for technical personnel in heavy-machinery plants
and for scientific workers in factory laboratories and research institutes.

Sponsoring Agencies: Gosudarstvennyy komitet Soveta Ministrov SSSR po avtomati-
zatsii i mashinostroyeniyu; Tsentral'nyy nauchno-issledovatel'skiy institut
tekhnologii i mashinostroyeniya.

M.: I.P. Zakany, Doctor of Technical Sciences, Professor; Managing Ed. for
Literature on Heavy Machine Building: S.Ya. Golovin, Engineer; Ed. of Publish-
ing House: G.N. Sadikova; Tech. Ed.: K.I. Chernya.

PURPOSE: This book is intended for technical personnel in heavy-machinery plants

TITLE I BOOK EXPLOITATION   SOV/4204

Yeremin[?], N.I. nauchno-issledovatel'skiy institut tekhnologii i mashinostroyeniya
Rabotatyye voprosy tekhnologii i mashinostroyeniya, chast' 2: Obrabotka
metallov rezaniyem i kontrol' kachestva detaley (Some Problems in the Manufac-
turing Processes of Heavy Machinery, Pt. 2: Metal Cutting and Quality Control
of Parts) Moscow, Mashgiz, 1960. 173 p. (Series: Its) (Trudy) No. 99)
3,500 copies printed.

'18.3100

77729
SOV/149-60-1-18/27

AUTHOR: Yeremin, N. I.

TITLE: Preparation of Gallium Concentrate From Aluminate
            Solutions

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Tsvetnaya
            Metallurgiya, 1960, Nr 1, pp 123-127 (USSR)

ABSTRACT: This article describes an experimental verification of
            French Patent 964009 (of March 31, 1948) by Frary,
            which consists in a precipitation, from solutions of
            soluble aluminates and gallates, of the insoluble
            calcium aluminate by CaO, while most of the gallate
            remains in the solution. These tests showed that
            when more than 3 moles of active CaO per mole of
            Al_2O_3 are introduced, a noticeable quantity of Ga
            follows into the precipitate. However, 84-86% Al
            content but no more than 10 to 12% Ga are precipitated,
            raising in the solution the ratio of the latter from
Card 1/5   1:100 to 1:17. This separation is shown

Preparation of Gallium Concentrate
From Aluminate Solutions

77729
SOV/149-60-1-18/27

diagramatically in Fig. 1.

Fig. 1. Precipitation
of aluminum and gallium
oxides depending on the
quantity of calcium
oxide introduced into
the solution: (1) and
(2) Ga_2O_3; (3) Al_2O_3.
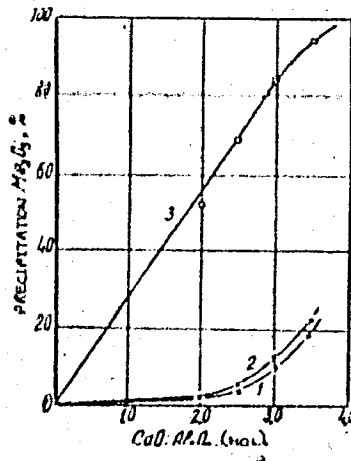
Further tests showed that this separation is due to
a greater solubility of calcium gallate in an aque
solution of lime than that the solubility of calci
aluminate. In order to substitute soda for causti
Card 2/5   in the first stage of this process (formation of

Preparation of Gallium Concentrate
From Aluminate Solutions

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sodium aluminates and gallates), a quantity of CaO
was added to the pulp so as to causticize the soda
content of the pulp. This was done by adding 1 mole
active CaO per mole of Na_2O tied in carbonate.

Further, 3 moles of CaO per mole of Al_2O_3 were intro-
duced to precipitate calcium aluminate from the
solution. If both CaO portions were added simulta-
neously, gallium extraction was not as high as it
appears from data in the Table. The reactions of
the separation process can be described by formulas:

$$Ca(OH)_2 + Na_2CO_3 \rightleftarrows 2NaOH + CaCO_3, \qquad (1)$$
$$Al_2O_3 \cdot 3H_2O + 2NaOH \rightleftarrows 2[NaAl(OH)_4], \qquad (2)$$
$$Ga_2O_3 \cdot 3H_2O + 2NaOH \rightleftarrows 2[NaGa(OH)_4], \qquad (3)$$
$$2[NaAl(OH)_4] + 3Ca(OH)_2 \rightleftarrows 3CaO \cdot Al_2O_3 \cdot 6H_2O + 2NaOH, \qquad (4)$$
$$2[NaGa(OH)_4] + 3Ca(OH)_2 \rightleftarrows 3CaO \cdot Ga_2O_3 \cdot 6H_2O + 2NaOH. \qquad (5)$$
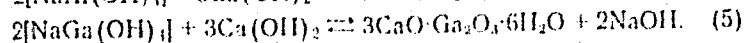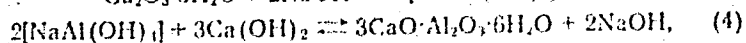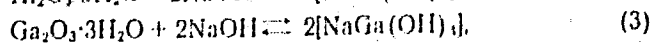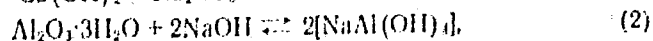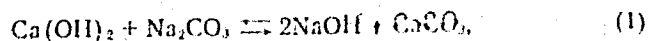
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Preparation of Gallium Concentrate
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Extraction of Me_2O_3 into the solution depending on the ratio Na_2O (carbonated): Al_2O_3 in the pulp

(a)	(b)	(c)	
		(d)	(e)
0,5:1	4,0	47.2	6,5
1:1	1,5	55.4	29.1
	3,0	64.0	18.8
	4,0	65.2	15,6
1,5:1	1,5	59.3	11.2
	3,0	61.7	9,3
	4,0	67.3	8,1

Key to Table: (a) Na_2O_{carb}: Al_2O_3 in initial pulp;
(b) Processing time, hours; (c) Extraction into the
solution %; (d) Ga_2O_3; (e) Al_2O_3.

