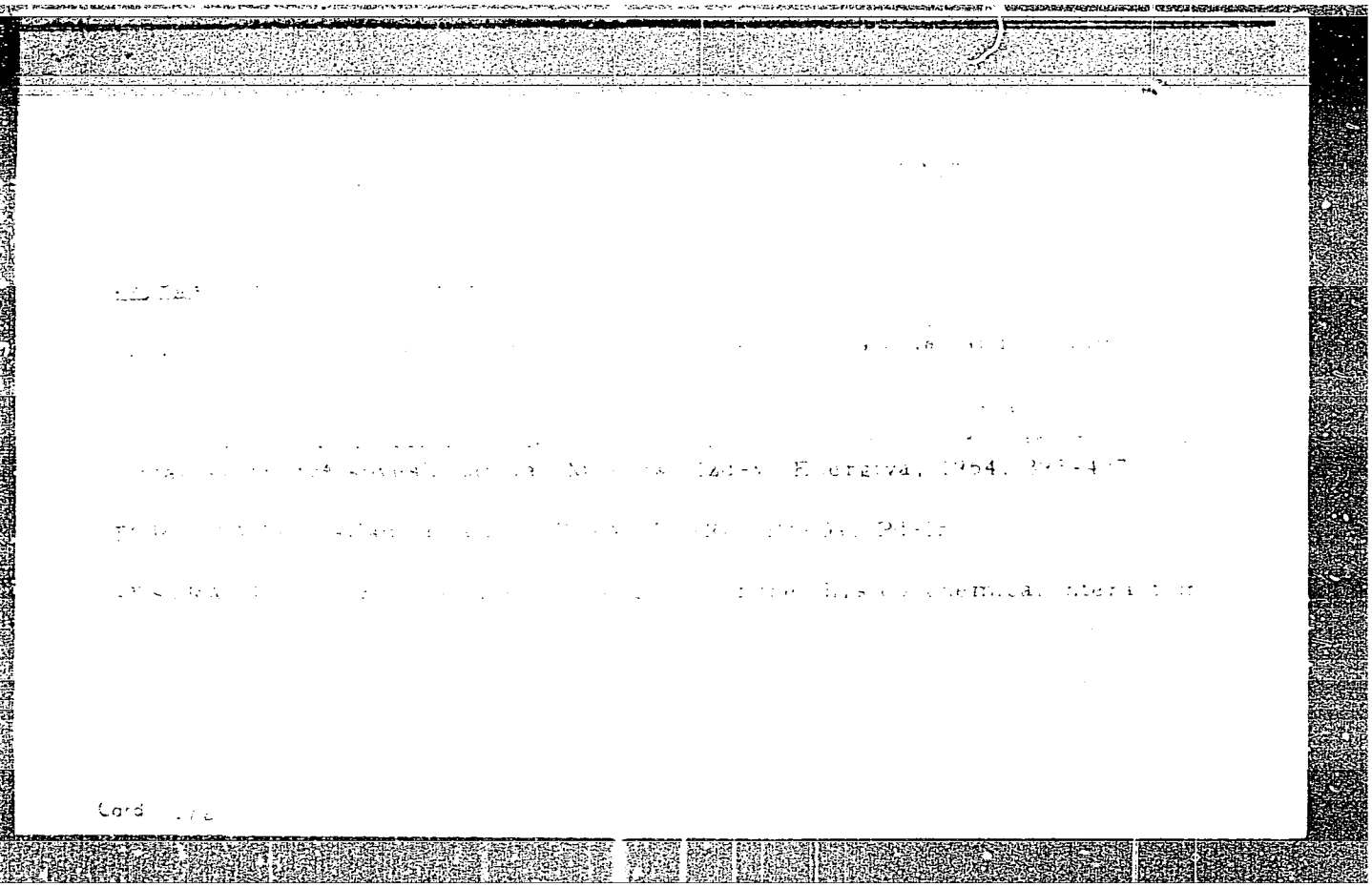

chemical compound was detected. All these metals increase the Pd melting

Institute of

SUB CODE: MM, EE NO REF SOV: 000 OTHER: 000

L 4451-66 EWT(m)/EWP(w)/EPF(n)-2/T/EWP(t)/EWP(z)/EWP(b) IJP(c)

ACC NR: AT5023098 JD/WW/NW/JG/GS SOURCE CODE: UR/0000/65/000/000/0241/0249

AUTHOR: Tylkina, M. A.; Tsyganova, I. A. 44,55 44,55

ORG: none

72
B+1

TITLE: Effect of alloying on the mechanical properties of cast tantalum 44,55

SOURCE: Problemy bol'shoy metallurgii i fizicheskoy khimii novykh splavov (Problems of large-scale metallurgy and physical chemistry of new alloys); k 100-letiyu so dnya rozhdeniya akademika M. A. Pavlova. Moscow, Izd-vo Nauka, 1965, 241-249

TOPIC TAGS: tantalum, cast tantalum, tantalum alloy, tantalum property, tantalum alloy property, titanium containing alloy, zirconium containing alloy, vanadium containing alloy, niobium containing alloy, chromium containing alloy, molybdenum containing alloy, tungsten containing alloy, rhenium containing alloy, cobalt containing alloy, nickel containing alloy

ABSTRACT: The effect of alloying with Ti, Zr, V, Nb, Cr, Mo, W, Re, Co, or Ni on the mechanical properties of cast tantalum have been investigated. The hardness of unalloyed tantalum drops with increasing purity. Sintered tantalum had a hardness of 240 kg/mm^2, a tensile strength of 35 kg/mm^2, and an elongation of 28%; arc melting in a helium atmosphere lowered the hardness to 150—170 kg/mm^2, and increased the strength, elongation, and reduction of area to 40 kg/mm^2, 35%, and 70%, respectively. Electron-beam-melted tantalum had a hardness of 80 kg/mm^2, a strength of 20 kg/mm^2,

Card 1/2

L 4431-66

ACC NR: AT5023098

and a reduction of area of 98%. Alloying, as a rule, increased hardness and strength, but reduced ductility. Cobalt and nickel produce the sharpest increase in hardness; titanium and niobium had practically no effect. The best combination of properties was achieved by alloying with tungsten, molybdenum, or rhenium, which raises the room-temperature strength of the alloy up to 60—75 kg/mm^2 while maintaining sufficient ductility. At 1500 and 1800C, the strength of tantalum-tungsten (25.6 and 10.2 kg/mm^2) and tantalum-rhenium (17.8 and 9.2 kg/mm^2) alloys is 2—3 times higher than that of unalloyed tantalum (9.38 and 5.4 kg/mm^2). The maximum strength (72—74 kg/mm^2) of tantalum-niobium alloy is attained at a niobium content of 30—40%; in this case, however, the alloy elongation drops to 18—20% and the reduction of area to 38—47%. Tantalum-niobium alloy has good formability at room temperature regardless of the amount of components. Orig. art. has: 4 figures and 5 tables. [ND]

SUB CODE: MM/ SUBM DATE: 19May65/ ORIG REF: 004/ OTH REF: 007/ ATD PRESS: 4/24

GC

Card 2/2

Tsyganova, I.A.

