

51745 01/000.003/008'027

Yevseyevich A. I.

AUTHORS: Dan. G. I.

TITLE:

The internal friction and shear modulus of α -phase hafnium-zirconium system.

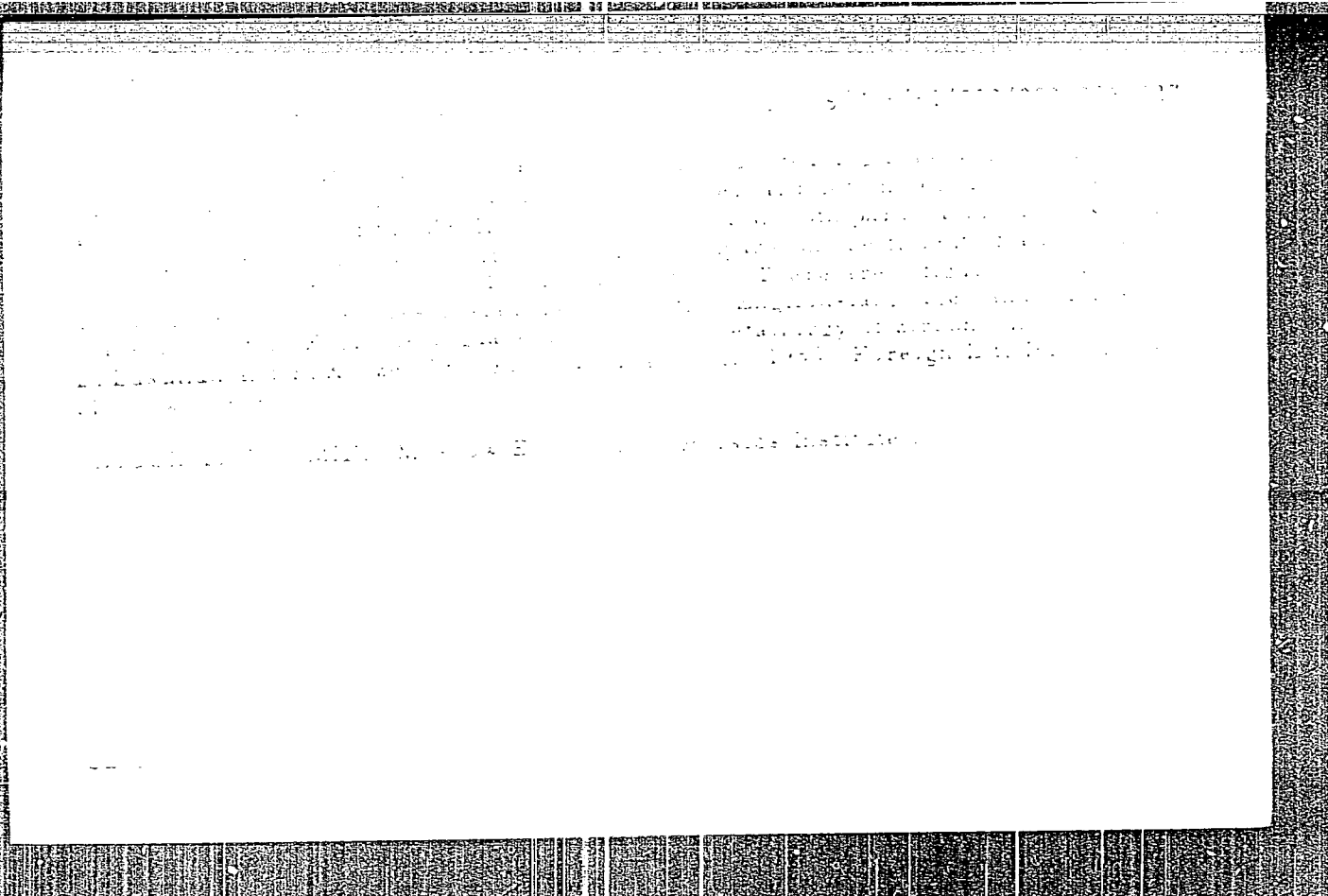
Institute. Metallurgiya. Metallovedeniye. 1967, 74-81.

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S/755/61/000/003/008/027

discussed. The changes in the internal-friction curves, inasmuch as they are related to the accuracy of the beginning and end of the phase transition, are well within $\pm 10^\circ\text{C}$. The points

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"APPROVED FOR RELEASE: 09/17/2001

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S/755/61/000/003/012/027

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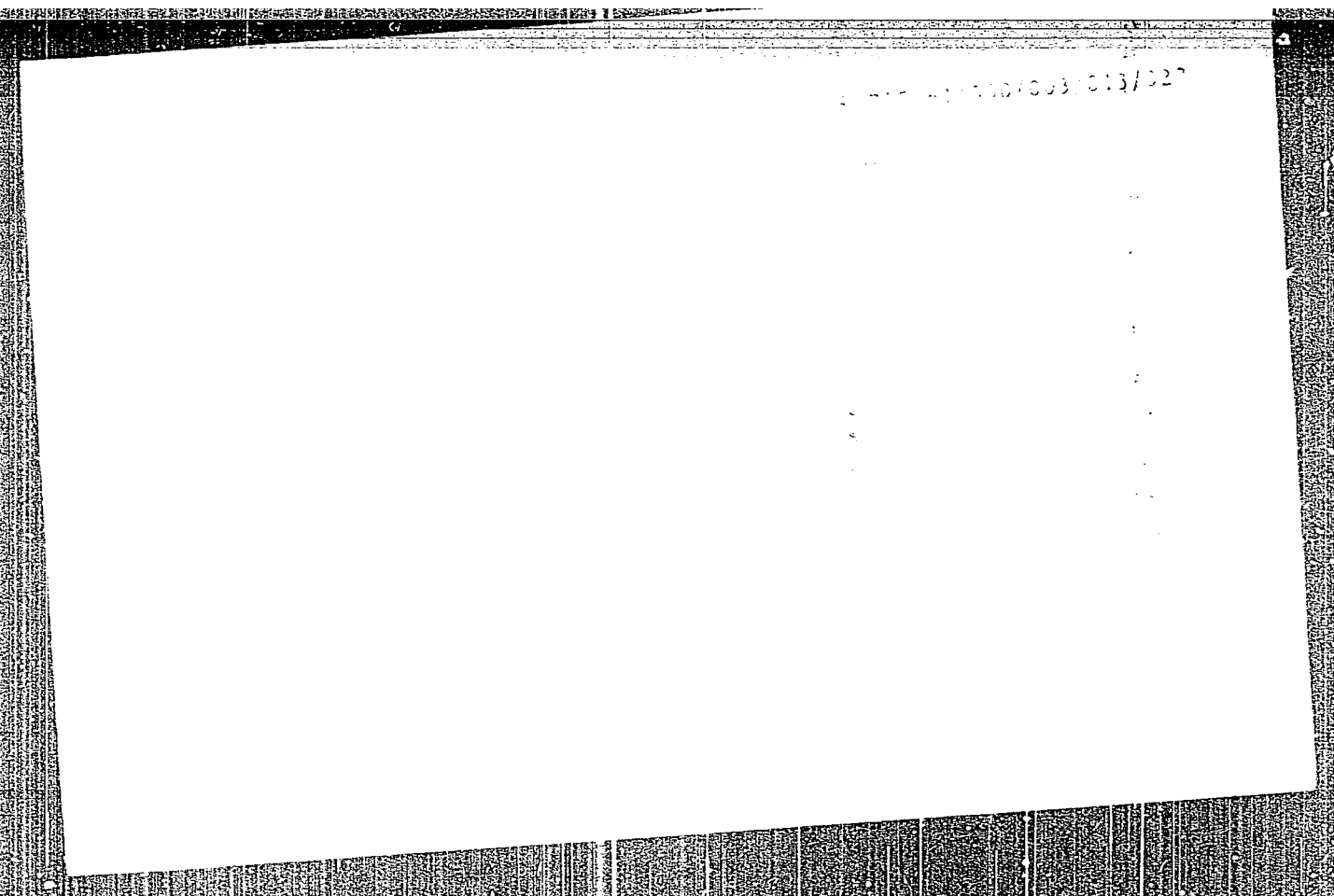
abstract. The precipitation rate was... The apparatus comprised...
cipitated deposits on the walls of the apparatus... of the T regime of the various parts of the apparatus...
The iodine was vacuum-sublimated... Typical charges: 20 g Nb shavings de-

and 11 references. 14 Russian-language Soviet. 1 Russian translation of a pre-

ASSOCIATION: MIF (Moscow Institute of Physics Institute).