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The slowest reactions are (2) and (3); therefore
they determine the precipitation. The rate of Ga
extraction being 67% at best, another method was tried;
namely, CaO addition in two portions, one for
causticizing, the other for Al precipitation with a

time interval of 30 min (at 90°). Results improved
considerably: gallium extraction rate rose to 87-90%,
while only 14% of the initial Al content remained in
the solution. The latter contained 9 g/liter Al and
0.53 g/liter Ga. Subsequent carbonization produced a
concentrate of 53.0% Al_2O_3 and 3.2% Ga_2O_3. It was then

dissolved in alkali and gallium extracted electrolytically
on a stainless steel cathode. There are 4 figures;
1 table; and 7 references, 6 Soviet, 1 French.

ASSOCIATION: Leningrad Institute of Mining. Chair of Metallurgy of
                Light and Rare Metals (Leningradskiy gornyy institut.
                Kafedra metallurgiyi legkikh i redkikh metallov)

SUBMITTED: May 18, 1959
Card 5/5

YEREMIN, N.I.

Gallium recovery from wastes of the aluminum industry. Izv.vys.
ucheb.zav.; tsvet.met. 3 no.2:108-112 '60. (MIRA 15:4)

1. Leningradskiy gornyy institut, kafedra metallurgii
legkikh i redkikh metallov.
(Aluminum industry--By-products)   (Gallium)

5.1310

77518
SOV/80-33-1-27/40

AUTHORS: Yeremin, N. I., Gus'kov, V. M.

TITLE: Electrochemical Preparation of Gallium

PERIODICAL: Zhurnal prikladnoy khimii, 1960, Vol 33, Nr 1, pp 157-163 (USSR)

ABSTRACT: Electrolytic preparation of gallium from synthetic aluminate-gallate solutions (of a low gallium content) was studied in order to find the best conditions of yield and recovery of gallium from such solutions. Deposition of gallium on the cathode in an alkali solution is contingent on the following reaction:

$$H_2GaO_3^- + H_2O + 3e = Ga + 4OH^-$$
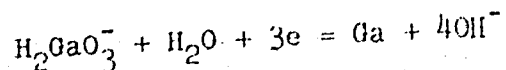
The electrolysis was conducted in a 500-ml beaker using steel plate (1Kh18N9T) electrodes (one cathode and two anodes). A small plastic crucible with a steel wire in its bottom was placed under the cathode (connected·

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Table 1. Kinetics of the electrolytic deposition of gallium. Conditions of electrolysis: temperature, $78°$; $D_{cathode}$, 0.27 amp/cm^2; D_{anode}, 0.05 amp/cm^2; D_v = 19.2 amp/liter. Key to Table 1: (a) electrolyte composition (in g/liter); (b) Na_2O_{total}; (c) time (in hours); (d) recovery of Ga from the solution (in %).

(a)			(c)	(d)
Ga	Al_2O_3	(b)		
3.2	0	200	2	68.5
			4	91.8
			6	97.3
6.3	0	200	2	70.1
			4	91.4
			6	97.0
3.2	.69	200	2	69.0
			4	89.9
			6	96.5
6.3	69	200	2	71.8
			4	92.1
			6	97.0
6.3	130	200	2	72.0
			4	91.4
			6	95.6

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. Electrochemical Preparation of Gallium   77518
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with the cathode) for the collection of the deposited
(liquid) gallium. The effect of the solution alkalinity
on the yield of Ga is shown in Fig. 2. The effect of
SiO_2 content on the deposition of Ga is shown in Fig. 3.
Effect of the temperature and current density on the
Ga deposition were also studied. The following con-
clusions were made. Ga is deposited at more negative
potentials than the potentials of Na deposition (by
using Hg cathode) and hydrogen (using Ga cathode). The
following optimum conditions of electrolytic Ga prepa-
ration from aluminate-gallate solutions of low Ga con-
tent are given: the concentration of Na_2O summary in

the solution should be not less than equilibrium for
the given content of Al_2O_3 in the electrolyte at a
given temperature; more concentrated solutions (130-
140 g/liter of Al_2O_3) with the same $Al_2O_3:Ga_2O_3$ ratio

should be used; electrolyte temperature = 75-80°;
$D_{cathode}$ = 0.2-0.23 amp/cm^2. There are 5 figures;

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Gallium

Fig. 2.   Effect of the alkalinity of
solution on the Ga deposition.   Condi-
tions of electrolysis: $D_{cathode}$ =
= 0.27 amp/cm^2; D_{anode} = 0.06 amp/cm^2;
D_V = 19.2 amp/liter; temperature, 78°;
time, 6 hours; Ga content in the
solution, 3.2 g/liter.   Content of
Al_2O_3 in the solution (in g/liter):
(1) 69; (2) 120.   Key to Fig. 2:
(a) Yield based on current (in %);
(b) $Na_2O_{summary}$ (g/liter).
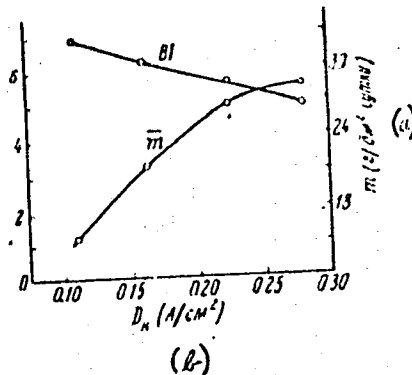
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Electrochemical Preparation of Gallium

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Fig. 3. Effect of SiO_2 content on the deposition of Ga. Conditions of deposition: $D_{cathode}$ = 0.27 cm^2; D_v = 19.2 amp/liter; time of electrolysis, 6 hours; composition of electrolyte (in g/liter): Al_2O_3, 69; Na_2O, 130; Ga, 3.2. Key to Fig. 3: (a) Yield based on current (in %); (b) SiO_2 (g/liter).
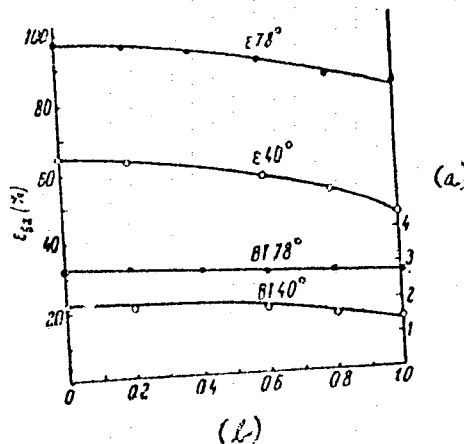
Card 5/6

Electrochemical Preparation of Gallium   77518
                                                SOV/80-33-1-27/49

     1 table; and 6 references, 1 U.S., 5 Soviet. The U.S.
     reference is: Recentry, Giefillan, Bent, J. Am. Chem.
     Soc., 56, 1662 (1934).