24-58-3-11/38

AUTHORS: Savitskiy, Ye.M., Tylkina, M.A., Tsyganova, I.A. (Moscow)

TITLE: Influence of Alloying Additions on the Recrystallization Temperature and on the Mechanical Properties of Titanium. (Vliyaniye legiruyushchikh dobavok na temperaturu rekristallizatsii i mekhanicheskiye svoystva titana)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Otdeleniye Tekhnicheskikh Nauk, 1958, Nr 3, pp 96-103 and 1 plate (USSR)

ABSTRACT: This paper is a continuation of earlier work of the authors and their team on the recrystallization and the mechanical properties of Ti of various degrees of purity and of Ti alloys (Refs.1-6). Reinbach and Nowikow (Ref.7) published preliminary data on the influence of certain additions (up to 1%) on the change in the time required to attain complete recrystallization of commercial Ti at a given annealing temperature; they found that introduction of chromium slows down the process of recrystallization whilst other admixtures (Co, Al, Fe, Ta and Sn) showed almost no influence on the duration of attaining complete recrystallization. In this paper an attempt is made to classify the alloying elements from the point of view of their influence on the recrystallization temperature and the mechanical properties whereby these characteristics are considered as a function of the character

Influence of Alloying Additions on the Recrystallization Temperature and on the Mechanical Properties of Titanium.

of the interaction of Ti with the alloying additions, their crystal structure and also the temperature of polymorphous transformation. The relations published by Bochvar (Ref.8) and by Kurilekh (Ref.9), interrelating the recrystallization temperature of metals with their fusion temperature, are not applicable to alloys. The complexity of diffusion processes in solid solutions, the differing character of these solutions and the presence of second phases in the alloys are all factors which complicate the process of recrystallization. One important factor which has not been taken into consideration so far is the presence in metals or alloys of the phenomenon of polymorphism. In the view of the authors of this paper, in metals and alloys in which polymorphous transformation takes place, the recrystallization temperature should be closely linked with the temperature of the polymorphous transformation in addition to the influence of other factors. It is obvious that in alloys in which such transformation takes place all the recrystallization processes are fully completed in the range of existence of lower temperature

Influence of Alloying Additions on the Recrystallization Temperature and on the Mechanical Properties of Titanium.

modifications (particularly α modification in Ti) and when the temperature of polymorphous transformation is reached, phase recrystallization and reconstruction of the crystal lattice is already proceeding. The experiments were carried out with an iodide Ti of 99.96% purity alloyed with additions of the following 14 elements: V, Nb, Fe, Co, Mn, Cr, N , C, O, Al, Be, Re, Sn and Boron. For each of the alloying additions, 4 to 5 alloys were prepared and the content of each of the additions in the alloy was chosen in such a way that alloys were obtained which are located in various phase ranges of the system, namely, alloys possessing uniform α and β structures, 2-phase α + β or α + chemical compound structures. The compositions of the alloys are entered in the table on p.97. Graphs are included showing the influence of the annealing temperature on the hardness, the influence of the alloying additions on the recrystallization temperature, on the ultimate strength, elongation and contraction. It was found that almost all of the investigated alloying additions bring about an increase in the recrystallization temperature. As regards the degree of their influence these elements can be subdivided into the following three groups: elements which

Influence of Alloying Additions on the Recrystallization Temperature and on the Mechanical Properties of Titanium.

bring about a considerable increase in the recrystallization temperature at low contents of the respective element (N, O, C, Boron, Be, Re and Al); elements which bring about an increase in the recrystallisation only if the content is of the order of 3% and higher (Fe, Cr, V, Mn, Sn); elements which have practically no influence on the initial recrystallization temperature (Nb and Co). The following relation was derived between the recrystallization temperature, T_1 and the temperature of the polymorphous transformation, T_2, of the alloy: $T_1/T_2 = 0.7 \div 0.9$. For Ti this ratio equals 0.71, for low alloy alloys this ratio equals 0.7 - 0.75 and increases to 0.8 - 0.9 with increasing contents of the alloying element. The alloying additions bring about an increase in the tensile strength and hardness, maximum values being $\sigma_B = 92$ kg/mm^2 and $R_B = 105$ and a reduction in the ductility. The greatest influence is exerted by elements which bring about a maximum increase in the recrystallization temperature and

24-58-3-11/38

Influence of Alloying Additions on the Recrystallization Temperature and on the Mechanical Properties of Titanium.

belong to the first of the above-mentioned group, i.e., N, O, C, Be, B. The other investigated elements have less influence on increasing the strength and for a content of 5% these elements can be classified from the point of view of increasing the strength in the following sequence: Cr, Co, Nb, V, Mn, Fe and Sn. The greatest drop in plasticity is observed when introducing Fe, Co and Nb. There are 9 figures, 1 table and 15 references, of which 10 are Soviet, 4 German and 1 English.

SUBMITTED: April 5, 1957.

Card 5/5 1. Titanium--Mechanical properties 2. Titanium alloys--Recrystallization 3. Temperature--Effects

GRIBOV, B.Ch.; KULIASHEV, O.K.; TSYG-NOVA, I.A.

Work function of NB-Fe, Ta-Ru, and Ta-Re alloys. Radiotekh. i elektron. 9 no.11:2061-2065 N '64. (MIRA 17:12)

KRIPYAKEVICH, P.I.; TYLKINA, M.A.; TSYGANOVA, I.A.

Hafnium alloys with iron and cobalt. Zhur. neorg. khim. 9 no.11: 2599-2601 N '64 (MIRA 18:1)

1. L'vovskiy gosudarstvennyy universitet imeni I. Franko, i Institut metallurgii imeni A.A. Baykova.

SAVITSKIY, Ye.M.; TYLKINA, M.A.; TSYGANOVA, I.A.; GLADYSHEVSKIY, Ye.I.; MULYAVA, M.P.

Phase diagram of the hafnium - rhenium system. Zhur.neorg.khim. 7 no.7; 1608-1610 Jl '62. (MIRA 16:3)

1. Institut metallurgii imeni A.A.Baykova i L'vovskiy gosudarstvennyy universitet imeni I.Franko.
(Hafnium-rhenium alloys)

TYLKINA, M.A.; TSYGANOVA, I.A.; SAVITSKIY, Ye.M.

Phase diagrams of rhenium alloys with platinum metals (rhocium, palladium, iridium). Zhur. neorg. khim. 7 no.8:1917-1927 Ag '62. (MIRA 16:6)

(Rhenium alloys) (Platinum metals)

TYLKINA, M.A.; TSYGANOVA, I.A.

Properties of palladium-rhenium alloys. Zhur. neorg. khim. 8 no.10:2346-2350 O '63. (MIRA 16:10)

(Palladium-Rhenium alloys)

20-118-4-26/61

AUTHORS: Savitskiy, Ye. M., Tylkina, M. A., Tsyganova, I. A.