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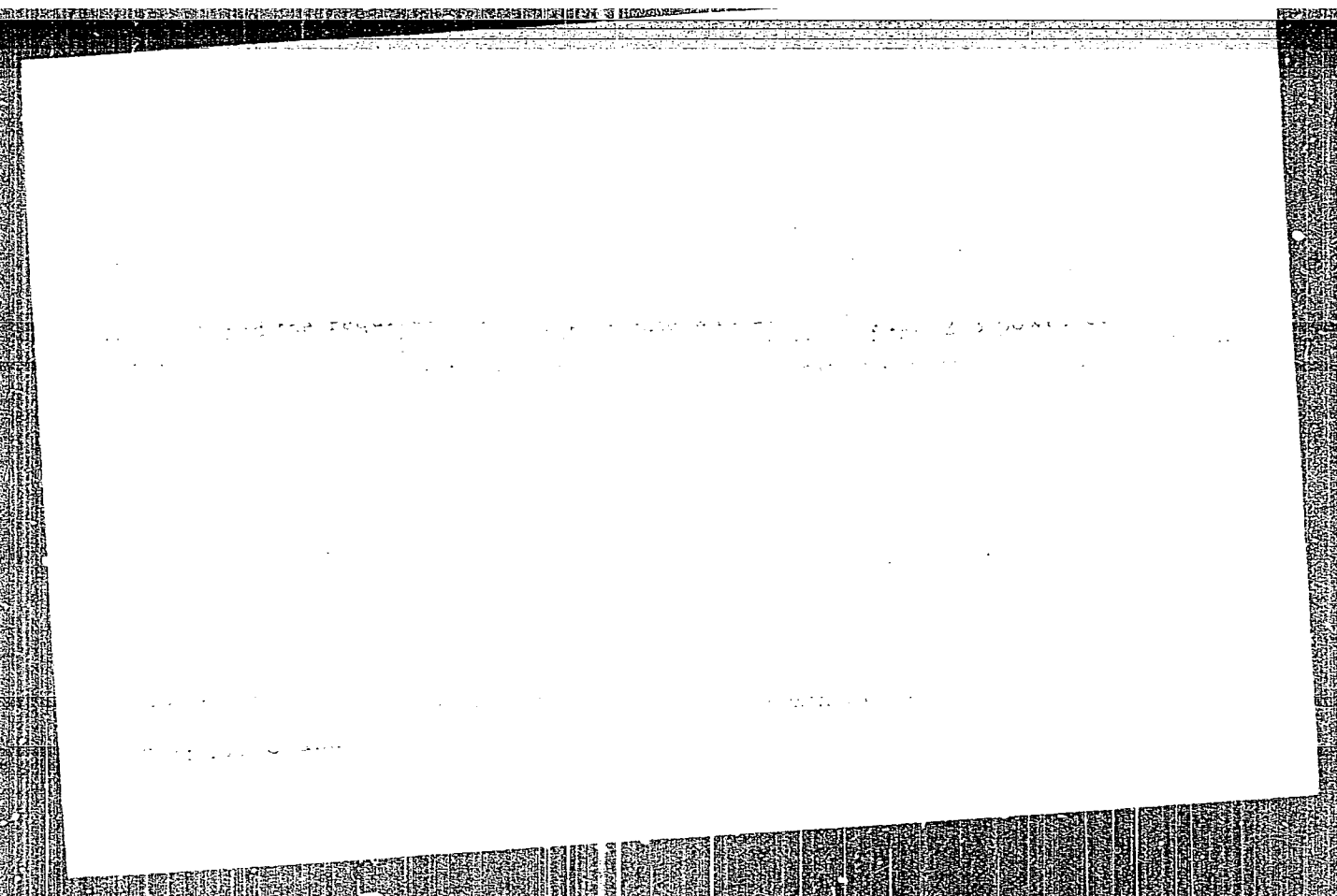


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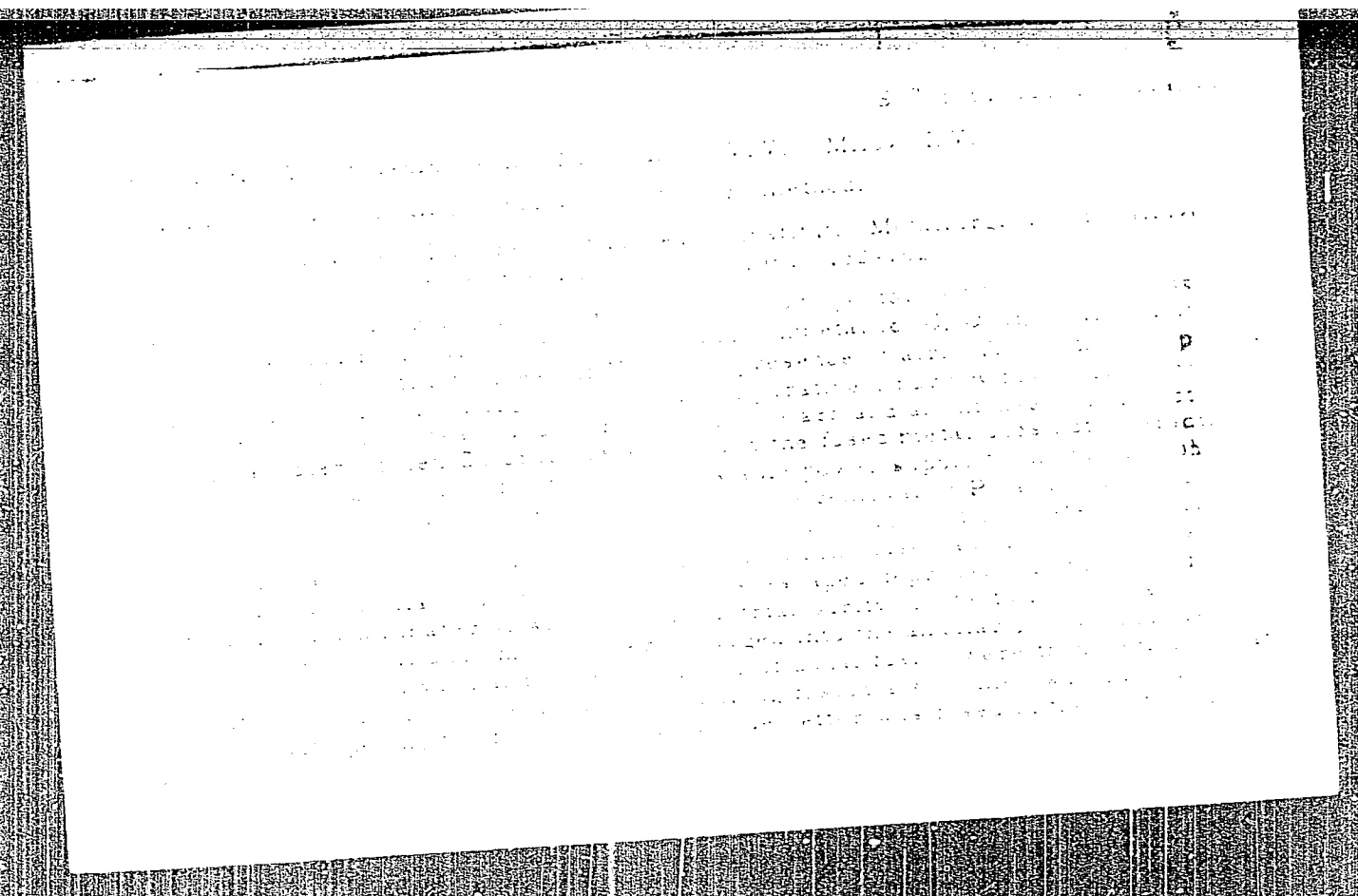
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Summary of the process of the work

300-400 U.S. hours at 400-500 U.S. hours.
There are 10 figures, 3 tables, and 11 citations from 8 reference sources (4 Russian-language Soviet sources, 3 Russ. in translations of U.S. originals, and 1 English-language U.S. source). The participation of Engineer Ye. I. Timoshkin in the work is acknowledged.

Institute.



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2025/10/15/003/015/027

APPROVED FOR RELEASE: 09/17/2001

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Staxielas backing and surface. Thickness of 10-15 μ and a grain size of $1.0 \pm 0.5^\circ\text{C}$ was

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constant A , and
and depicted in an orthometric drawing.

1986-03-16/027

The 10^{-10} cm² cross-section for the reaction of a neutron with a nucleus is

which is valid only within the effective energy range of the neutron.

At low energies, the constant R is a function of the energy of the neutron. At high energies, R is constant. R is a function of the energy of the neutron (ionization energy) is valid only within the effective energy range of the neutron.

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Investigation of the kinetics of the oxidation...

S/755/61/000/003/016/027

S/137/62/000/006/017/163
A006/A101

AUTHORS: Yevstyukhin, A. I., Milov, I. V., Nikishanov, V. V.

TITLE: Electron-beam method of metal melting and refining

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 6, 1962, 1, abstract 6G7
(In collection: "metallurgiya i metalloved. chist. metallov", no. 3,
Moscow, Gosatomizdat, 1961, 249 - 263)

TEXT: The authors review the principles of developing and designing of
units with electron-beam heating, used for melting, zonal refining of refractory
metals and welding pure metals. The difficulties are pointed out which are en-
countered in the way of development of this method.

G. Svodtseva

[Abstracter's note: Complete translation]