SUBMITTED: June 9, 1959

Card 6/6

SHORIN, Pavel Matveyevich, inzh.; YEREMIN, N.I., red.

[The second life of machines] Vtoraia zhizn' mashin.
Ul'ianovsk, Ul'ianovskoe knizhnoe izd-vo, 1961. 22 p.
(MIRA 18:4)

1. Zamestitel' nachal'nika otdela glavnogo mekhanika i
energetika Ul'yanovskogo sovnarkhoza, Ul'yanovskaya
oblast' (for Shorin).

YEREMIN, N. I.

Doc Tech Sci - (diss) "Magnetic metallography in metallophysics studies." Moscow, 1961. 29 pp; 1 p of illustrations; (State Committee of the Council of Ministers USSR for Automation and Machine-Building, Central Scientific Research Inst of Technology and Machine-Building "TsNIITMASh", ONTI); 170 copies;price not given; list of author's works on pp 28-29 (18 entries); (KL, 6-61 sup, 211)

NAZAROV, S.T.; SHRAYBER, D.S.; YEREMIN, N.I.; ROZHDESTVENSKIY, S.M.;
KHIMCHENKO, N.V.; LESNICHENKO, I.I., red. izd-va; UVAROVA, A.F.,
tekhn. red.; SOKOLOVA, T.F., tekhn. red.

[Modern methods of nondestructive testing]Sovremennye metody
kontrolia materialov bez razrusheniia. Pod red. S.T.Nazarova.
Moskva, Mashgiz, 1961. 285 p.   (MIRA 15:7)

1. Moskovakiy dom nauchno-tekhnicheskoy propagandy im. F.E.
Dzerzhinskogo.
                    (Nondestructive testing)

S/149/61/000/004/002/008
A006/A101

AUTHOR: Yeremin, N. I.

TITLE: Studying cathode polarization in electrolysis of gallate solutions

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Tsvetnaya metallurgiya, no.4,
             1961, 97-101

TEXT: In electrolysis of alkaline sodium gallate solutions hydrogen and
gallium metal are jointly deposited on the cathode. To analyze conditions of
the joint deposition of hydrogen and gallate metal their deposition potential and
the polarization curves of each individual reaction must be known, by taking into
account depolarization. There are only few data available on the potentials and
polarization curves of gallium deposition from alkaline solutions. For the pur-
pose of determining the potentials and the rate of gallium deposition from
alkaline solutions polarization curves of cathode reactions in gallate solutions
with low gallium concentration (3 - 10 g/l) were measured on mercury and gallium
drop electrodes at low current densities and on a liquid gallium electrode at
higher current densities. It was established that in the case of a liquid gallium
electrode, hydrogen deposition was the basic cathode process at both low and high

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Studying cathode polarization ...

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A006/A101

current densities. The potential of gallium deposition is more negative than
that of hydrogen deposition. The author employed experimental data on the current
efficiency of gallium and hydrogen, depending on the gallium concentration in the
solution, and the cathode current density, and decomposed summary polarization
curves in order to determine the reaction rate of gallium and hydrogen deposition.
The curves show that with higher current density the rate of hydrogen deposition
grows more rapidly than that of gallium deposition. This signifies that the
current efficiency of gallium decreases with higher current density and, in fact,
the more the lower the gallium concentration in the electrolyte. This theory
was confirmed by a number of experiments and is an important factor in selecting
the current density for electrolytic deposition of gallium from alkaline solutions.
As a result of the experimental investigation, the author recommends the follow-
ing optimum values of current density on the cathode for different gallium
concentrations in the electrolyte:

Gallium concentration, g/l	Cathode current density, amp/cm^2
2 - 3	0.15 - 0.20
3 - 5	0.20 - 0.25
5 - 7	0.25 - 0.30
7 - 10	0.30 - 0.33

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Studying cathode polarization ...

S/149/61/000/004/002/008
A006/A101

There are 4 figures and 6 Soviet-bloc references.

ASSOCIATIONS: Leningradskiy gornyy institut (Leningrad Mining Institute)
Kafedra metallurgii legkikh i redkikh metallov (Department of
Metallurgy of Light and Rare Metals)

SUBMITTED: November 11, 1960

Card 3/3

S/772/61/000/000/003/003

AUTHOR: Yeremin, N.I.

TITLE: Magnetic powder method for the detection of defects and magnetic metallography. Section title: Industrial magnetic defectoscopes.

SOURCE: Sovremennye metody kontrolya materialov bez razrusheniya. Ed. by S.T.Nazarov. Moscow, Mashgiz, 1961, 136- ? . (Abstract of Section on pp. 151-161 only).

TEXT: The paper as a whole describes methods in which a magnetic field is created in a metallic production item and a suspension containing ferromagnetic particles (FP) is spread over the piece. The FP settle in the nonuniform dispersion zones created by structural defects and render them clearly manifest. The specific section reviewed describes the latest Soviet stationary magnetic defectoscopes which permit magnetization of production pieces in various directions, pour the magnetic suspension over them automatically, provide suitable illumination of the surface to be inspected, and demagnetize the part after the test. Thus, the function of the inspector is reduced to visual inspection. Such defectoscopes employ special electromagnets or solenoids fed via Se rectifiers and 4-12-v, >7,000-a, power transformers and autotransformers. The universal magnetic defectoscope AEC-3 (AYeS-3) of the TsNIITMash (Central Scientific Research Institute of Machine Technology), is described and depicted (full-page schematic cross-section and general-view photo) as a typical instrument of this type. It comprises a power transformer