TITLE: The Recrystallization Diagram of Tantalum (Diagramma rekristallizatsii tantala)

PERIODICAL: Doklady Akademii Nauk SSSR, 1958, Vol. 118, Nr 4, pp. 720-722 (USSR)

ABSTRACT: There are no data in publications on the recrystallization of cast tantalum. In recent time, however, the smelting of tantalum in the arc is more and more used. The high corrosion resistance of tantalum in an aggressive medium, the low fusibility and high plasticity which permits a cold working, as well as many other properties permit to count tantalum among the technically most important metals. The diagram in question combines the grain size with the degree of deformation and the temperature of the subsequent annealing. It is therefore especiallv necessary for the metals worked by means of deformation. The results obtained will make possible to choose the deformation- and annealing conditions in such a way that the optimum mechanical properties of the products are guaranteed. The authors constructed a diagram of the type I for the cold working (rolling) of the cast tantalum (figure 1). The

Card 1/4

conditions of cooling on a copper furnace bottom favored the formation of a coarse-grained structure in tantalum (figure 2a). Cast bars were cold-worked by forging until rods 7 x 7 were produced. They were annealed in vacuum at 1300° C for two hours. Thus the coarse-crystalline structure was completely transformed in a recrystallized, fine-grained, polyhedral structure (grain diameter 10-11μ, figure 2 b). Such rods served as initial material for the experiments. The rods were cold-rolled without intermediate annealing, with a shrinkage of 2,6; 5,7; 8; 10; 15; 34; 50; 68; 83; 90; 96; 98; 6%. The rolled rods were cut into pieces of 8-10 mm length and annealed in vacuum at 1000-2500° for one hour. The line of the beginning of the recrystallization in dependence on the deformation degree is plotted in a dotted line in figure 1. The temperature of the beginning of the recrystallization of tantalum drops with the rising deformation degree from 2,6 to 84% from 1300 to 1200° C. Figure 3 gives some radiographs of tantalum. The cold-rolling up to 15% deformation distorts the lattice of tantalum and deforms the individual grains. The microstructure is, however, not considerably modified. In the case of shrinkage of more than 30% a distinctly marked rolling-texture becomes visible (figure 2 v). The grains are

changed to a great extent and extended up to ~50 - 60% shrinkage without size reduction. In the case of a deformation of 90% the grain diameter amounts to 1 - 2μ. Annealing at 1000 - - 1600° C does not lead to a considerable enlargement of the grains. A recrystallization at 1200° C leads in samples with a high deformation degree and a recrystallization at 1600° in all samples to a complete blur of the rolling texture and to the appearance of new fine crystallized grains of a diameter of 6 - 13μ. The annealing at 1800 - 2000° C leads to an abrupt change of size of the grains in connection with a collecting recrystallization (figure 2 g,d). The grain size increases at 1800° C threefold up to 31μ and at 2000° C tenfold (up to 115μ). The maximum sizes of the grains which correspond to the critical deformation degrees become visible in the isothermal lines of annealing at 1800 and 2000°. In the annealing at 2500° C an apparently specific property of tantalum becomes visible: the size of the grains increases to an extremely great extent (320 - 500μ). The properties of hardness and strength of tantalum in individual deformation degrees and annealing temperatures admit the assumption that the optimum annealing treatment lies at 1300 - 1400° C. There are 3 figures and 5 references, 1 of which is Soviet.

The Recrystallization Diagram of Tantalum

20-118-4-26/61

PRESENTED: August 3, 1957, by I. P. Bardin, Academician

SUBMITTED: July 25, 1957

AVAILABLE: Library of Congress

Card 4/4

TSYGANOVA, I. A.

S/078/60/005/008/014/018
B004/B052

AUTHORS: Tylkina, M. A., Tsyganova, I. A., Savitskiy, Ye. M.

TITLE: Phase Diagram of the System Tantalum - Rhenium

PERIODICAL: Zhurnal neorganicheskoy khimii, 1960, Vol. 5, No. 8, pp. 1905-1907

TEXT: The phase diagram depicted in Fig. 1 was obtained by means of a determination of the fusing temperature, microscopic and radiographic analyses and measurement of the hardness of the structural components. The initial substances were tantalum foil (99.9% of Ta) and bricketed rhenium powder (99.8% of Re) at 1600°C. 18 alloys were produced in argon atmosphere in the arc furnace at 200 torr and remelted several times. The ground faces (Fig. 2) were etched with an aqueous solution of $NH_4F + HCl + HF + HNO_3$, and the microhardness of the components was determined. The X-ray pictures of pulverized alloys were taken by means of Cu-, Ni- and V-radiation. Two chemical compounds developed by peritectic reaction, a wide range of solid solutions on the tantalum side,

Card 1/2

and low solubility on the rhenium side were determined in the system. Structure, lattice constants, and ranges of χ- and σ-phases, and the two-phase range of $\sigma + \chi$ are described. There are 2 figures and 7 references: 4 Soviet, 1 US, 1 British, and 1 Polish.

ASSOCIATION: Institut metallurgii im. A. A. Baykova Akademii nauk SSSR (Institute of Metallurgy imeni A. A. Baykov of the Academy of Sciences USSR)

SUBMITTED: February 17, 1960

Цыганова, И.А.

SAVITSKIY, Ye.M.; TYLKINA, M.A.; TSYGANOVA, I.A.

Recrystallization diagram of tantalum. Dokl. AN SSSR. 118 no.4: 720-722 F '58. (MIRA 11:4)

1.Predstavleno akademikom I.P. Bardinym.
(Tantalum--Metallography)

TYLKINA, M.A.; TSYGANOVA, I.A.; SAVITSKIY, Ye.M.

System hafnium - niobium. Zhur. neorg. khim. 9 no.7: 1650-1657 Jl '64. (MIRA 17:9)

TSYGANOVA, L., inzh.

Electron tubes. Radio no.6:31-35 Je '62. (MIRA 15:5)
(Electron tubes)

IVANOV, V.; TSYGANOVA, I.

"Astra-2" magnetic tape recorder. Radio no.3:34-36 Mr '65.
(MIRA 18:6)

TSYGANOVA, L., inzh.

Optical sound recording system. Radio no.2:30-31 F '64.
(MIRA 17:3)

TSYGANOVA, L., inzh.

The "Kometa" magentic tape recorder. Radio no.1:39-43 Ja '63. (MIRA 16:1)

(Magnetic recorders and recording)

TSYGANOVA, L., inzh.; VASIL'YEVA, V., inzh.

Electron tubes. Radio no.7:30-35 Jl '62. (MIRA 16:6)

(Electron tubes)

TSYGANOVA, L., inzh.

Magnetic sound recording. Radio no.6:34-38 Je '64.
(MIRA 17:10)

TSYGANOVA, L.

A store for radio amateurs. Radio no.10:17 O '62.
(MIRA 15:10)

(Radio clubs—Equipment and supplies)
(Radio operators—Equipment and supplies)

TSYGANOVA, L.

Electric motors manufactured by the El'fa factory. Radio no.4:27-29 Ap '65. (MIRA 18:5)

TSYGANOVA, L., inzh.

Exhibition of sound recording instruments at the Eighteenth All-Union Exhibition of the Work of Radio Amateurs and Designers of the All-Union Society for Assistance to the Army, Air Force, and Navy. Radio no.4:49-50 Ap '63. (MIRA 16:3)
(Sound--Recording and reproducing)

SIMSKIY, Aleksandr Mikhaylovich; CHERVONNYY, M.G., red.; TSYGANOVA, L.B., red.izd-va; PARAKHINA, N.L., tekhn. red.

[Protection of forests against fires] Okhrana lesov ot pozharov. Moskva, Goslesbumizdat, 1961. 49 p. (MIRA 15:7)
(Forest fires--Prevention and control)

TSYGANKOVA, L.G.