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S/755/61/000/003/025/027

substantiates the fact that the use of pure metals and alloys in the making of

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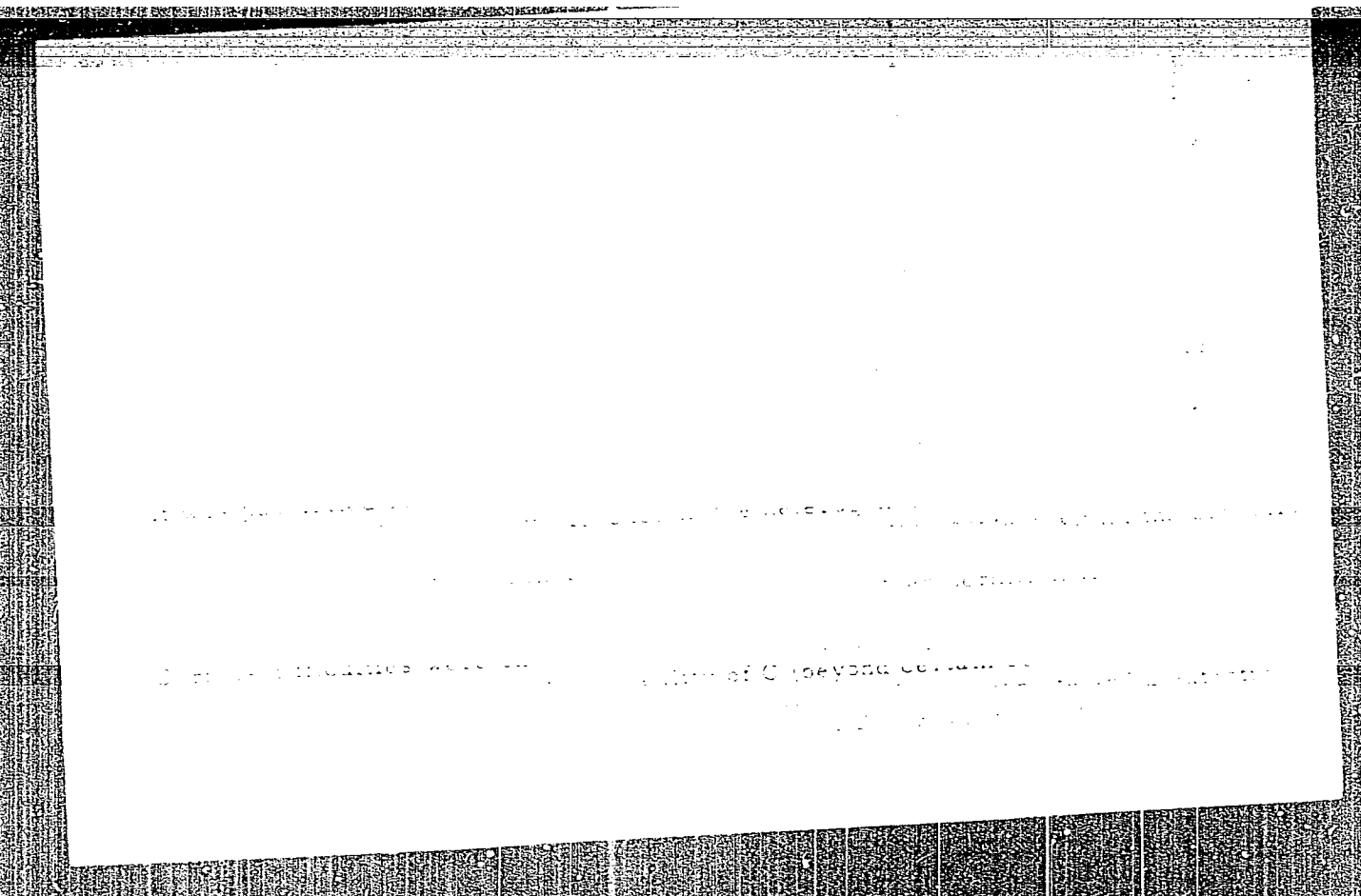
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uniform distribution. Separation of the crystals was performed either by gravity sep-

S/828/62/000/000/004/017
E039/E420

AUTHORS: Yemel'yanov, V.S., Yevstyukhin, A.I., Barinov, I.P.,
Samonov, A.M.

TITLE: The separation of zirconium and hafnium by the
selective reduction of their tetrachlorides by
zirconium and aluminium

SOURCE: Razdeleniye blizkikh po svoystvam redkikh metallov.
Mezhvuz. konfer. po metodam razdel. blizkikh po svoyst.
red. metallov. Moscow, Metallurgizdat, 1962, 51-62

TEXT: Although Zr and Hf are separated on a commercial scale the
present methods used are so cumbersome and difficult that the cost
of the metals is high. This work is aimed at investigating a new
and possibly more efficient method of separation. It is shown
that the separation process involving the selective reduction of
the tetrachlorides of Zr and Hf by Zr and Al is entirely feasible
under laboratory conditions. Using powdered Zr as a reducing
agent the maximum reduction of $ZrCl_4$ is observed at $400^{\circ}C$ and
attains nearly 92% while for $HfCl_4$ maximum reduction occurs at
 $390^{\circ}C$ and reaches 17%. When using powdered Al better
separation is attained at a lower temperature than in the case of
Card 1/2

The separation of zirconium ...

S/028/62/000/000/004/017
E039/E420

reduction by Zr. In the latter case the content of hafnium chloride in $ZrCl_3$ has a minimum value equal to 0.029% for a reduction temperature of 350°C. For the best conditions of reduction by Zr (at 400°C) the minimum quantities of hafnium chloride in $ZrCl_3$ are 0.108 and 0.13%. The quantity of $ZrCl_4$ reduced by Al at 350°C is, however, only 21% while for Zr at 400°C it is 91.7%. Reducing with Al at 400°C gives an 89% reduction and a hafnium chloride concentration in the $ZrCl_3$ of 0.091%. The data obtained confirms that this process can be performed on a large scale. There are 4 figures and 2 tables.

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S/826/62/000/000/003/007
D408/D307

5.4700
AUTHORS:

Yevstyukhin, A.I., Yemel'yanov, V.S. and Godin, Yu.G.

TITLE:

Investigation of melts of the chloride-fluoride system of sodium, potassium, and zirconium

SOURCE:

Fizicheskaya khimiya rasplavlennyykh soley i shlakov; trudy Vses. soveshch. po fiz. khimii raspl. soley i shlakov, 22 - 25 noyabrya 1960 g., Moscow. Metal-lurgizdat, 1962, 63 - 71

TEXT:

Results of an investigation of the binary system NaCl--K₃ZrF₇, and its behavior under electrolysis, are given. It was assumed that these systems possess many common features and that the study of one system would facilitate the understanding of the others. The raw materials used for the investigation were KF, NaCl and K₂ZrF₆, the latter being precipitated from aqueous solution whereby the hafnium content was reduced to 0.05 % by the method of fractional crystallization. K₃ZrF₇ was prepared by fusing together stoichiometric quantities of KF and K₂ZrF₆ under argon.

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Investigation of melts ...

S/826/62/000/000/003/007
D408/D307

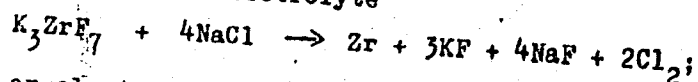
Thermal analysis of 25 samples of the binary system, containing 100 - 0 % K_3ZrF_7 , was carried out mainly by the cooling curve method, the heating curve method being used in a few cases. Up to four inflection points were found in each thermogram, the first two inflections corresponding to the separation of fluoride and chloride crystals respectively, and the third to the crystallization of a eutectic or a peritectic reaction point. The fourth inflection, observed for only two of the melts, possibly indicated an allotropic or other solid phase transformation. X-ray analysis showed that all melts containing up to 95 mol.% NaCl possessed the K_3ZrF_7 phase, and the NaCl phase was present in melts containing 100 - 75 mol.% NaCl. A new phase, $K_3ZrF_7 \cdot NaCl$, and a previously unknown phase, $K_3ZrF_7 \cdot 5NaCl$, were detected in melts containing 30-85 and 60-95 mol.% NaCl respectively. The phase diagram of the NaCl-- K_3ZrF_7 system was constructed; this showed that $K_3ZrF_7 \cdot NaCl$ and $K_3ZrF_7 \cdot 5NaCl$ form through peritectic reactions at 570 and 600°C respectively, and that a eutectic occurs at 73 mol.% NaCl and 540°C. The water-insoluble residues of electrolyte samples, taken from an electrolytic cell, were shown to be K_3ZrF_7 . From the results of this

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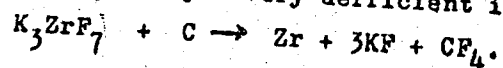
Investigation of melts ...

9/826/62/000/000/003/007
D408/D307

and other work, the authors suggest a mechanism for the electrolytic production of zirconium from fluoride-chloride melts, the overall reactions being: a) with a sufficiently high concentration of chloride in the electrolyte



and b) in an electrolyte very deficient in chloride



Both reactions occur simultaneously with moderate concentrations of chloride in the electrolyte. There are 6 figures and 3 tables.

ASSOCIATION:

Moskovskiy inzhenerno-fizicheskiy institut
(Moscow Engineering Physics Institute)

Card 3/3

S/180/62/000/003/013/016
E071/E192

AUTHORS: Yevstyukhin, A.I., Nikishanov, V.V., and Milov, I.V.
(Moscow)

TITLE: Redistribution of carbon and tungsten in niobium
during zone refining

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye
tekhnicheskikh nauk. Metallurgiya i toplivo,
no.3, 1962, 98-101

TEXT: Commercial niobium was zone refined in a 500 amp
arc discharge working closely to its transition into glow
discharge by operating at low helium pressures and imposing a
coaxial constant magnetic field, shifting a 15 mm long molten
zone at a constant velocity of 0.75 mm/min. Into one niobium
ingot with the initial carbon content of 0.03%, 0.005% of Cl^{14} and
into another with tungsten content of 0.03%, 0.01% of W^{182} were
introduced to follow the zone refining. The isotopes were
introduced into a few holes uniformly distributed along the length
of the ingots and plugged with Nb. Uniform diffusion was
Card 1/3

Redistribution of carbon and tungsten... S/180/62/000/003/013/016
E071/E192

achieved by repeated reversal of the molten zone traverse and checked by taking counts along the length and cross-sections. The counts were taken after each of the ten passes. It was found that during the treatment carbon was transferred along the direction of the molten zone pass. The ratio of the concentrations of carbon at the beginning and the end of the ingot was 8:1. The cross-sectional distribution of carbon was uniform. A considerable loss of carbon, apparently as CO or CO₂, was also observed. The relative change in the concentration of tungsten at the beginning and end of the ingot was 4:1 (i.e. W concentrated counter-passwise). Changes in the activity of bottom layers indicated that in layers directly in contact with the crucible walls a considerable degree of purification also takes place, but it is lower than in the upper layer of the ingot. Some loss of tungsten takes place due to volatilization. Changes in the micro-hardness along the length of niobium ingots with and without Cl₄ before and after zone refining were also determined, which gave an indication of the cumulative effect of all contaminants. The maximum hardness was observed at the beginning of ingots, ✓

Card 2/3

Redistribution of carbon and tungsten.. S/180/62/000/003/013/016
E071/E192
indicating that carbon has a smaller influence on the hardness of
niobium than other admixtures which concentrate at the beginning
of the ingot. It is concluded that the C and W content in
commercial grade Nb can be considerably reduced by zone refining.
There are 2 figures.