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Magnetic powder method for the detection...   S/772/61/000/000/003/003

for circular magnetization and an electromagnet for the longitudinal magnetization in a constant field. The setting up of a circular magnetization by means of an alternate current, in which the device operates as a current transformer, and that of a longitudinal field, in which the device operates as an electromagnet, are described. The device consists essentially of a magnetic circuit in the form of a horizontal rectangular frame equipped with a tapped coil (relatively remote, at a safe distance from the actual test site) and a pair of moving packet shoes to provide gaps of up to 350 mm. The tips of the packet shoes are pressed firmly against the test object by means of handwheels. An a.c. (220 v, 9 kva) or a d.c. (60 v, 4.5 kw) power supply is required. Automatization provisions required in mass-production inspection are embodied in the МДВ (MDV) defectoscope (TsNIITMash); a schematic diagram and a general-view photo are shown. In it the test object is placed on a prismatic support; a pressure on a pedal lifts the prism and the test object to the level of the polar shoes of the magnet, whereupon a lever actuates the shoe-compression drive. An overhead light fixture provides suitable illumination for visual appraisal. The device has two independent electrical circuits for fully automated a.c. and d.c. operation; a third, separate, circuit is provided for the demagnetization chamber. The a.c. circuit for the creation of a circular magnetic field and the d.c. circuit for longitudinal magnetization are described. A special magnetic defectoscope for the inspection of large cold-rolling rolls, developed at the TsNIITMash, is described. The device employs combined magnetization produced by a constant magnetic field
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S/032/61/027/004/028/028
B103/B201

AUTHORS: Gubanova, M. R., Yeremin, N. I., Yermolov, I. N., and
               Matveyev, A. S.

TITLE: New methods and instruments for the nondestructive
               material control, developed at TsNIITMASh

PERIODICAL: Zavodskaya laboratoriya, v. 27, no. 4, 1961, 499-501

TEXT: This is a report on the results of the principal studies on
defectoscopy, conducted at the laboratoriya defektoskopii (Laboratory
for defectoscopy) of the authors' institute (see Association) in the
past 2-3 years. Immersion - ultrasonic method. Full immersion. It
opens ample possibilities for automation in defectoscopy. The following
methods and instruments belong here: A. Laboratory model of ИДЦ-1
(IDTs-1) defectoscope for the detection of faults in turbine disks. The
device may be used also for other workpieces by allowing the tank, in
which they are to be dipped, to be modified conformingly. B. Apparatus
and methods of automatic control of thin-walled tubes by Lamb's waves.
The ИДЦ-2 (IDTs-2) defectoscope used for this purpose is able to detect

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New methods and instruments for ...

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both the faults inside the metal and on the inner and outer tube surface.
C. Immersion - ultrasonic thickness gauge ИТЦ-3 (ITTs-3). It operates
without contact with the workpiece (tube) basing on the n-times reflected
pulse. Partial immersion. D. The acoustic contact between radiator
and workpiece is brought about by a jet of water. This method is suited
for large-sized products (large-size sheets and tubes). Penetrating
acoustic irradiation. E. Ultrasonic defectoscope ШД-1 (ShD-1) for the
automatic control of tires. The types under A - E are intended for
control in series production, and thus have a closely specialized range
of application. Ultrasonic pulse-contact method. F. Control of thick
welded joints (up to 350 mm) (electric slag method) is performed by
means of a УДЦ-10 (UDTs-10) defectoscope operating with four frequencies.
A neon lamp (12 kg weight) serves as an automatic signal lamp for it.
Thicker welded joints caused the laboratory to examine the basic laws
governing the propagation of ultrasonics. The result of these studies
has been the УДЦ-11 (UDTs-11) defectoscope which is able to control
welded joints up to 500 mm thick, and detects defects of 3-5 mm.
G. Original methods of controlling welded products by layers have been
developed. H. A method of determining the magnitude of defects in

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New methods and instruments for ...

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B103/B201

forgings on the basis of the amplitude of the reflected signal has been worked out. I. <u>Resonance - ultrasonic method</u>. The respective control systems have been improved. The resonance-defectoscope thickness gauges УРТ-5 (URT-5) and УРТ-6 (URT-6) permit thickness to be read off a scale without diagrams nor computation devices. This is achieved by an additional measuring circuit with a straight-line frequency adjustable condenser. J. Various disturbances have been eliminated. K. <u>Radioscopy with X- and gamma rays</u>. Optimum conditions have been worked out for this process, and models of scintillation recorders of radiation have been developed. L. Both advantages and drawbacks of the gamma scintillation method have been examined. M. A special magnetic defectoscope ДКН-1 (DKN-1) has been developed for the control of drive shafts and other large workpieces with the greatest possible mechanization of the process. Test models are used for controlling the cold-rolling process and pipes at the Novo-Kramatorskiy mashinostroitel'nyy zavod (Novo-Kramatorskiy Machine-building Works), and axles at the Novocherkasskiy elektrovoznyy zavod (Novocherkassk Electric Locomotive Works). N. A special magnetic transportable defectoscope ДМП-2 (DMP-2) which operates with magnetic powder defectoscopy and serves for layer examination of defects deep

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New methods and instruments for S/032/61/027/004/028/028
                                            B103/B201

inside welded joints, has been developed. The device is produced in
series at the Kishinevskiy zavod "Elektrotochpribor" (Kishinev Works
"Elektrotochpribor"). O. A demagnetization apparatus has been developed,
which .removes the remanence of magnetism better than all systems used
hitherto. P. A device has been worked out on the basis of the resonance
method, which determines the tendency to intercrystallite corrosion in
austenite steels using electromagnetic high-frequency methods ("vortex"
methods). Q. Studies have been conducted concerning the use of high-
frequency defectoscopy in the automatic quality control of non-ferromag-
netic products, especially of tubes. R. The physical and technological
bases of capillary methods of defectoscopy have been examined, and a
capillary ultrasonic control method has been devised. It bases upon the
action of   intensive ultrasonic waves on a product dipped into a
wetting liquid.

ASSOCIATION: (TsNIITMASh) Tsentral'nyy nauchno-issledovatel'skiy
               institut tekhnologii i mashinostroyeniya (Central Scientific
               Research Institute of Technology and Machine Building)

Card 4/4

YEREMIN, N. I.

Dissertation defended for the degree of <u>Doctor of Technical</u>
<u>Sciences</u> at the Institute of Metal Physics in 1962:

"Magnetic Metallography in Metal-Physics Processes."

Vest. Akad. Nauk SSSR.   No. 4, Moscow, 1963, pages 119-145

BONDAREV, Yuriy Alekseyevich; YEREMIN,-N.I., red.; KHAKHAM, Ya.M.,
tekhn. red.