Low-frequency interference in electrical networks. Trudy Inst. elektrotekh. AN URSR 20:130-136 '63.
(MIRA 17:11)

INOZEMTSEV, O.S.; TSYGANKOVA, L.G.; SHESTOPALOV, V.N.

Transmitting device of a multiple-message remote control system. Trudy Inst. elektrotekh. AN URSR 20:175-189 '63. (MIRA 17:11)

TSYGANOVA, L.N.; ULANOV, Ye.A.

Mathematical representation of radioiodine absorption curves by the thyroid gland. Probl. endok. i gorm. 7 no.1:65-69 '61. (MIRA 14:3)

(IODINE—ISOTOPES) (THYROID GLAND)

TSYGANOVA, L. N., CAND MED SCI, "CERTAIN INDICES OF THE CONDITION OF THE CARDIO-VASCULAR SYSTEM IN ~~EPIDEMIC~~ endemic ENLARGEMENT OF THE THYROID GLAND IN CHILDREN." YAROSLAVL', 1959. (SECOND MOSCOW STATE MED INST IM N. I. PIROGOV). (KL, 3-61, 236).

NOVIKOVA, K.F.; BASARGIN, N.N.; TSYGANOVA, M.F.

Micromethod for the determination of sulfur in organic substances with carboxyarsenazo, a new indicator for the titration of SO_4^{2-} ion. Zhur.anal.khim. 16 no.3:348-351 My-Je '61. (MIRA 14:6)

1. Ya. V. Samoilov Scientific Research Institute of Fertilizers and Incectifungicides, and V. I. Vernadsky Institute of Geochemistry and Analytical Chemistry, Academy of Sciences U.S.S.R., Moscow.
(Sulfur organic compounds)
(Microchemistry)

ROMANKEVICH, M.Ya.; SINYAVSKIY, V.G.; TSYGANKOVA, M.P.

Synthesis and study of selective polyelectrolytes.
Report No.1. Ukr.khim.zhur. 28 no.9:1096-1099 '62.
(MIRA 15:12)

1. Institut khimii polimerov i monomerov AN UkrSSR.
(Ion exchange resins)

S/073/62/028/009/007/011
A057/A126

AUTHORS: Romankevich, M. Ya., Sinyavskiy, V. G., Tsygankova, M. P.

TITLE: Synthesis and investigation of selective polyelectrolytes. Communication I

PERIODICAL: Ukrainskiy khimicheskiy zhurnal, v. 28, no. 9, 1962, 1096 - 1099

TEXT: Selective, polymer ion exchange resins were prepared with the complex forming groups not participating in the formation of the polymer. Thus were obtained nitropolystyrene, aminopolystyrene and products of its azoconjunction with p-cresol, p-nitrophenol, β-naphthol, resorcin, anilide of acetoacetic acid, benzazoresorcin, pyrogallol, 8-oxiquinoline, anilinediacetic acid, 1-phenyl-3-methyl-5-pyrozalon, salicylic, gallic, anthranilic and chromotropic acid, 2-naphthol-6,8-disulphuric- and 2-naphthol-3,6-disulphuric acid. Some of the prepared ion-exchange resins showed selective properties for several cations as for instance: Fe, Ni, Co, Al, Mg, Zn, Cr. More detailed investigations are carried out at the present time. The capacity of the ion exchange resins was determined after regeneration with 10 - 20% hydrochloric acid solution. The

Card 1/2

Card 2/2

TSYGANOVA, M. P., et. al.

Ceramic cutters; new tool material for metal cutting Moskva, Trudrezervizdat, 1952.
24 p. (Novaia tekhnika i stakhanovskie metrody truda) (53-34152)

TJ1230.G76

LARIN, M.N., prof., doktor tekhn.nauk; KRASIL'NIKOV, I.M.; TSYGANOVA, M.P.; AKIMOV, A.V., kand.tekhn.nauk; BUDNIKOV, N.Ye., inzh.; PETROSYAN, L.K., kand.tekhn.nauk; DIBNER, L.G., inzh.; SILAYEVA, I.D., inzh.; MAGAZINER, Z.G., kand.tekhn.nauk; UVAROVA, A.F., tekhn.red.

[Cutting tools designed for high production and their efficient operation] Vysokoproizvoditel'nye konstruktsii reztsov i ikh ratsional'naia ekspluatatsiia. Pod red. M.N.Larina. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1959. 239 p. (MIRA 12:6)

1. Moscow. Vsesoyuznyy nauchno-issledovatel'skiy instrumental'nyy institut. 2. Sotrudniki Vsesoyuznogo nauchno-issledovatel'skogo instrumental'nogo instituta (for all except Uvarova).

(Metal-cutting tools)

LARIN, M.N., doktor tekhn.nauk, prof.; TSYGANOVA, M.P., inzh.; TAMBOVTSEV, S.S., kand. tekhn. nauk; MITYAKOV, A.V., inzh.; PETROSYAN, L.K., kand. tekhn. nauk; CHERNOUSENKO, A.P., inzh.; BUDNIKOV, N.Ye., inzh.; MARTYNOV, A.D., kand. tekhn. nauk; IVANOVA, N.A., red. izd-va; GORDEYEVA, L.P., tekhn. red.

[High-production designs of form cutters and their efficient use] Vysokoproizvoditel'nye konstruktsii fasonnykh frez i ikh ratsional'naia ekspluatatsiia. Pod red. M.N.Larina. Moskva, Mashgiz, 1961. 174 p. (MIRA 14:12)

1. Moscow. Vsesoyuznyy nauchno-issledovatel'skiy instrumental'nyy institut. 2. Vsesoyuznyy nauchno-issledovatel'skiy instrumental'nyy institut, Moscow (for all except Ivanova, Gordeyeva)
(Metal-cutting tools)

69354

SOV/123-59-19-78494

Translation from: Referativnyy zhurnal. Mashinostroyeniye, 1959, Nr 19, p 94 (USSR)

18.6100 18.5200

AUTHOR: Tsyganova, M.P.

TITLE: Investigation of Mechanical and Cutting Properties of Mineral Ceramic Plates

PERIODICAL: V sb.: Rezaniye mineralokeram. instrumentami. Moscow, Oborongiz, 1958, pp 111 - 123

ABSTRACT: Based on investigations carried out in the course of 1950 - 1956, the improvement of the mechanical characteristics and cutting properties of mineral ceramics (M) is shown. The average limit of bending strength of M was increased from 22 to 34 kg/mm^2. The upper limit of σ_b, bend increased from 32 to 44 kg/mm^2. In machining the 45 grade steel the resistance to wear of the TsM-332 plates was raised by 2 - 3 times. At present the durability of M exceeds that of T15K6 by 7.7 times. The average magnitude of breaking feed (when testing the strength of the cutting edge during the cutting process) in machining the 45 grade steel at a depth of 3 mm, increased from 0.65 mm/revolution in 1952 to 0.8 mm/revolution in 1956. Fourteen figures.

O.A.B.

Card 1/1

TSYGANOVA, M.P.

164/99 621.937 :666.762.1

The Cutting of Metals with Sintered Alumina Tools

Stanki Instrum. (4),10-12 1952

P.P. Groodov, M.P. Tzyganova U.S.S.R.