SUBMITTED: September 23, 1961

Card 3/3

YEVSTYUKHIN, A.I.; NIKISHANOV, V.V.; MILOV, I.V.

Zonal refining of niobium by the electric arc method. Issl. po
zharopr. splav. 9:218-226 '62. (MIRA 16:6)
(Niobium--Electrometallurgy) (Zone melting)

YEMEL'YANOV, V.S.; YEVSTYUKHIN, A.I.; ABANIN, D.D.

Iodide method of refining zirconium. Met. i metalloved. chist.
met. no. 4:5-10 '63. (MIRA 17:5)

YEVSTYUKHIN, A.I.; ORLOV, K.V.

Investigating a fluoride-chloride electrolyte as a zirconium
bath. Met. i metalloved. chist. met. no. 4:11-17 '63.
(MIRA 17:5)

YEVSTYUKHIN, A.I.; NIKISHANOV, V.V.; MILOV, I.V.

Investigating the distribution of impurities in niobium following
zonal recrystallization. Met. i metalloved. chist. met. no. 4:
69-83 '63. (MIRA 17:5)

ACCESSION NR: AT4005956

S/2755/63/000/004/0005/0010

AUTHOR: Yemel'yanov, V. S.; Yevstyukhin, A. I., Abanin, D. D.

TITLE: Iodide method of zirconium refining

SOURCE: Moscow. Inzhenerno-fizicheskiy institut. Metallurgiya i metallovedeniye chisty*kh metallov, no. 4, 1963, 5-10

TOPIC TAGS: zirconium refining, zirconium purification, iodide zirconium, high purity zirconium, iodide refining method

ABSTRACT: The authors investigated the mechanism of the transfer of nonmetallic impurities to the filament during iodide refining of zirconium, as well as the effect of degasification on this transfer, and developed a technique for producing highly purified Zr in a single-stage process. The iodide precipitation of Zr was carried out in a Mo-glass refining vessel with Mo electrodes and a tungsten filament (0.05 mm in diameter). Preliminary degasification was carried out in a quartz sidearm at 10^{-4} mm Hg and an optimal temperature of 850-950C. Subsequent iodide refining was carried out at 300-320C with a filament temperature of 1200-1300C. The Zr obtained by this method was characterized by a marked reduction in the content of O₂ and H₂ (0.002 and 0.0004%).

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ACCESSION NR: AT4005956

by weight, respectively), to levels considerably below those attainable by three-fold refining using the older techniques; comparably low levels of N₂ and C (0.002 and 0.004%, resp.) were also obtained. The Zr bars obtained showed high plasticity (Brinell hardness of 40-45 kg/mm²), per grain boundaries and extremely high corrosion resistance. The authors conclude that these results confirm the mechanism of impurity transfer suggested by Sciefe and Wylie. Orig. art. has: 2 tables and 1 figure.

ASSOCIATION: Inzhenerno-fizicheskiy institut, Moscow (Institute of Physics and Engineering)

SUBMITTED: 00

SUB CODE: MM

NO REF SOV: 003

ENCL: 00

OTHER: 004

2/2
Card

ACCESSION NR: AT4005959

S/2755/63/000/004/0058/0063

AUTHOR: Yemel'yanov, V. S.; Yevstyukhin, A. I.; Laont'yev, G. A.; Semanikhin, A. N.

TITLE: Growing of molybdenum single crystals and their properties

SOURCE: Moscow. Inzhenerno-fizicheskiy institut. Metallurgiya i metallovedeniye chistykh metallov, no. 4, 1963, 58-63

TOPIC TAGS: molybdenum single crystal, molybdenum single crystal property, molybdenum single crystal growing, molybdenum single crystal microhardness, molybdenum elasticity modulus, molybdenum internal friction, molybdenum property, single crystal growing, single crystal property

ABSTRACT: For the majority of low-melting point metals the methods of growing single crystals are well established and described in the literature. On the other hand, growing of single crystals of high-melting point metals, such as Mo, W, Cb, and Ta, presents some experimental difficulties. In this connection, the authors tried to grow molybdenum single crystals from the gaseous phase of an appropriate compound by the method of thermal dissociation. As bases for deposition, single-crystal filaments 0.1 mm in diameter were prepared from polycrystalline molybdenum wire by recrystallization, applying heat at 1550-1650C for

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ACCESSION NR: AT4005959

4-5 hours.. Such monocrystalline filaments could be obtained in 10 to 90 mm lengths. The method and test equipment used are described in the paper of V. S. Yemel'yanov et al. (Yemel'yanov, V. S., Leont'yev, G. A., Yevstyukhin, A. I.: "Metallurgiya i metallovedeniye chistykh metallov," vy* p. III. M., Gosatomdat, 1961, str. 137). The subsequent growing of crystals was performed from the gaseous state of MoCl_5 at temperatures of 1500-1600C in the beginning of the process, and then at 1280-1300C. A higher rate of deposition occurred at the higher temperatures. Molybdenum single crystals were grown up to 3 mm thick and 90 mm long. The single crystals obtained showed high ductility at room temperature, could be easily bent to a large angle and cold-rolled. In contrast to this, polycrystalline deposits obtained from the same gaseous phase were brittle in bending. In addition, tests were made to determine hardness, modulus of elasticity, and internal friction values of molybdenum single crystals. The hardness of molybdenum single crystals was considerably lower than that of the commercial metal. The microhardness of monocrystals was 180-200 kg/mm^2 (under 200 gr load), while that of the common commercial metal in an annealed state was 230-260 kg/mm^2 . The modulus of elasticity was determined from resonance frequencies of flexural vibrations of freely suspended cylindrical specimens. Single crystals showed somewhat higher E values than samples of commercial metal. The internal friction was determined from the damping of flexural vibrations. Quenched single crystals

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ACCESSION NR: CAI4005959

showed low values of internal friction. After a slight plastic bending deformation, a considerable increase of internal friction was observed. In plastic bending the number of dislocations increased, causing an increase of internal friction. When a crystal contained an abundant number of points of disorder subject to fixing by quenching, the latter might migrate to the dislocations and fix them, decreasing thus the level of internal friction. Orig. art. has: 5 figures and 3 tables.

ASSOCIATION: Inzhenerno-fizicheskiy institut, Moscow (Engineering-Physics Institute)

SUBMITTED: 00

DATE ACQ: 17Jan64

ENCL: 00

SUB CODE: ML

NO REF SOV: 002

OTHER: 004

Card 3/3

YEVSTYUKHIN, A.I.; GODIN, Yu.G.; KOKHTEV, S.A.; SUCHKOV, I.I.

Investigating alloys in the system rhenium-carbon. Met. i
metalloved. chist. met. no. 4:149-159 '63. (MIRA 17:5)

ACCESSION NR: AT4005961

S/2755/63/000/004/0069/0083

AUTHOR: Yevstyukhin, A. I., Nikishanov, V. V., Milov, I. V.

TITLE: Distribution of impurities in zone refined niobium

SOURCE: Moscow. Inzhenerno-fizicheskiy institut. Metallurgiya i metallovedeniye chistykh metallov, no. 4, 1963, 69-83

TOPIC TAGS: niobium zone refining, niobium zone melting, niobium impurity, impurity distribution, impurity transfer, impurity accumulation, impurity elimination, niobium zone melting, zone refined niobium, high impurity niobium

ABSTRACT: Following a brief discussion of the theoretical basis of zone refining, in which the authors classify the impurities in Nb on the basis of their solubility properties and point out that W should move in the opposite direction from C, Fe and Pb, they report experiments in which the distribution of C14, Fe59, W182 and nonradioactive Pb was determined in bars of commercially pure niobium (230 mm long and weighing 150 g) after zone recrystallization in an electric arc furnace (500 amps., 24.5 volts). The bars were smelted in a helium atmosphere in Cu crucibles, with a zone length of 25 mm and a rate of 0.75 mm/min. (also 30 mm/min. for Pb). The results shown in Figs. 1-4 of the

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ACCESSION NR: AT4005961

Enclosure confirmed the theoretical expectations and revealed good agreement between the radioactive and chemical techniques. Thus, the distribution coefficients of C, Fe and Pb were less than 1.0, while that of W was greater than 1.0; the concentration gradients between the beginning and end of the refined bar were 1:8 for C (best purification in zone 3-4). 1:5 for Fe and Pb, and 3.1-4.65:1 for W (Accumulation of W in the bottom of the bar). Due to the high solubility of Pb in Nb, evaporation plays a significant role here, this being the reason why purification is more effective at 0.76 than at 30 mm/min. Orig. art. has: 7 tables and 8 figures.

ASSOCIATION: Inzhenerno-fizicheskiy institut, Moscow (Institute of Physics and Engineering)

SUBMITTED: 00

DATE ACQ: 17Jan64

ENCL: 04

SUB CODE: MM

NO REF SOV: 013

OTHER: 020

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Card

ACCESSION NR: AT4005966

S/2755/63/000/004/0149/0159

AUTHOR: Yevstyukhin, A. I.; Godin, Yu. G.; Kokhtev, S. A.; Suchkov, I. I.