[Use of plastics in the manufacture of machinery] Ispol'zovanie
plastmass v mashinostroenii. Ul'ianovsk, Ul'ianovskoe knizhnoe
izd-vo, 1960. 36 p.   (MIRA 16:7)
    (Machinery--Design and construction)   (Plastics)

KARPILES, Isak Isayevich; TIKHIY, Yevgeniy Matveyevich; YEREMIN,
    N.I., red.

    [Chipless metalworking by pressure] Obrabotka metallov
    davleniem bez sniatiia struzhki. Ul'ianovsk, Ul'ianovskoe
    knizhnoe izd-vo, 1963. 30 p.   (MIRA 17:10)

    1. Konstruktor Ul'yanovskogo avtomobil'nogo zavoda metalli-
    cheskikh izdeliy (for Karpiles, Tikhiy).

YEREMIN, N.I.

Role of schistosity and fracturing zones in the localization of pyrite-complex metal mineralization in the Dzhusa deposit (Southern Urals). Vest. Mosk. un. Ser. 4: Geol. 18 no.6:24-32 N-D '63.   (MIRA 18:7)

1. Kafedra poleznykh iskopayemykh Moskovskogo universiteta.

KRYLOV, M.K.; YEREMIN, N.I.

New methods for electromagnetic prospecting and the preliminary
results of their application in the Dzhusy pyrite deposit (Southern
Urals). Vest. Mosk. un. Ser. 4: Geol. 19 no.3:30-45 My-Je '64.
                                            (MIRA 17:12)
1. Kafedra geofiziki i kafedra poleznykh iskopayemykh Moskovskogo
universiteta.

ZONENSHAYN, L.P.; BERTEL'S-USPENSKAYA, I.A.; SAFRONOV, V.S.; NEYMAN, V.B.;
GENDLER, V.Ye.; CHURIKOV, V.S.; YEREMIN, N.I.; KOGAN, B.S.; YAKOVLEVA,
M.N.; LANGE, O.K.; KABANOV, G.K.; KUZNETSOVA, K.I.; SINITSYNA, I.N.;
SMIRNOVA, T.N.; VENKATACHALAPATI, V.; MASLAKOVA, N.I.; BELOUSOVA, Z.D.;
YAKUBOVSKAYA, T.A.; YURINA, A.L.; RYBAKOVA, N.O.; MOROZOVA, V.G.;
BARASH, M.S.; FONAREV, V.I.; NIKONOV, A.A.

Activity of the Geological Sections of the Moscow Naturalists'
Society. Biul. MOIP. Otd. geol. 39 no.6:127-151 N-D '64.
(MIRA 18:3)

YEREMIN, N.N., mladshiy nauchnyy sotrudnik

Total and diffuse radiation in Antarctica. Inform.biul.Sov.antark.
eksp. no.44:28-31 '63. (MIRA 17:4)

1. Arkticheskiy i antarkticheskiy nauchno-issledovatel'skiy institut.

L 08033-67   EWT(1)/EWT(m) ___GW___ _

ACC NR: AT7001682   SOURCE CODE: UR/3174/65/000/055/0037/0039

AUTHOR: Yeremin, N. N. (Junior scientific worker)

20

ORG: Arctic and Antarctic Scientific Research Institute (Arktichoskiy i antarkticheskiy nauchno-issledovatel'skiy institut)

TITLE: Natural radioactivity at Schirmacher Oasis

SOURCE: Sovetskaya antarkticheskaya ekspeditsiya, 1955-. Informatsionnyy byulleten', no. 55, 1965, 37-39

TOPIC TAGS: atmospheric radioactivity, radioactivity measurement

ABSTRACT: During the time of the work of the Ninth Antarctic Expedition observations of natural radioactivity of settling dust and aerosols were made at Novolazarevskaya station by the sedimentation method. Studies also were made of precipitation, water, snow and ice, soil and vegetation (mosses, lichens and algae). Measurements were made only for total β-activity using standard apparatus. Two metal enameled trays measuring 330 x 430 mm were mounted on the roof of a building about 3 m from the surface. Table 1 shows that the activity of settling dust and aerosols has a functional dependence on wind velocity and the quantity of falling precipitation; maximum activity was in October, when there was a maximum mean monthly wind velocity and a maximum quantity of precipitation fell. It was not possible to obtain an empirical formula of the dependence of the activity of settling dust and

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L 08033-67

ACC NR: AT7001682

aerosols on wind velocity and precipitation due to the limited number of observations. Table 2 shows that an appreciable decrease of β-activity of precipitation from August through October apparently is associated with atmospheric circulation and is dependent on from what region of the earth the air mass arrives. The results of measurement of β-activity of the water of the lakes of Schirmacher Oasis and the ice of the continental glacier in all cases were beyond the limits of accuracy of measurement of the apparatus, that is, below 10^{-15} curie/liter, or below 10^{-15} curie/kg. The activity of mosses and lichens in other parts of the earth is one order of magnitude greater (10^{-7} curie/kg) than at Schirmacher Oasis. Orig. art. has: 3 tables. [JPRS: 37,397]

SUB CODE: 04, 18 / SUBM DATE: 05Jun65

Card 2/2 mc

YEREMIN, N.Ye.

KOROTKOV, V.P.; YEREMIN, N.Ye., inzhener; KRAVTSOV, V.I., inzhener.

Making mercury-arc rectifiers. Elek.i tepl.tiaga no.9:33-36 S '57.
                                              (MIRA 10:10)
1. Nachal'nik remontno-revizionnogo tsekha Novosibirskogo uchastka energosnabzheniya (for Korotkov).
                        (Mercury-arc rectifiers)

YEREMIN, N.Ye., prepodavatel'; VOLKOV, N.N.

Testing stand used for checking traction substation equipment.
Elek. i tepl. tiaga 2 no.7:28-29 Jl '58.   (MIRA 11:7)

1.Tomskiy elektromekhanicheskiy institut inzhenerov zheleznodorozh-
nogo transporta (for Yeremin). 2.Nachal'nik remontno-revizionno-
go tsekha Novosibirskogo uchastka energosnabzheniya Tomskoy dorogi
(for Volkov).
     (Electric railroads--Substations--Equipment and supplies)
     (Electric testing)

YEREMIN, N.Ye.; SHILOV, A.S. (Tomsk)

Method for measuring the voltage drop in the arc of a mercury-arc rectifier. Elek.i tepl.tiaga 14 no.3:28-29 Mr '60.