The use of "Thermocorundum" (sintered alumina) as a substitute for carbide to provide inexpensive cutting edges of high productive capacity is considered. Its physical and mechanical properties are compared with other carbides, and an investigation into the stability of its cutting edge described. Test results in the machining of steel and cast iron with thermocorundum tools, and recommendations for tool care and use are included.
(From Engrs' Dig.,14(2),59-61,1952,U.K.)

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(2)

GRUDOV, P. P.; TSYGANOVA, M. P.

Metal Cutting

Machining of metals with thermo-corundum tool bits. Stan. i instr., 23, No. 4, 1952

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

TYUFANOVA, M. F.

PHASE I BOOK EXPLOITATION SOV/5059

Moscow. Vsesoyuznyy nauchno-issledovatel'skiy instrumental'nyy institut

Vysokoproizvoditel'nyye konstruktsii protyazhek i ikh ratsional'naya ekspluatatsiya (Highly Productive Broach Constructions and Their Efficient Operation) Moscow, Mashgiz, 1960. 119 p. Errata slip inserted. 4,800 copies printed.

Ed. (Title page): M. N. Larin, Doctor of Technical Sciences, Professor; Tech. Ed.: G. Ye. Sorokina; Managing Ed. for Literature on Metalworking and Machine-Tool Making: V. I. Mitin, Engineer.

PURPOSE: This book is intended for engineers and technicians concerned with the design and use of broaches.

COVERAGE: The book deals with requirements for achieving high labor efficiency through the proper use of broaches. In this connection the following main topics are discussed: 1) modern designs of broaches for efficient methods of broaching; 2) selection of broaching regimes to ensure desired surface finish and accuracy

Card 1/8

of broached part; 3) data on plant standards for wear and scrapping of broaches; and 4) data on reconditioning of broaches, etc. The sharpening and heat treatment of broaches, and the measurement of their geometric parameters are also discussed. The causes of abnormal functioning of broaches and measures for their correction are reviewed on the basis of experience gained by leading Soviet and non-Soviet factories. Problems in organizing the inspection of the broaching operation are also considered. The work on which this book is based was carried out in the laboratory for metal cutting of the Vsesoyuznyy nauchno-issledovatel'skiy instrumental'nyy institut (VNII) (All-Union Instrument Scientific Research Institute) in cooperation with other institutions and advanced plants (NIITavtoprom [Technological Scientific Research Institute of the Automobile Industry], ChTZ [Chelyabinsk Tractor Plant], ZIL [Plant imeni Likhachev], and others). The chapters were written as follows: Chapters I and IV, by M. N. Larin, Professor, and M. P. Tsyganova, Engineer; Ch. II, by M. Yu. Lapinskiy, Engineer, and P. G. Katsev, Candidate of Technical Sciences; Ch. III, by L. K. Petrosyan,

Candidate of Technical Sciences, and L. G. Dibner, Engineer; and Ch. V, by A. D. Martynov, Candidate of Technical Sciences. There are 36 references, all Soviet.

TABLE OF CONTENTS:

Foreword 3

Ch. I. Conditions for Highly Productive Broaching 5

Ch. II. Broach Designs 9
1. Classification of broaches 9
2. Requirements for broaching machines 9
3. Basic methods of broaching 11
a) On the problem of an efficient method of broaching 11
b) Regular method of broaching 12
c) Generating method of broaching 13
d) Staggered-tooth (group) method of broaching 14
Staggered-tooth "chessboard" variation 16
Engineer P. P. Yunkin's keyway-broaching variation 17

e) Rear pilot 36
f) Burnishing teeth 37
6. Special broach designs 37
a) Design of built-up, hard-alloy-tipped broaches 37
b) Combination [round and keyway] broach 42
c) Expanding broach 42
d) Burnishing and sizing broaches 42
7. Push broaches 44
8. External broaches 44
9. Designing the broach for strength 53
a) Broaching forces 53
b) Designing of broaches for strength in the critical cross section 54
c) Designing the broach joint [with head] for strength 55
10. Designing the chip spaces of broaches 57

Ch. III. Sharpening of Broaches 59

Ch. IV. Efficient Use of Broaches 68
1. The wear of broaches 68

2. The allowable amount of stock removal in sharpening 71
3. The life of broaches 73
4. Cutting speed in broaching 75
5. Selection of lubricating coolants 76
6. Surface roughness in broaching 78
7. Increasing the life of broaches by thermochemical treatment 80
8. Heat treatment of broaches 81
9. Reconditioning of broaches 84
10. Centering and alignment of broaches 92
11. Organizing the control for efficient operation of broaches 96

Ch. V. Inspection of Broaches After Sharpening 107
1. Checking the face angle and the gullet 107
2. Checking the back-off angle 107
a) Measuring the back-off angle with Babchinitser's bevel protractor 107
b) Measuring the back-off angle with a template 109

ALEKSANDROV, N.I.; GEFEN, N.Ye.; GAPOCHKO, K.G.; GARIN, N.S.; DANILYUK, S.S.; YEGOROVA, L.L.; KUZINA, R.F.; KORIDZE, G.G.; [redacted]; LABINSKIY, A.P.; LEBEDINSKIY, V.A.; MASLOV, A.I.; OSIPOV, N.P.; SILICH, V.A.; SMIRNOV, M.S.; TSYGANOVA, N.I.

Study of a method of aerosol immunization with powdered plague vaccine in large population groups. Zhur. mikrobiol., epid. i immun. 40 no.12:22-28 D '63.

(MIRA 17:12)

ACC NR: AT6036557 SOURCE CODE: UR/0000/66/000/000/0161/0162

AUTHOR: Yegorov, P. I.; Benevolenskaya, T. V.; Korotayev, M. M.; Reutova, M. B.; Filatova, L. M.; Tsyganova, N. I.

ORG: none

TITLE: The functional state of several internal organs during exposure to radial and coriolis accelerations during multi-day experiments in a slowly rotating room [Paper presented at the Conference on Problems of Space Medicine held in Moscow from 24 to 27 May 1966]

SOURCE: Konferentsiya po problemam kosmicheskoy meditsiny, 1966. Problemy kosmicheskoy meditsiny. (Problems of space medicine); materialy konferentsii, Moscow, 1966, 161-162

TOPIC TAGS: biologic acceleration effect, coriolis acceleration, biologic metabolism, blood chemistry, immunology, biologic secretion

ABSTRACT: Six healthy subjects aged 27-36 and resistant to vestibular stimuli were clinically examined before and after studies in a slowly rotating MVK room. A detailed physical examination of internal organs was conducted along with special clinical, biochemical, and immunobiological examinations of the functional condition of these organs.

The experiment resulted in substantial changes in the functional state of

Card 1/2

ACC NR: AT6036557

a number of organs and systems. These changes were a function of rotation rate and duration of exposure. At a rate of 40° /sec in a three-day experiment, the following changes were noted: hypoglycemia and inadequate reaction of beta cells of the pancreas to insulin secretion; a sharp increase in blood potassium level and decreased kidney filtration function; increased liver bilirubin secretion; a trend towards increased blood creatinine, protein, hemoglobin, erythrocyte, and leukocyte level; change in the value, flexibility, and type of oculocardiac reflex; increased blood cholinesterase activity; and a sharp decrease in blood properdin.