TITLE: Study of alloys of the rhenium carbon system

SOURCE: Moscow. Inzhanerno-fizicheskiy institut. Metallurgiya i metallovedeniye chistykh metallov, no. 4, 1963, 149-159

TOPIC TAGS: rhenium carbon alloy, rhenium carbon alloy composition, rhenium carbon alloy property, alloy melting point, alloy microstructure, rhenium carbon phase diagram, rhenium carbon system

ABSTRACT: The interaction between Re and C and some evidence for the development of stable rhenium carbide are discussed. Spectrally pure carbon rods 5 mm in diameter and powdered Re containing 99.95% Re, 0.007% Al, 0.004% Fe, 0.008% K, 0.007% Ca, < 0.001% Cu, < 0.0005% Na, < 0.0001% Ni and 0.005% Mo were used as basic components for making alloys by two methods. When the C content was > 50 at. %, the mixed Re and carbon powders were briquetted under a pressure of 35-45 metric tons, the moldings were clinkered in vacuum resistance furnaces at 1800 - 2000 C and were remelted in arc furnaces with an argon atmosphere. When the amount of C was low, the powdered Re with graphite pieces was clinkered without pressure in arc furnaces with an argon atmosphere. The melting point of the
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ACCESSION NR: AT4005966

samples was determined with an OP-48 optical pyrometer. Heating at 2000C in a vacuum of 1.10^{-4} mm showed an absorption value of 50 -60C. Further tests included annealing at 1900 - 2200C and oil hardening in a vacuum of 10^{-4} mm. Standard microsections were prepared. The structure of the alloys was developed by etching, the powdered alloy was examined by x-ray, and the macro- and micro-hardness were determined. X-ray analysis of the graphite separated from cast alloys was used to determine the presence or absence of Re solubility in C. Increasing the amount of C lowers the melting point of Re-C alloys. Those with 0.35 wt. % C have a common horizontal solidus line at 2500C. Microphotography of these solid alloys indicates that their structure varies with the C content. Alloys with 1.3% C have a eutectic structure. A lowering of the quenching temperature to 1900C produces disappearance of the graphite needles and their substitution by white formations. Visual comparison of the roentgenograms of pure Re, C, and Re-C alloys shows the presence of a new ξ phase. X-ray examination of the alloys showed the absence of solubility of Re in C. The hardness of cast and quenched alloys increases with the C content up to 0.5 weight %, after which it decreases. These effects of the C concentration in alloys are explained and the properties of the Re-C system are tabulated. On the basis of these findings, the authors constructed the partial phase diagram shown in Fig. 1 of the Enclosure. This shows the presence of rhenium carbide, confirmed by the lines of a new ξ phase in

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ACCESSION NR: AT4005966

roentgenograms. Rhenium carbide is probably stable at 1900 - 2200C. Increasing the C in alloys increases the quantity of bound carbon, also indicating a chemical bond. In microstructures, the Re-C appears in the form of a white edge of graphite needles, which may explain the extreme hardness of alloys with 35.7-37.1 at. % C. Orig. art. has: 13 figures and 3 tables.

ASSOCIATION: Inzhenerno-fizicheskiy institut, Moscow (Engineering Physics Institute)

SUBMITTED: 00

DATE ACQ: 17Jan64

ENCL: 01

SUB CODE: MM

NO REF SOV: 000

OTHER: 005

Card 3/4

ACCESSION NR: AT4005966

ENCLOSURE: 01

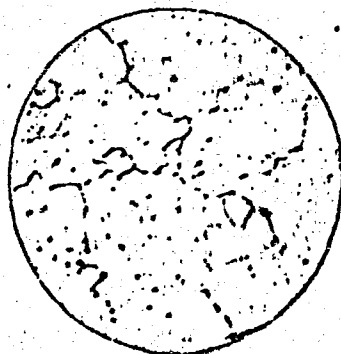


Fig. 1 Microstructure of a Cast Alloy of
Re + 0.15% C (X200)

Card 4/4

YEMEL'YANOV, V. S.; YEVSTYUKHIN, A. I.

"Rust-resisting property of zirconium and its alloys in water and steam at high temperatures."

report submitted for 3rd Intl Conf, Peaceful Uses of Atomic Energy, Geneva, 31 Aug-9 Sep 64.

YEMEL'YANOV, Vasilii Semenovich; YEVSTYUKHIN, Aleksandr Ivanovich;
ALYAB'YEV, A.F., red.; PCHELINTSEVA, G.M., red.

[Metallurgy of nuclear fuel; properties and principles of
the technology of uranium, thorium, and plutonium] Metal-
lurgiya iadernogo goriuchego; svoistva i osnovy tekhnolo-
gii urana, toriia i plutoniia. Moskva, Atomizdat, 1964.
450 p. (MIRA 18:1)

L 2913-66

EWI(e)/EPA(s)-2/ENT(m)/EFF(c)/EWS(i)/EFF(n)-2/T/Ent(t)/En(b) En(h)

AM5007584

BOOK EXPLOITATION

UR/

669.822:621.039.543.4+669.298+669.824:621.039.543.6

Yemel'yanov, Vasilii Semenovich; Yevstyukhin, Aleksandr Ivanovich

Metallurgy of nuclear fuels; properties and principles of the technology of
uranium, thorium, plutonium, and their alloys (uranium, thorium, plutonium, and their alloys)
Moscow, Atomizdat, 1964. 450 p.
illus., biblio. Errata slip inserted. 1,950 copies printed.

Topic: metal purification, uranium alloy, metal compound, thorium, thorium
alloy, plutonium, plutonium alloy, metal physical property, metal melting,
metal treatment, metal treatment, metal treatment, metal treatment.

PURPOSE AND COVERAGE. In principle the book is a course of lectures presented
by the authors at the Moscow Engineering Physics Institute. It examines the
physical and chemical properties of uranium, thorium and plutonium and their
important compounds and alloys. The characteristics of nuclear raw materials
and the technology of their processing, separation, and refining
are discussed. Basic requirements of nuclear fuels, methods for their
physico-chemical and heat treatment used in the production of maximum burn-up

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AM5007584

and radiation stability are examined. The book is a textbook for students, candidates and university students taking courses in order to increase their qualifications. It can also be used by engineering and technical workers and by scientific personnel of institutes and enterprises who are engaged in the metallurgy and metallography of nuclear materials.

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SUB CODE: MM, AP

SUBMITTED: 09Nov64

NO REF SCW: 105

OTHER: 304

Card 4/4

L 38428-66 ENT(m)/T/ENP(w)/ENP(t)/ETI IJP(c) JG/JD

ACC NR: AT6023737 (N) SOURCE CODE: UR/2755/66/000/005/0051/0059

AUTHOR: Yevstyukhin, A. I. (Doctor of technical sciences); Godin, Yu. G.; Yakovleva, V. B.

ORG: none

TITLE: Investigation of alloys of the Nb-Zn system

SOURCE: Moscow. Inzhenerno-fizicheskiy institut. Metallurgiya i metalovedeniye chistyykh metallov, no. 5, 1966, 51-59

TOPIC TAGS: niobium, niobium alloy, zinc containing alloy, alloy composition, alloy hardness, phase composition, niobium zinc system

ABSTRACT: A series of binary Nb-Zn alloys containing 4.9-52.7% Nb were melted from 99.8%-pure Nb and chemically pure Zn in argon-filled airtight crucibles held at 1150C for 20 hr. Alloys containing up to 20% Nb were dense. Those with a higher niobium content were porous. Alloys with the highest Nb content (96.9%) were made by remelting in an arc furnace. Metallographic examination showed that niobium-poor alloys consisted of zinc and a NbZn₃ phase which increased in amount with increasing Nb content in the alloy. In an alloy containing 28.4% Nb, an NbZn₃ phase predominated with zinc grains between its grains; at still higher Nb contents the zinc grains dissolved.

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Alloys containing 35.8—39.4% Nb had a structure consisting of fine NbZn₃ grains and large grains of an Nb₂Zn₃ phase, the amount of which increased with increasing Nb content. Alloy containing 52% Nb consisted mainly of homogeneous grains assumed to have a composition close to that of Nb₂Zn₃, and of fine inclusions, probably of the NbZn phase, within the grains. An alloy containing 55.57% Nb had a two-phase structure consisting mainly of the Nb₂Zn₃ phase and small grains of the NbZn phase. But the alloy with 59.39% Nb consisted of the NbZn phase and a small amount of Nb₂Zn₃ grains. All alloys with more than 60% Nb contained metallic niobium. In an alloy containing 74.4% Nb, the NbZn phase was located along the boundaries of niobium grains which constituted the bulk of the alloy. A further increase in niobium content decreased the amount of the NbZn phase, and in an alloy containing 97% Nb, the NbZn phase was located along the boundaries of niobium grains in the form of a fine network. Thermal and x-ray diffraction analyses confirmed the existence of the NbZn₃, NbZn₂, Nb₂Zn₃, and NbZn intermetallic compounds. The Nb₂Zn₃ compound had the highest microhardness (890 kg/mm²); the microhardness of the NbZn₃ compound was 302 kg/mm². Orig. art. has: 10 figures and 4 tables. [MS]

SUB CODE: 11/ SUBM DATE: none/ OTH REF: 003/ ATD PRESS: 5043

Card 2/2

07119-67 EMP(e)/EWT(m) WH/WH

ACC NR: AT6023739

SOURCE CODE: UR/2755/66/000/005/0099/0104

AUTHOR: Yevstyukhin, A. I. (Doctor of technical sciences); Fedorov, G. B.;
Solov'yev, G. I.; Smirnov, Yo. A.; Zhomov, F. I.; Zaluzhnyy, A. G.