(MIRA 13:7)

(Electric current rectifiers)

DUBROVSKIY, V.P.; YEREMIN, N.Ye.; SHALIMOV, M.G.

Calculation of current nonsymmetry in the elements of an electric power system feeding a single-phase a.c. railroad with commercial frequency. Trudy TEIIZHT 35:77-84 '62.   (MIRA 16:8)
(Electric railroads--Current supply)

BARKOVSKIY, B. S., inzh.; YEREMIN, N. Ye, inzh.; KOZLOV, V. N., inzh.;
NEBOLYUBOV, Yu. Ye, kand.tekhn.nauk, dotsent; SHALIMOV, M. G.,
kand.tekhn.nauk, dotsent

Effect of the traction load on the turbogenerators of electric
power plants supplying single-phase 50 c.p.s. power to electric
railroads. Trudy OMIIT 37:146-150 '62.   (MIRA 17:5)

DUBROVSKIY, V. P., inzh.; YEREMIN, N. Ye, inzh.; SHALIMOV, M. G.,
    kand. tekhn. nauk, dotsent

    Analysis of the operation of a three-phase three-winding trans-
    former in nonsymmetrical operation. Trudy OMIIT 37:91-101 '62.
                                                    (MIRA 17:5)

YEREMIN, N.Ye.; BARKOVSKIY, B.S.; KOZLOV, V.N.; HERCLYUPOV, Yu.Ye.

Methodology for testing turbogenerators under the conditions of a traction load. Trudy OMIIT 41:5-10 '63.

Some results of the experimental studies on the effect of traction load on turbogenerators. Ibid.:11-19

(MIRA 18:7)

YEREMIN, N.I.

Equation of the additional equivalent heating capacity of the turbogenerator rotor windings during a.c. traction supply.
Trudy OMIIT 41:21-27 '63.

Measuring the degree of current asymmetry. Ibid.:29-35
(MIRA 18:7)

TYAGIN, B.V., inzh.; YEREMIN, O.A., inzh.

Compaction of concrete mix by the method of longitudinal-
horizontal vibration. Transp. stroi. 14 no.5:25-27 My '64.
(MIRA 18:11)

YEREMIN, P.F.

137-1-104

Translation from: Referativnyy Zhurnal, Metallurgiya, 1957, Nr 1, p. 9 (USSR)

AUTHOR: Yeremin, P.F.

TITLE: Saturated and Unsaturated Mineral Granule Suspensions in water (O nasyshchennykh i nenasyshchennykh vzvesyakh mineral'nykh zeren v vode

PERIODICAL: Tr. Severo-Kavkazsk. gorno-metallurg. in-ta, 1956, Nr 13, pp. 21-34

ABSTRACT: A special apparatus consisting of a tube containing two piezometers and two gate valves made of wire netting and a flask with outlet for the water feed was used in a study on the saturation of mineral suspensions (B) in water (e.g., of coarsely granulated suspensions with finely granulated suspensions, of suspensions having granules of a given sp.gr. with suspensions having granules of a different sp.gr., etc.). The piezometers served also to determine the degree of dispersion of the suspensions. The tests were carried out using limestone granules of different

Card 1/3

137-1-104

Saturated and Unsaturated Mineral Granule Suspensions in Water
(cont.)

size. Described are certain features characterizing
the formation of suspensions belonging to Type 1, (a
stream of granules in an ascending stream of water,
both moving at the same rate), and to Type 2 (stream
of granules either in quiescent water, or in an as-
cending stream of water, but each moving at a
different rate). Studied was the effect of a number
of factors on saturated and unsaturated suspensions:
the granulometric composition of the suspension, the
flow rate of the water and the sedimentation rate of
the compressed stream of granules, the degree of dis-
persion, etc. A detailed characteristic of suspensions,
based on the performed tests, is presented. It was
established that the granular suspension "abhors" the
unsaturated phase. With an insufficient feed the
unsaturated suspension reacts by a poorer dispersion.
It was noted that Type 1 suspensions may show a de-
gree of dispersion ranging from 1 to the initial, and
Card 2/3   that they are always saturated. Type 2 suspensions

Saturated and Unsaturated Mineral Granule Suspensions in Water   137-1-104
(cont.)

        may vary in degree from 1 to limit dispersion, and can
be either saturated, or unsaturated. Since in hy-
draulic classifiers the process of granule segregation
according to size takes place in compound suspensions
belonging to Types 1 and 2, the conclusion is reached
that a study of the phenomenon of suspension saturation
may assist materially in improving the performance of

Card 3/3   mechanical classifiers.

                                                      M.L.

137-58-4-6395

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 4, p 9 (USSR)

AUTHORS: Yeremin, P. F. ,   Krokhin, S. I. ,   Maksimovich, I. Yu.

TITLE: Beneficiation of the Manganese Ore of the Labinsk Deposit
(Obogashcheniye margantsevoy rudy Labinskogo mestorozh-
deniya)

PERIODICAL: Sb. nauchn. tr. Severo-Kavkazsk. gorno-metallurg. in-ta,
1957, Nr 14, pp 118-126

ABSTRACT: The results of a study of the capabilities of beneficiation of
the Mn ores of the Labinsk deposit, the major ore minerals of
which are rhodochrosite and Ca rhodochrosite, are set forth.
The chemical composition of various samples is presented. The
properties of the ore minerals and their fine dissemination, with
intimate intergrowth with calcite, provides the basis for classi-
fying this ore as non-gravitational. Experiments in jigging and
concentration on the table have confirmed this. Flotation can
be attained only at a high cost in oleic acid and water glass and
with two steaming operations performed at high temperature.
Satisfactory results were obtained when liquid soap was substi-
tuted for oleic acid at steaming temperatures of up to 40° C. By

Card 1/2

137-58-4-6395

Beneficiation of the Manganese Ore of the Labinsk Deposit

flotation with prior washing of the dissolved salts it is possible to obtain con-
centrates containing 29-30 percent Mn and 89 percent recovery thereof. The
Mn contents may be increased to 40 percent by roasting at 400-500°.