At a rate of 10° /sec in a seven-day experiment, the following changes were noted: lowered EKG T-spike from all leads, decline in the adaptability of the cardiovascular system to physical exercise, intensified oculocardiac reflex, increased blood calcium and decreased potassium, decreased blood cholinesterase activity, and increased blood properdin. [W.A. No. 22; ATD Report 66-116]

SUB CODE: 06 / SUBM DATE: 00May66

Card 2/2

7.

ACC NR. AT6036558 SOURCE CODE: UR/0000/66/000/000/0162/0163

AUTHOR: Yegorov, P. I.; Dupik, V. S.; Yermakova, N. P.; Korotayev, M. M.; Kochina, Ye. N.; Mikhaylovskiy, G. P.; Neumyvakin, I. P.; Petrova, T. A.; Reutova, M. B.; Filatova, L. M.; Tsyganova, N. I.; Yakovleva, I. Ya.

ORG: none

TITLE: The effect of hypokinesia and homogenized food rations on the functional state of the human organism [Paper presented at the Conference on Problems of Space Medicine held in Moscow from 24 to 27 May 1966]

SOURCE: Konferentsiya po problemam kosmicheskoy meditsiny, 1966. Problemy kosmicheskoy meditsiny. (Problems of space medicine); materialy konferentsii, Moscow, 1966, 162-163

TOPIC TAGS: isolation test, hypodynamia, human physiology, space physiology, cardiovascular system, space nutrition

ABSTRACT: For a period of 7 days, four specially chosen healthy subjects 21--29 years old lay flat in bed under conditions of limited isolation. Two of the subjects received a special ration of homogenized foods, while the other two received a ration identical in calorie content (2200 kcal) and chemical composition, but prepared by ordinary cooking methods. Water consumption was unlimited.

Card 1/3

In the course of the experiment, respiratory volume and vital capacity decreased in all subjects; the subjects receiving the special rations showed a more pronounced increase in oxygen consumption and consequently in basal metabolism level.

Cardiovascular system changes were seen in the EKG's of all subjects (decreased voltage of R and T peaks, bradycardia, and rotation of the axis to the right), and persisted more than 12 days after the experiment.

Hemodynamic studies using N. N. Savitskiy's method revealed a decrease in the speed of pulse wave propagation along arteries of the muscular type, and changes in peripheral resistance and blood minute volume. Disturbances of intranasal circulation were revealed by the rhinopneumometry method. These shifts in vascular tonus were more pronounced in the group receiving special food rations.

Following the experiment all the subjects exhibited orthostatic weakness, and in the two subjects receiving the special food ration, an active orthostatic test involving standing for 30 min induced collapse (on the 3rd and 23rd min of the test).

ACC NR: AT6036558

Pronounced functional shifts of a transient nature were noted in the gastrointestinal tract (diminished gastric secretion after the experiment in the group receiving special rations; and changes in protein, carbohydrate, and cholesterin metabolism, and impairment of the bilirubin-excretory function of the liver in all subjects).

After the experiment all subjects showed a weight loss of up to 3350 kg, although disturbances of kidney function took the form of decreased diuresis, decreased creatinine clearance, and impaired water excretion during water loading tests.

Changes in mineral metabolism during the experiment consisted of increases in the blood plasma levels of potassium and calcium in all subjects, and toward the end of the experiment, decreased chlorides in the 24-hr urine of the subjects receiving special rations.

Audiometry revealed neurodynamic disturbances of the functional state of the auditory analyzer (asymmetry and elevation of differential thresholds of sound intensity and height).

A change was noted in the level of the dark adaptation curve. A considerable increase in light sensitivity in the 60th min was noted in the subjects receiving ordinary food, and a lesser increase in the subjects receiving special rations. Analysis of nyctograms taken during the initial period of dark adaptation showed no substantial shifts. [W.A. No. 22; ATD Report 66-116

SUB CODE: 06 / SUBM DATE: 00May66

Card 3/3

TSYGANOVA, N.Ya.

Some problems of the integration of equations of motion in I.D. Sokolov's "Dynamics." Trudy Inst. ist. est. i tekh. 43:406-421 '61. (MIRA 15:1)

(Mechanics, Analytic)
(Sokolov, I.D.)

TSYGANOVA, N.Ya. (Novgorod)

Some theorems of elementary geometry. Mat.v shkole no.4: 60-61 Jl-Ag '59. (MIRA 12:11)
(Surfaces)

SOV/124-58-11-12014

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 11, p 11 (USSR)

AUTHOR: Tsyganova, N. Ya.

TITLE: The Work of 19th-century Russian Scientists on the Investigation of the Principle of Least Action and of the Hamilton-Ostrogradskiy Principle (Raboty russkikh uchenykh XIX v. po issledovaniyu nachala naimen'shego deystviya i nachala Gamil'tona-Ostrogradskogo)

PERIODICAL: Tr. In-ta istorii yestestvozn. i tekhn. AN SSSR, 1957, Vol 19, pp 462-534