ORG: none

TITLE: Study of the structural diagram of uranium carbide-tungsten alloys, and the diffusion of uranium from its monocarbide into tungsten

SOURCE: Moscow. Inzhenerno-fizicheskiy institut. Metallurgiya i metallovedeniye chistykh metallov, no. 5, 1966, 99-104

TOPIC TAGS: metal diffusion, uranium compound, tungsten metal

ABSTRACT: In the present article the structural diagram of uranium carbide-tungsten alloys was studied by determination of the temperature of the start of melting of the alloys, and by X ray and metallographic analyses. The alloys were prepared by briquetting uranium carbide and tungsten powders at a pressure of about 5×10^3 kg/cm, with subsequent sintering in a furnace with a graphite heater at 2000°C and a pressure of 1×10^{-4} mm Hg, and then melting in a Type MIFE-9-3 arc furnace. Starting materials were technical grade uranium with a purity of 99.87 wt%, and spectroscopically pure graphite in the form of rods 5 mm in diameter. A table shows the compositions of the starting alloys. The tungsten content varied from 1 to

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L 09419-67

ACC NR: AT6023739

90 wt%. The temperature of the start of melting of the alloys was determined directly with an optical pyrometer. The X ray analysis was made by the Debye method in a Type RKU-86 cylindrical chamber. A structural diagram was constructed, based on the experimental results. It was found that the melting temperature of the eutectic was $2130 \pm 20^\circ\text{C}$. The eutectic point corresponded to 10 wt% tungsten. The solubility of tungsten at the melting temperature of the eutectic was determined to be about 8 wt%. The solubility of tungsten at a temperature of 2000°C was about 4 wt%. Solubility of uranium monocarbide in tungsten was not observed. A study was made of the diffusion of uranium from its monocarbide in tungsten in the temperature interval of $1500-2100^\circ\text{C}$. The temperature dependence of the diffusion coefficients had the form

$$D = 0.11 \times \exp(-91,700/RT) \text{ cm}^2/\text{sec}.$$

In the temperature interval studied, there was no reaction between uranium carbide and tungsten. Orig. art. has: 5 figures and 2 tables.

SUB CODE: 11, 20/ SUBM DATE: none/ ORIG REF: 004/ OTH REF: 003

2/2

L 09507-67 ENT(m)/ENP(t)/ETI/ENP(k) LJP(c) FOR/SS/IR

ACC NR: AM6023743

(1, N)

SOURCE CODE: UR/2755/66/000/005/0173/0188

AUTHOR: Martynov, Ye. D.; Beresnev, B. I.; Balychev, D. K.; Yevstyukhin, A. I.;
Rodionov, K. P.; Ryabinin, Yu. N.

37
34
B+1

ORG: none

TITLE: Apparatus for the extrusion of metals using a high pressure fluid

SOURCE: Moscow. Izhenerno-fizicheskiy institut. Metallurgiya i metallovedeniye
chistykh metallov, no. 5, 1966, 173-188

TOPIC TAGS: metal extrusion, high pressure extrusion, hydraulic fluid

ABSTRACT: The article gives design details of an extrusion apparatus of the the type shown in Fig. 2.

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L 09507-67
ACC NR: AT602374-3

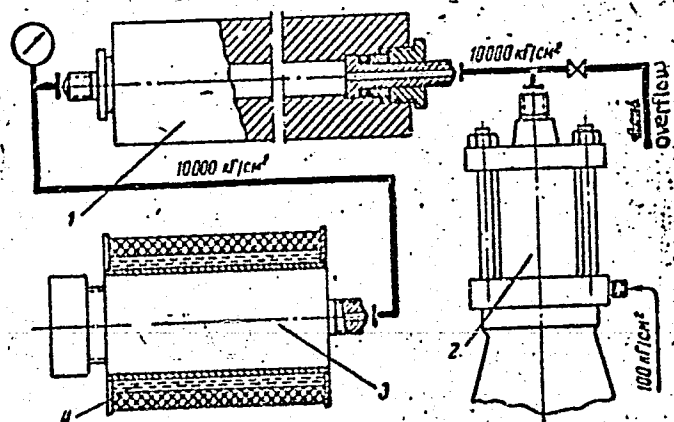


Fig. 2. Scheme of extrusion unit for pressure up to 12,000 kg/cm². 1--reservoir; 2--hydrocompressor; 3--container; 4--electric furnace

The unit consists basically of a container connected between a reservoir and a hydrocompressor, and a liquid-gas accumulator (not shown in Fig. 2). The article also

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L 09507-67

ACC NR: AT6023743

3
gives detailed drawings of the extrusion die and the container. It then passes on to a theoretical consideration of design calculations for high pressure vessels. Calculated results show that steels EI643, 45KhNMFA, and 15Kh2GN2TRA are suitable materials for fabrication of high pressure vessels, while with a vessel wall thickness greater than 100-120 mm, steels 33KhNZMA and 30KhGSNA are preferred. For work at temperatures from 300-500°C, steels 3Kh2V8, 40KhNMA, 23Kh2NVFA, and others can be used. "The work was done by coworkers of the Institute of Earth Physics AN SSSR (Institut fiziki Zemli AN SSSR), Moscow Engineering Physics Institute (Moskovskiy inzhenergo-fizicheskogo institut), and Institute of Metal Physics AN SSSR (Institut fiziki metallov AN SSSR)." Orig. art. has: 10 formulas, 5 figures and 2 tables.

SUB CODE: 11¹³/₂₃/ SUBM DATE: none/ ORIG REF: 009/ OTH REF: 002

Card 3/3 LC

SHAPIRO, M.D., kand.tekhn.nauk; YEVSTYUKHIN, V.I., inzh.

Analyzing the performance of the automatic feeders of circular
sawing, milling, and jointing machines. Der. prom. 12 no.10:
15-17 0 '63. (MIRA 16:10)

1. Byvsheye spetsial'noye konstruktorskoye byuro Upravleniya mebel'noy
i derevoobrabatyvayushchey promyshlennosti Leningradskogo soveta
narodnogo khozyaystva.

USSR/Human and Animal Physiology. The Skin.

V

Abs Jour: Ref. kur-Biol., No 6, 1958, 27478.

Author : E.V. Yevstyukhina.

Inst : ~~USSR Academy of Sciences~~

Title : The Effect of a Moltayev Sapropel Compress on
the Healing of Skin Wounds.

Orig Pub: Voprosy fizioterapii i kurortologii. Sverdlovsk,
Knigoizdat, 1956, 35-37.

Abstract: No abstract.

Card : 1/1

YEVSTYUKHINA, Ye.V.

Early morphological changes in the walls of cerebral vessels in experimental atherosclerosis and their dynamics under the effect of balneologic action. Vop.kur., fizioter. i lech. fiz. kul't 30 no.5:397-403 S-0 165.

(MIRA 18:12)

1. Sverdlovskiy institut kurortologii i fizioterapii (dir. - kand.med.nauk N.V.Orlov, nauchnyy rukovoditel' - kand.med. nauk S.I.Serov).

YEVSTYUKHOV, H.G.

Pumping tars without heating. Izobr. 1 rats. no. 8132 Ag '58.
(HIRA 11:9)

1. Glavnyy inzhener Zhdanovskoy motorno-rybolovnoy stantsii.
(Pumping machinery)

ACC NR: AR6035554 SOURCE CODE: UR/0269/66/000/010/0066/0066

AUTHOR: Yevsyukov, N. N.

TITLE: Preliminary results of the photographic photometry of the Moon in the infrared and ultraviolet regions of the spectrum

SOURCE: Ref. zh. Astronomiya, Abs. 10.51.482

REF SOURCE: Vestn. Khar'kovsk. un-ta, 1965, no. 8, ser. astron., vyp. 2, 58-62

TOPIC TAGS: photometry, IR spectrum, UV spectrum, lunar IR spectrum, lunar visible spectrum, lunar UV spectrum, brightness distribution

ABSTRACT: Brightness distribution along the lunar disk is compared for $\lambda=370 \mu\text{m}$, the visible region of the spectra (data taken from V. A. Fedorets catalogue), and $\lambda=1000 \mu\text{m}$. Comparison of brightness distribution at phases $-109^\circ.9$ and $-95^\circ.5$ shows that in the IR region in the vicinity of the limb, brightness decreases more slowly, and in the vicinity of the terminator, more rapidly than in the UV region. No substantial differences were detected in

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UDC: 523.34

ACC NR: AR6035554

brightness distribution in the visual and ultraviolet rays. At phase—3°.9, brightness in visual rays decreases from limb to terminator somewhat more rapidly than in IR and UV rays. It is also shown that, on the average, in the ultraviolet region the coefficients of brightness are lower by a factor of 2 as compared with the visible region of the spectrum. Bibliography has 6 titles. V. Avramchuk. [Translation of abstract] [DW]

SUB CODE: 03/

Card 2/2

YEVSYUKOV, V.I.

Effect of X-rays on the regenerative capacity of the irradiated
peroneal nerve in rats. Biul. eksp. biol. i med. 59 no.2:196-200
F '65. (MIRA 18:7)

1. Laboratoriya eksperimental'noy tsitologii i gistologii
(rukovoditel' - prof. G.S. Strelin) Tsentral'nogo nauchno-
issledovatel'skogo rentgeno-radiologicheskogo instituta
(dir. Ye.I. Vorob'yev) Ministerstva zdравookhraneniya SSSR,
Moskva.

YEVSYUKOV, V.P., kand. tekhn. nauk

Use of a model for studying the vertical dynamic actions of an
electric locomotive on the track. Sbor. nauch. trud. RIIZHT no.
40:110-120 '63. (MIRA 18:3)

KALANTAR, N.G.; FRYAZINOV, V.V.; YEVSYUKOV, Ye.I.; EDEL'SHTEYN,
I.Ya.; BONDARENKO, M.P.; Prinsipal'ny uchastiye: MANNAFOVA, V.S,
mladshiy nauchnyy sotrudnik; YANGURAZOVA, D.I., mladshiy nauchnyy
sotrudnik; GABSATTAROVA, S.A., laborant; YUSUPOVA, F.S., laborant
KUZ'MINA, A.Ya., laborant

Transformer oil from the distillates of sulfur-bearing eastern
crudes. Khim.i tekhn.topl.i masel 5 no. 11:15-22 N '60.