A. Sh.

1. Ores--Processes   2. Flotation--Applications

Card 2/2

SOV/149-58-5-3/18

AUTHOR: Yeremin, P.F.

TITLE: On the Design of a Constrained Settling Classifier (Sorter) With Periodic Discharge of the Individual Classes (K voprosu rascheta klassifikatora stesnennogo padeniya s periodicheskoy razgruzkoy klassov)

PERIODICAL: Izvestiya Vysshikh Uchebnykh Zavedeniy, Tsvetnaya Metallurgiya, 1958, Nr 5, pp 18 - 26 + 1 plate (USSR)

ABSTRACT: The author deals with the design calculations of a hydraulic classifier, a sketch of which is shown in Figure 1, p 18. The main part of this classifier is a bucket into which the grains are fed from a pyramid-shaped chamber. The processes taking place in such classifiers have been dealt with in earlier work of the author (Refs 1, 2). In this paper, the design calculations of the individual assemblies are described and detailed numerical calculations of all the assemblies are made for a concrete practical example, with the following details: $Q = 200$ tons/24 hours: specific gravity of the solid substance 2.65; particle size 2-0 mm; water consumption 400 tons/24 hours.

Card1/2

On the Design of a Constrained Settling Classifier (Sorter) With SOV/149-58-5-3/18
Periodic Discharge of the Individual Classes

There are 2 figures, 2 tables and 8 Soviet references.

ASSOCIATIONS: Severokavkazskiy gornometallurgicheskiy institut
(North Caucasian Mining Metallurgical Institute)
Kafedra obogashcheniya poleznykh iskopayemykh
(Chair for Ore Beneficiation)

SUBMITTED: June 21, 1958

Card 2/2

YEREMIN, P.F.

Coefficient of equal settling in conditions of hindered settling.
Izv.vys.ucheb.zav.; tsvet.met. 3 no.2:27-36 '60.   (MIRA 15:4)

1. Severokavkazskiy gornometallurgicheskiy institut, kafedra
obogashcheniya poleznykh iskopayemykh.
                    (Ore dressing)

YEREMIN, P.F., inzh.; POGODIN, B.A., inzh.

Classifier of items, their components, and technical documentation
of the basic lines of turbine manufacturing plants.
Energomashinostroenie 10 no.12:27-31 D '64.   (MIRA 18:2)

YEREMIN, P.I., agronom.

Our experience in obtaining high yields of winter wheat. Zemledelie
4 no.8:95-97 Ag '56.   (MIRA 10:1)
                    (Wheat)

KUVSHINOV, I.S., prof.; GORLANOV, I.A., kand. ekon. nauk; UTEKHIN,
A.G., kand. sel'khoz. nauk; YEREMIN, S., red.; LAPIDUS, M.,
red.; RAKITINA, Ye., red.; TIKHONOVA, Ye., red.;
FREYDMAN, S., red.

[World agriculture] Mirovoe sel'skoe khoziaistvo. Moskva,
Kolos, 1964. 419 p.   (MIRA 18:1)

YEREMIN, S.; USKOV, V., pilot 1 klassa, komandir korablya;
MEL'NIKOV, V. (Ul'yanovsk); KONIUKHOV, V., dispetcher;
SHARKOV, V.; LUN'KOV, N.; AVDOSHKO, M.; BOGOYAVLENSKAYA, N.

Aeronautical kaleidoscope. Grazhd. av. 21 no.6:16-17 Jo '64.
(MIRA 17:8)

1. TSalinogradskiy aeroport (for Konyukhov).

YEREMIN, S.
"TU" in the Italian sky. Grnzhd.av. 20 no.12:14-15 D '63.
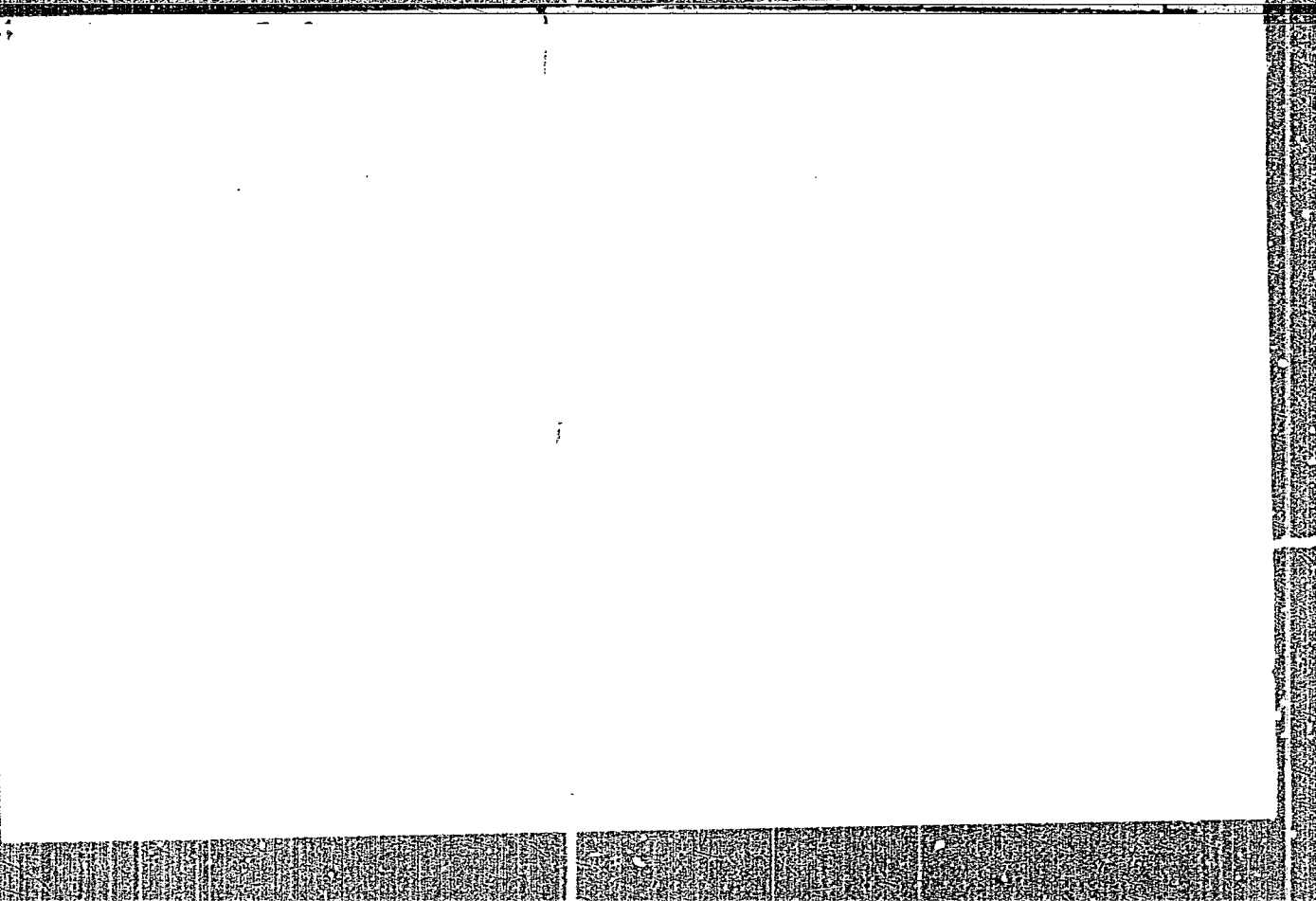
YEREMIN, S.A. (Kuybyshev)