ABSTRACT: Bibliographic entry

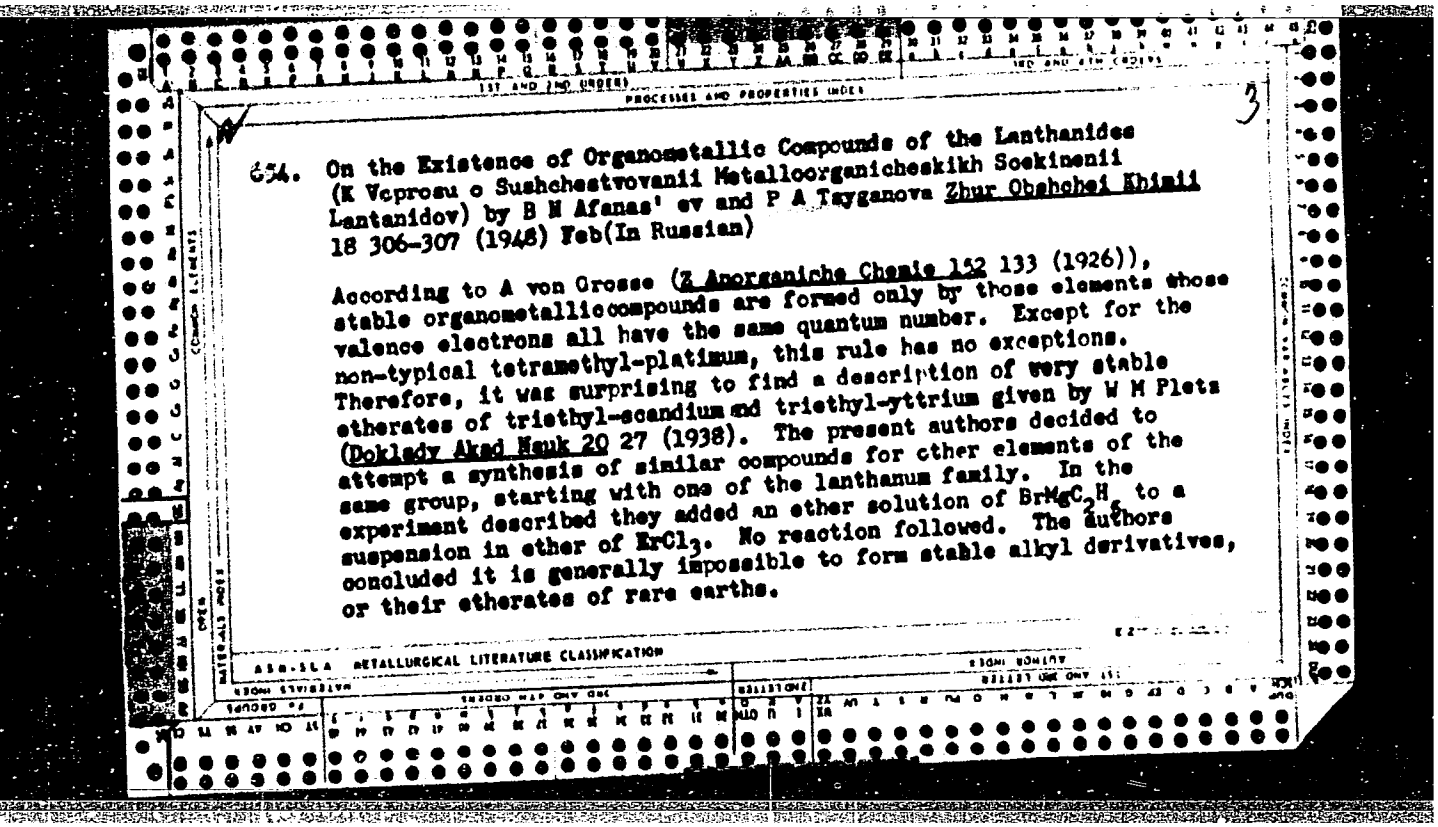
Card 1/1

TSYGANOVA, N.Ya.

Research of Russian 19th-century scientists on the principle of least work and the Hamilton-Ostrogradski principle. Trudy Inst. ist. est. i tekh. 19:462-534 '57. (MIRA 11:2)
(Mechanics, Analytic--History)

TSYGANOVA, N.Ya. (Vyazniki, Vladimirskaya obl.); GOL'DINA, N.P. (Vyazniki, Vladimirskaya obl.).

From the teaching experience of A.V.Kolesova. Mat. v shkole no.5: 64-70 S-O '54. (MLRA 7:11)
(Mathematics--Study and teaching) (Kolesova, Anna Vasil'evna, 1887-)



654. On the Existence of Organometallic Compounds of the Lanthanides (K Voprosu o Sushchestvovanii Metalloorganicheskikh Soekinenii Lantanidov) by B M Afanas' ev and P A Tsyganova Zhur Obshchei Khimii 18 306-307 (1948) Feb(In Russian)

According to A von Grosse (Z Anorganische Chemie 152 133 (1926)), stable organometallic compounds are formed only by those elements whose valence electrons all have the same quantum number. Except for the non-typical tetramethyl-platinum, this rule has no exceptions. Therefore, it was surprising to find a description of very stable etherates of triethyl-scandium and triethyl-yttrium given by W M Pleta (Doklady Akad Nauk 20 27 (1938). The present authors decided to attempt a synthesis of similar compounds for other elements of the same group, starting with one of the lanthanum family. In the experiment described they added an ether solution of $BrMgC_2H_5$ to a suspension in ether of $ErCl_3$. No reaction followed. The authors concluded it is generally impossible to form stable alkyl derivatives, or their etherates of rare earths.

CA

6

Reaction of metallic iron with ethyl bromide. B. N. Afanas'ev and P. A. Tsyganova (Agr. Inst., Sverdlovsk). *Zhur. Obshchei Khim.* (J. Gen. Chem.) 21, 485-6 (1951).—Mixing powd. Fe (0.1-0.2 g.; sample of 99.51% purity, washed with HCl, H_2O, EtOH, and Et_2O) with 3-5 g. pure EtBr and letting stand 10-15 min. (no further action) gave upon concn. of the liquid portion 0.1-0.2 g. orange-red crystals, apparently of $Et_2FeBr.EtFeBr_3$, sol. in Et_2O and C_6H_6, decomposed by H_2O yielding Br^- and Fe^{+++}. Heating decomp. it to a dark powder partly sol. in HCl(insol. portion is C). *AmBr* and *PhBr* gave similar reactions.

G. M. Kosolapoff

CA

tion. $n_\gamma = 1.780$, $n_\beta = 1.730$, $n_\alpha = 1.700$; $2V = 60°$. VII. G. B. Bokii and M. N. Lyashenko. *Ibid.* 37–45.—*trans* - *Dihydroxylammine diiodoplatinum*, $Pt(NH_2OH)_2I_2$ (II), forms nearly square, dark-orange platelets 1 mm. on a side and 0.1 mm. thick. Monoclinic holohedra, C_{2h}-2/*m*. *a:b:c* = 0.981:1:0.908; $\beta = 104°16'$. With very good reflection {001}, {110}, {$\bar{1}$11}, {301}, {$\bar{1}$31} were observed. Biaxial with the principal refractive indexes > 1.780. $2V = 75°$. *cis-Dichlorodihydrazinoplatinum dihydrate*, $[PtCl_2(N_2H_3)_2]HCl].2H_2O$, light-yellow platelets 1 × 1 × 0.1 mm., which had almost the same appearance as II. Monoclinic holohedra, C_{2h}-2/*m*. *a:b:c* = 0.9642:1:1.2552. $\beta = 101°39'$. Observed forms {001}, {110}, {$\bar{1}$10}. The crystals were biaxial, pos., and showed sym. extinction. They were pleochroic, being green in the direction n_γ and light yellow to colorless along n_α. $n_\gamma = 1.766$, $n_\beta = 1.670$, $n_\alpha = 1.629$. *Diamminotrinitrochloroplatinum*, $[Pt(NH_3)_2Cl(NO_2)_2]$, forms transparent, pale-green, flat needles 5 × 1.5 × 0.5 mm. with monoclinic symmetry. *a:b:c* = 0.987:1:0.561; $\beta = 90°$. Observed forms {001}, {010}, {111}, {$\bar{1}$11}, {101}, $n_\gamma = 1.80$ (calcd. from n_β, n_α, and $2V$), $n_\beta = 1.707$, $n_\alpha = 1.705$; $2V = 66°$. *Pentamminechloroplatinum chloride*, $[Pt(NH_3)_5Cl]Cl_3$, forms coarse, white needles showing hexagonal symmetry. Class C_{3v}-3*m*. *a:c* = 1:0.3709. Observed forms {11$\bar{2}$1}, {12$\bar{1}$1}, {11$\bar{2}$0}, and {01$\bar{1}$0}. The crystals are uniaxial, pos. with both *n*'s between 1.722 and 1.718. *cis-Difluoropyridinodichloroplatinum*, $[Pt(FC_5H_4N)_2Cl_2]$, forms a yellow powder consisting of dendrites. The extinctions are oblique both to the axes and to the branches of the dendrites. Crystals are biaxial, neg. $n_\gamma = 1.734$, $n_\beta = 1.716$, $n_\alpha = 1.652$; $2V = -50°$. They show strong axial angle dispersion, with $V_r < V_v$. *cis-Diammindichloroplatinum*, $[Pt(NH_3)_2Cl_2]$, forms a yellow powder consisting of needles having an angle of extinction of 30°. $n_\gamma = 1.812$, $n_\beta = 1.790$, $n_\alpha = 1.745$; $2V = -70°$ (calcd. graphically). *Diamminohexachloroplatinate*, $(NH_4)_2[PtCl_6]$, forms a deep-yellow powder consisting of isometric crystals which appear isotropic under the polarization microscope. They belong to the cubic system. $n > 1.780$. *trans-Aminopyridinodichloroplatinum*, $[Pt(NH_2C_5H_4NCl_2]$, very fine yellow needles. $n_\gamma > 1.780$, $n_\beta = 1.628$, $n_\alpha = 1.654$. *trans-Dipyridinodichloroplatinum*, $Pt(C_5H_5N)_2Cl_2$, forms a yellow powder consisting of twinned dendrites. The extinction is oblique to the twinning plane. $n_\gamma > 1.780$, $n_\beta = 1.770$, $n_\alpha = 1.578$. *cis-Dipyridinodichloroplatinum*, $Pt(C_5H_5N)_2Cl_2$, forms a yellow powder consisting of partially twinned dendrites. $n_\gamma = 1.780$, $n_\alpha = 1.620$. *trans-Dichlorodihydroxylammineplatinum*, $Pt(NH_2OH)_2Cl_2$, forms thin, silky, reddish gold needles showing direct extinction. $n_\gamma > 1.780$, $n_\beta > 1.780$, $n_\alpha = 1.778$. *cis-Dichlorodihydrazinoplatinum*, $Pt(N_2H_3)_2$-