(MIRA 13:11)

1. Otdel khimii Bashkirskogo filiala AN SSSR; Novo-Ufimskiy
neftepererabatyvayushchiy zavod; Ufimskiy neftyanoy institut.
2. Otdel khimii Bashkirskogo filiala AN SSSR (for Mannafova,
Yangurazova, Gabsattarova, Yusupova, Kuz'mina).
(Insulating oil)

YEVSTUKOVA, L., inzh.

At work and at study. Muk.-elev.prom. 26 no.7:3 J1 '60.
(MIRA 13:8)

1. Nachal'nik 2-y smeny Leningradskogo ordena Lenina mol'nichnogo
kombinata im. S.M.Kirova.
(Leningrad--Flour mills)

BAKUMENKO, T.L.; YEVSYUKOVA, M.A.

Effect of the raw material factor on the economics of the production
of polyacrylonitrile fibers. Khim. volok. no.6:60-63 '65.
(MIRA 18:12)

1. VNIISV.

YEVSTYUNICHEV, G.N., inzh.

"Gorisyet" automatic photoelectric device. Svetotekhnika 8
no. 6:24, 25 Ja '62. (MIRA 15:5)
(Street lighting) (Automatic control)

YEVSTYUSHIN, N. I.

"The problem of the history of development of aero-sleigh transportation in the USSR." Published by the State Publishing House for Standards. Acad Sci USSR. Inst of the History of Natural Science and Engineering. Moscow, 1956. (Dissertation for the Degree of Candidate in Technical Sciences).

SO: Knizhnaya letopis', No. 16, 1956

YEVSTUSHIN, N.I.

In the Expert Council of the Committee of Standards, Measures and
Measuring Instruments. Standartizatsiia no.3:76 Ky-Je '56.
(MLRA 9:9)

1. Zamestitel' predsedatelya Ekspertnogo soveta.
(Standards, Engineering)

YEVSTYUSHIN, N.I.

Classification and conventional notations for tools and
attachments used in machine construction. Standartizatsiia
no.4:57-59 J1-Ag '56. (MIRA 9:11)

1. Komitet standartov, mer i izmeritel'nykh priborov.
(Machine tools--Standards)

LEVSTYUSHIN, M.I.

In the Expert Council of the Committee of Standards, Measures, and
Measuring Instruments. Standartizatsiia no.6:70 N-D '56.

(MLRA 10:1)

(Standards, Engineering)

YEVSTYUSHIN, N.I.

28-1-39/42

AUTHOR:

Yevstyushin, N.I.

TITLE:

Experts' Council of the Committee of Standards, Measures, and Measuring Devices (V Ekspertnom sovete Komiteta standartov, mer i izmeritel'nykh priborov)

PERIODICAL:

Standartizatsiya, # 1, Jan-Feb 1957, p 91 (USSR)

ABSTRACT:

The article presents information on discussions in the Expert Council (of the Committee of Standards) of the new standard for "Low-carbon steel, technical conditions". It will supersede the "ГОСТ 5058-49". An expert commission of specialists of metallurgy and machinebuilding scrutinized the standard. At the Expert Council session, Doctor of Technical Sciences, Professor A.P. Gulyayev, made a report on decisions of the expert commission. In debates, the following statements were made: the new standard contains over 20 grades of steel (the present one contains 2), including steel made of naturally alloyed cast iron; the main drawback of the project for the new standard is that it gives guaranteed mechanical properties based on supply of steel by the metallurgic industry without heat treatment; the project indicates no weldability, cold brittleness, corrosion resistance, wear resistance or other important properties. The Expert Council recommended equipping

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28-1-39/42

Experts' Council of the Committee of Standards, Measures, and Measuring
Devices

plants with the necessary equipment for heat treatment and including the corresponding mechanical properties into the standard; further, that the Ministry of Ferrous Metallurgy do research work to find and include into the "ГОСТ" full data for all concerned steel grades. Amendments and additions in chemical composition and properties were also recommended.

AVAILABLE: Library of Congress

Card 2/2

YEVSTYUSHIN N. I.

In the Council of Experts. Standartizatsiia no.2:82 Kr-Ap '57.
(Standards, Engineering) (MIRA 10:6)

Yev styushin, N.I.
YEVSTYUSHIN, N.I.

Developing the design of high efficiency motor vehicles for use
in polar regions. Vop.ist.est. i tekhn. no.5:110-123 '57.

(MIRA 11:2)

(Motor vehicles--Cold weather operation)

YEVSTYUSHIN, Nikolay Ivanovich; SOROKIN, Yu.N., otv.red.; KLEENIKOV,
V.M., red.izd-va; MARKOVICH, S.G., tekhn.red.

[Development of motor sledge transportation in the U.S.S.R.]
Razvitie aerosannogo transporta v SSSR. Moskva, Izd-vo Akad.
nauk SSSR, 1959. 290 p. (MIRA 12:7)
(Motor sledges)

SOV/115-59-6-32/33

28(2)

AUTHOR:

Yavstyushin, N.I.

TITLE:

In the Council of Experts of the Committee

PERIODICAL:

Izmeritel'naya tekhnika, 1959, Nr 6, pp 74-76 (USSR)

ABSTRACT:

In 1958, the Ekspertnyy sovet Komiteta standartov, mer i izmeritel'nykh priborov pri Sovete Ministrov (Council of Experts of the Committee of Standards, Measures and Measuring Instruments at the USSR Council of Ministers), considered a number of scientific research projects performed by the Vsesoyuznyy nauchno-issledovatel'skiy institut metrologii imeni D.I. Mendeleeva - VNIIM (All-Union Scientific Research Institute of Metrology imeni D.I. Mendeleev), Vsesoyuznyy nauchno-issledovatel'skiy institut Komiteta standartov, mer i izmeritel'nykh priborov - VNIIM - (All-Union Scientific Research Institute of the Committee of Standards, Measures and Measuring Instruments), Vsesoyuznyy nauchno-issledovatel'skiy institut fiziko - tekhnicheskikh i radiotekhnicheskikh izmereniy - VNIIFTRI - (All-Union Scientific Research Institute of Physical and Radio Engineering Measurements), the Khar'kovskiy gosudarstvennyy institut mer i izmeritel'nykh priborov - KhGIMIP

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In the Council of Experts of the Committee

(Kharkov State Institute of Measures and Measuring Instruments) and the Sverdlovsk Branch of VNIIM. Leading scientists of research institutes and vuzes and highly qualified specialists of interest-ed industrial installations participated in the meetings of the Council of Experts and in the expert commissions which were organized for reviewing the performed research. The Council of Experts made a scientific technological evaluation of the results of work performed and determined ways for introducing it in the Soviet industry. In certain cases recommendations were made for the future development and direction of research work. The majority of the projects reviewed were performed on a high scientific level and were a valuable contribution to the development of Soviet metrology. The Sverdlovsk Branch of VNIIM conducted research work in the field of precise measurements of direct currents. The method of parallel-connected shunts with equipment designed as a result of the research provided the possibility of testing current transformers for 70 kiloamperes under operational conditions. Considering the results of the work of VNIIFTRI concerning the development of high-frequency quartz resonators for

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SOV/115-52-6-32/32

In the Council of Experts of the Committee

time and frequency standards the council noted that quartz resonators were created with a high Q -factor (up to 17.5×10^6) exceeding analogous resonators made in foreign countries. The council recommended the continuation of studying aging and stability of resonators, their resistance to vibration and the development of a technology for industrial manufacture of resonators with high Q -factors. VNIIM developed methods and equipment for checking instruments with great internal resistances and instruments for measuring great resistances by direct current. At KhGIMIP and VNIIM, scientific research work was performed for producing temperature scales by an objective method. As a result of these investigations, the objective spectropyrrometric device SPK-1 was designed. At VNIIM, methods and devices were developed for checking inductance measuring instruments of 0.001-10 henry and capacitance measuring instruments of 100 picofarad to 10 microfarad at a frequency of 50 cycles. The methods and the equipment have a considerable scientific value and are also of practical interest. KhGIMIP worked on the development of a method for measuring temperatures by infrared radiation. This work is the first phase of

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SOV/115-59-6-32/33

In the Council of Experts of the Committee

a number of important and valuable investigations in the field of infrared pyrometry. Objective pyrometric systems working in a field close to the infrared spectrum create possibility of extending the temperature range to be measured to the field of temperatures below 700°C (practically to 250-300°C). Pyrometers working in the visible sections of the spectrum may not be used for this temperature range. VNIIFTRI conducted research work for developing methods and equipment for checking noise-measuring instruments in the range up to 400 megacycles. The method and the equipment developed by VNIIFTRI for testing noise-measuring instruments in the range of up to 20 megacycles showed a number of principal deficiencies of noise meters. As a result, state tests performed on a number of types of noise-measuring instruments (IP-14, IP-26, IP-12N, IP-12-2M) lead to a rejection of the obsolete instruments IP-14 and IP-12. VNIIFTRI developed methods and instructions for checking noise-measuring instruments; it developed the pulse generator IG-1 which serves as a pulse voltage source in the frequency range up to 20 megacycles, having a reference spectrum density. During the next years, noise-measuring

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SOV/115-59-8-32/33

In the Council of Experts of the Committee

instruments up to 1,000 megacycles must be developed. The Council of Experts discussed also the attempts made in establishing unified methods of measuring the humidity of grain which was performed by VNIIC and the Vsesoyuznyy nauchno-issledovatel'skiy institut Zerna (All-Union Scientific Research Institute of Grain). It was stated that it is necessary to continue the work for creating a simple device for measuring the humidity of grain which may be used as a reference instrument for calibrating and checking operational instruments. Besides the aforementioned research projects which were conducted in metrological practice and application under conditions of industrial installations, some other research projects were performed in an unsatisfactory manner. In this article only the project of VNIIM "The Investigation of Transmission Methods of Linear Dimensions to Automatic Lines and Individual Automatic Precision Machine Tools" does not correspond to the given task. Also the research work of VNIIM "The Development of Reference Instruments for Checking γ - Radiation Dosimeters" is on an unsatisfactory level. Finally, it was said at the Council of Experts that the examples of unsatisfactory work ne-

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SOV/115-59-G-32/33

In the Council of Experts of the Committee

cessitate a rise of the scientific level of investigations and experimental work at a number of laboratories. Laboratory and institute directors must intensify quality control of the scientific research work. Three Soviet references.