Entire functions of two variable (with summary in French).
Ukr.mat.zhur. 9 no.1:30-43 '57.   (MLRA 10:5)
          (Functions of several variables)

YEREMIN, S.A.

One class of bases in the space of analytic functions [with
summary in French].   Ukr.mat.zhur. 9 no.2:134-140 '57.

(MIRA 10:7)

(Functions, Analytic)

YEREMIN, S. A.: Doo Phys-Math Sci (diss) -- "Some problems in the approximation
of a function of several complex variables". Kiev, 1958. 15 pp (Acad Sci Ukr
SSR, Inst of the Physics of Metals), 150 copies (KL, No 2, 1959, 117)

PHASE I BOOK EXPLOITATION   SOV/3689

Yeremin, Sergey Aleksandrovich

Nekotoryye voprosy priblizheniya funktsii mnogikh kompleksnykh peremennykh
   (Some Problems in Approximation of Functions of Many Complex Variables)
   Kiyev, Izd-vo AN Ukrainskoy SSR, 1958. 142 p. 1,000 copies printed.

Sponsoring Agency: Akademiya nauk Ukrainskoy SSR. Institut matematiki.

Ed. of Publishing House: I. V. Kisina; Tech. Ed.: V. I. Yurchishin.

PURPOSE: This book is intended for scientific workers, instructors in schools
   of higher education, and for students of advanced university courses in
   mathematics and mechanics. It will be useful for persons doing work in the
   theory of functions or the theory of partial differential equations.

COVERAGE: The book presents the results of original investigations of uniform
   approximations of functions of many complex variables, chiefly by means of
   expressions of polynomial form. Also studied are problems of the expansion
   of functions of several complex variables in a uniformly converging series,
   and problems of finding solutions of one type of partial differential

Card 1/5

Some Problems in Approximation (Cont.)

equation. The basic methods of investigation used in this book are con-
nected with the application of functional analysis. Problems for the
solution of which functional analysis was not used were solved by the speci-
fic processes and   methods and, in some cases, according to the idea of
the method of solving the corresponding problem in the theory of approxi-
mation of functions of one complex variable. No personalities are mentioned.
There are 36 references: 25 Soviet, 7 German, and 4 French.

TABLE OF CONTENTS:

Card 2/5

YEREMIN, S.A.

16. 3000

38485

S/044/62/000/005/014/072
C111/C333

AUTHOR: Yeremin, S. A.

TITLE: On the best approximation of a function which is analytical
             in an elliptic polycylinder

PERIODICAL: Referativnyy zhurnal, Matematika, no. 5, 1962, 42,
             abstract 5B191. ("Issled. po sovrem. probl. teorii
             funktsiy kompleksn. peremennogo". M., Fizmatgiz, 1961,
             211-213)

TEXT: A lemma by S. N. Bernshteyn on the best approximation of
functions of a complex variable that are analytical in the ellipse

$$\left| -z + \sqrt{z^2 - 1} \right| = R, \quad R > 1$$ (Bernshteyn, S. N., Ekstremal'nyye svoystva
polinomov [Extremal properties of a polynomial], part 1, L.-M., 1937)
is generalized to the case of functions of K complex variables z_1, z_2,..
..., z_k, which are regular in the area defined by the inequalities:

$$\left| z_i + \sqrt{z_i^2 - 1} \right| < R, \quad R > 1, \quad i = 1, 2, \ldots, k.$$

[Abstracter's note: Complete translation.]

Card 1/1

YEREMIN, S.A.; SHADROV, A.F.

Complete systems and bases in the spaces of functions analytic
in Hartog's regions. Dokl. AN SSSR 148 no.3:500-503 Ja '63.
(MIRA 16:2)

1. Kuybyshevskiy inzhenerno-stroitel'nyy institut im. A.I.
Mikoyana. Predstavleno akademikom V.I. Smirnovym.
(Functions, Analytic)

ACCESSION NR: AP4019004   S/0146/64/007/001/0149/0152

AUTHOR: Yeremin, S. A.; Shchevelev, M. I.

TITLE: Device for measuring transient response of semiconductor diodes

SOURCE: IVUZ. Priborostroyeniye, v. 7, no. 1, 1964, 149-152

TOPIC TAGS: semiconductor, diode, semiconductor diode, semiconductor diode transient response, semiconductor diode characteristic

ABSTRACT: A new instrument is described which, in conjunction with a pulse generator and an oscilloscope, permits measuring the transient response of semiconductor diodes under conditions of a single current pulse or switching. Elementary physical phenomena that transpire in a diode are considered. Operating procedures for the measuring scheme presented in Enclosure 1 are described. Orig. art. has: 2 figures.

ASSOCIATION: Voronezhskiy politekhnicheskiy institut (Voronezh Polytechnic Institute)

SUBMITTED: 04Feb63   DATE ACQ: 23Mar64   ENCL: 01

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

Card 1/1