Card 6/6

S/122/60/000/011/001/020
A161/A130

AUTHOR: Yevstyushin, N.I., Director of VNIIMASH

TITLE: Standardized and specialized production of technological equipment is an important reserve in the development of the machine industry

PERIODICAL: Vestnik mashinostroyeniya, No. 11, 1960. 3 - 6

TEXT: The author makes a review of the present situation stressing the importance of standardized tools, attachments, and machine parts and component units, and "specialized" plants to produce such equipment. The Soviet government has decided to organize specialized production centers in the central region, in the Urals, Central Asia, Siberia and other major industrial areas. At present there is a great variety of designs and dimensions, the result of the now abolished industry administration system. Now the government has ordered that "mezhotraslevyye normali" ("interbranch standards") be worked out and made compulsory for all enterprises and organizations regardless of their belonging to different administrative groups. The Committee of Standards, Measures and Measurement Instruments of the Ministers Council of the USSR, jointly with the involved sov-narkhozes and State Committees of the Ministers Council, have to look after this

Card 1/4

Standardized and specialized....

S/122/60/000/011/001/020
A161/A:30

development. Machine industry "normali" have to be completed in two years for the entire tooling and other general-use equipment, and in two to four years all-state standards and "normali" (industry branch standards) for component units and parts that are common for different machines, and mass-produced mechanization and automation means also have to be completed. The Vsesoyuznyy nauchno-issledovatel'skiy institut po normalizatsii v mashinostroyenii (All-Union Scientific Research Institute of Normalization in Machine Industry), or VNIINMASH, has been commissioned with the approval of the branch standards. Hundreds of scientific research institutes, designing organizations and plants are doing the work. Presently, the preparations for the production of new machines are so slow that they frequently become obsolete before having been used, and the major factor in this delay is the preparation of the production equipment - designing special tools, attachments, dies. Only the commonest types of cutting and measuring tools are being produced by specially equipped centers, and they only supply 50% of the required quantity. Machine plants are producing complex devices for their own needs, and at high costs. It is planned to build new plants for the special output of tools, dies, press-molds, machine tool attachments and abrasive tools; to reconstruct a number of existing plants. VNIINMASH takes part in the work with "normali" for the basic foundry equipment that are expected to be ready in

Card 2/4

Standardized and specialized production of....

S/122/60/000/011/001/020
A161/A130

1961; plants for molding and chipping tools, wooden patterns, components and parts of chill molds and core boxes, molding boards have already been completed. Standards for pressure die casting molds and for casting with melting patterns will bring about a colossal saving effect. Standardized exothermic compositions and shapes of top-heating shells, tried at the ZIL and GAZ and other plants, raised the good castings quantity 1.5 times and cut the consumption of molten steel per 1 ton good castings by 600 - 800 kg; standardized auxiliary equipment made from resin plastics has reduced the costs and the preparation time. As to forging, standardization of this equipment is very important in view of the planned development. Standardized dies with a built-in automatic feed will multiply the press strokes and the work efficiency, and improve safety; multi-operation automatic dies now used at the plants of Moscow and Gor'kiy regions have replaced 5 to 10 old dies without automatic feed and enabled one operator to work several presses. A heavy machinery plant (in the Stalingo sovmarkhoz region) has a universal die block with simple exchangeable inserts ("naladki") that make possible the stamping of 40 parts in this one die, and a universal die with such inserts has replaced 280 special dies at another plant (Kuybyshev region). In order to spread this principle to all plants with piece and small-lot production, the production of "YCTV" ("USP") (for "universal'no-shornyye prispособleniya")

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Standardized and specialized production of....

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must be centralized, as well as the production of parts from which special attachments could be obtained by joining them in different combinations. The Moscow City sovmarkhoz has organized an "USP" lending base for experiment works and small-lot production, and the effect can be clearly seen. A special attachment can be joined in 2 - 3 hours. The "USP" are coming into extensive use in other sovmarkhozes areas. Very important is the standardization of combination cutting tools; tools for transfer machines and production lines; tools tipped with new carbide types and with mineral ceramics. An exhibition was organized in Moscow last July, for the time of the plenary session of the Central Committee of CPSU, and a conference of standardization and normalization specialists convened from the 10th to 13th August in the territory of VDNKh (The Permanent Moscow Exhibition); 400 specialists participated. More than 1,500 items of best equipment and tools models were shown. The conference prepared recommendations for standardization.

ASSOCIATION: VNIINMASH

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B116/B206

AUTHOR: Yevstyushin, N. I.

TITLE: Interbranch normalization in machine construction

PERIODICAL: Standartizatsiya, no. 2, 1961, 7-11

TEXT: During the next 2 to 3 years, standardized parts are to be elaborated in the USSR in machine construction for all tools, devices, dies, and other general means of production, as well as standard parts for general assemblies and individual parts of machines, and for the most important means of mechanization. More than 200 scientific research institutes, planning and design organizations and establishments cooperate in these activities. The approval of standardized parts for machine construction is the responsibility of the Vsesoyuznyy nauchno-issledovatel'skiy institut po normalizatsii v mashinostroyeni (All-Union Scientific Research Institute for Normalization in Machine Construction) (VNIINMASH). A review of these activities is given here. The decision on the system of classification according to size for types and main parameters of machines and equipment is the first step of these activities. Every new machine is

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Interbranch normalization...

to represent a combination of standardized assemblies and individual parts. The standardization of individual parts, assemblies and drives makes it possible to apply the building-up of units to machine construction. This, in turn, permits an extensive mechanization and automation of production. Since special machine tools, special equipment, etc., will, therefore, cease to be economic in 2 to 3 years' time, a standardized universal production equipment should be developed for the change-over. Thus, the change-over of machine assembly lines will take about two months, while the construction of a new specialized line would take at least 2 years. Up to 85 to 90% standardized assembly groups are to be used for unit machine tools and machine assembly lines. The production of fittings will be concentrated on 42 plants and 33 workshops instead of 126 plants occupied with this work at present. Chains of all types will be produced at 29 plants instead of 76. The VNIINMASH is elaborating a standard on spur gears. More than 1500 machine construction standards are already in force. All tools, devices and dies will be standardized by 1961. 13 new plants for the manufacture of tools, dies, molds, devices for machine tools and grinding tools are to be constructed, and some tool, abrasive and diamond-tool plants are to be modernized between 1961 and 1965. More

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Interbranch normalization...

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than 50% (by weight) of all individual parts in machine construction are castings. The VNIINMASH is at present elaborating standards for the main castings. These are to become effective in 1961. The experience gained in automobile plants in Moscow and Gor'kiy, as well as the Leningradskiy zavod im. Lipse (Leningrad Plant imeni Lipse), shows that the use of standardized compositions and shapes for the shells of exothermal mixtures for heating the risers increases the output of suitable castings by the 1.5 fold. The working plan for the normalization in machine construction approved by the Komitet standartov, mer i izmeritel'nykh priborov pri Sovete Ministrov SSSR (Committee on Standards, Measures and Measuring Instruments at the Council of Ministers of the USSR) for 1961 provides for the elaboration of more than 150 standards on manufacturing equipment, and of more than 200 standards on individual parts and assemblies for machines of general use.

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GROMAN, M.B.; YEVSTYUSHIN, N.I.

Standardization of spur gears for general use. Standartizatsia
26 no.6:15-22 Je '62. (MIRA 15:7)
(Gearing, Spur—Standards)

GROMAN, M.B.; YEVSTYUSHIN, N.I.

Standardization of gears is the foundation for an efficient organization of their manufacture and the improvement of quality. Vest.mashinostr. 42 no.9:3-14 S '62. (MIRA 15:9)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut po normalizatsii v mashinostroyeni.

(Gearing—Standards)

GROMAN, M.B.; YEVSTYUSHIN, N.I.; ZAK, P.S.

Determination of the efficiency of the specialized manu-
facture of standardized parts and units. Standartizatsia
27 no.10:3-8 0 '63. (MIRA 16:11)

YEVSYUKOV, A.A.

Working model of an inductive electric meter. Politekh. sbuch.
no.7:59-60 J1. '59. (MIRA 12:9)

1. Kazakhskiy pedinstitut imeni Abaya, g. Alma-Ata.
(Electric meters)

YEVSYUKOV, A.A. (Alma-Ata)

Raising the $\cos \varphi$ of an engine by the capacitive compensation
method. Fiz. v shkole 21 no.1:68 Ja-F '61. (MIRA 14:9)
(Electric motors, Induction)

YEVSYUKOV, I.; IVANCHENKO, S.

They will be expert mines. Mast. ugl. 5 no. 11:13-15 H '56.

(MIRA 10:1)

1. Brigadir kombaynovoy brigady shakhty no. 5-bis "Trudovskaya" v Stalinskoy oblasti (for Yevsyukov). 2. Gornyy master vnuf-shakht-nogo transporta shakhty no. 5-bis "Trudovskaya" v Stalinskoy oblasti (for Ivanchenko).

(Coal miners)