[illegible] yellowish powder of [illegible] many dendrites. The long axis of the [illegible] n_α. $n_\gamma > 1.780$, $n_\beta = 1.70$, $n_\alpha = 1.745$. *Dinitrosyldinitrochloroplatinum*, $[Pt(NH_3NO_2C_5H_4NCl]$, a yellow powder composed of crystals of irregular shape. It forms long crystals, with whose long dimension n_α forms an angle of 17°. Twinning is frequent. $n_\gamma \geq 1.780$, $n_\beta = 1.740$, $n_\alpha = 1.595$. *Ammonium ethylenetrichloroplatinate*, $NH_4[PtC_2H_4Cl_3]$, forms a yellow powder composed of fine crystals of indefinite form. $n_\gamma = 1.78$, $n_\beta = 1.724$, $n_\alpha = 1.595$; $2V$ (calcd. from *n*'s) $= -63°$. $(NH_4)_2NH_2ClPtCl_2(NH_3)_2.Cl_2PtCl_4$ (a mol. compd.) is a yellow powder composed of uniaxial, pos., tetragonal crystals of pseudo-octahedral habit. $n_\beta = 1.742$, $n_\gamma > 1.700$. *Dibromodihydroxylamminoplatinum*, $Pt(NH_2OH)_2Br_2$, is a yellow

powder composed of crystals showing sym. extinction pleochroism with colors from deep green to pale green. n_γ = 1.780, n_α = 1.650. *$K_3[Cl_5PtCH_2CH:CH-CH_2PtCl_4]$* is an orange powder composed of long crystals showing direct extinction. The longitudinal direction is neg. Pleochroism is observed, from dark yellow along n_α to colorless along n_β and n_γ. n_γ = 1.750, n_β = 1.724, n_α = 1.676; $2V$ = −70° (calcd. from the n's). *trans-(Aminopyridino)pyridinodichloroplatinum*, $Pt(C_5H_4NH_2N)(C_5H_5N)Cl_2$, is a greenish yellow powder of crystals of no definite form. n_γ > 1.780, n_β = 1.754, n_α = 1.695; $2V$ = −65°. *Green Magnus' salt*, $[Pt(NH_3)_4][PtCl_4]$, forms thin needles which show faint interference colors and direct extinction. n_γ > 1.853, n_β = 1.770. The long direction is pos. *trans-Diamminodichloropalladium*, $[Pd(NH_3)_2Cl_2]$, is a yellow powder consisting of dendrites. n_1 > 1.817, n_t = 1.718. *Ammonium chloropalladate*, $(NH_4)_2(PdCl_6)$, forms dark-green needles with a bronze iridescence. The uniaxial, neg. crystals show pleochroism from light brown along n_β to light green along n_α. n_β = 1.736, n_α = 1.544. *Diamminodichlorodihydroxoplatinum*, $Pt(NH_3)_2Cl_2(OOH)_2$, is a pale-yellow powder of crystals having no definite form. n_γ = 1.756, n_β = 1.730, n_α = 1.690; $2V$ (calcd.) = −75°. *Tetramminopalladium dichloride monohydrate*, $(NH_4)_2PdCl_2.H_2O$, forms long, pale-yellow needles, uniaxial, neg. n_β = 1.620, n_α = 1.557. VIII. G. B. Bokii and E. E. Burovaya. *Ibid.* 47–53.—*l-(Ethylenediammino)nitrochloro(methylammino)chloroplatinum chloride hemitrihydrate*, *l*-$[C_2H_4(NH_2)_2NO_2ClMeNH_2ClPt]Cl.1.5H_2O$, forms long, yellow platelets 3 × 1 × 0.5 mm. Measurements indicate the crystals are monoclinic-holohedral. Levorotation, however, indicates C_2-2. $2V$ (calcd. from n values) = −78°. n_γ = 1.710, n_β = 1.690, n_α = 1.660. $a:b:c$ = 1.503:1:1.821. β = 101°30'. Forms observed {100}, {001}, {110}, {$\bar{1}$11}, {201}, {205}, {111}. *Sodium triamminotrisulfitoiridate hexahydrate*, $Na_3[Ir(SO_3)_3(NH_3)_3].(6–7)H_2O$ (III), forms colorless, pointed rhombohedra 2 × 0.5 mm., which belong to the hexagonal crystals of class D_{3d}-$\bar{3}m$. $a:c$ = 1:3.169. Forms observed {10$\bar{1}$1}, {01$\bar{1}$2}. Vicinal surfaces are observed and coalescence along {10$\bar{1}$1}. Uniaxial, neg. n_β = 1.570, n_α = 1.546. They are isomorphous with $Na_3[Rh(SO_3)_3(NH_3)_3].6H_2O$. *Potassium triamminotrisulfitorhodate hexahydrate* forms colorless, long rhombohedra isomorphous with III. $a:c$ = 1:3.184. n_β = 1.607, n_α = 1.563. *Diammonium tetrachloroplatinate*, $(NH_4)_2PtCl_4$ (IV), crystals belonging to the tetragonal holohedral system. They are tods along {100} with the faces {001} and {101}. $a:c$ = 1:0.68. n_β = 1.706, n_α = 1.574; $2V$ = −0°. Corresponding data for K_2PtCl_4 (V) are: $a:c$ = 1:0.588; n_β = 1.693, n_α = 1.648; $2V$ = −0°. IV and V are assumed to be isomorphous. *Triammonium hexachlororhodate monohydrate*, $(NH_4)_3RhCl_6.H_2O$, forms dark-red prisms (0.1–0.3 mm.) belonging to the orthorhombic holohedral system, which are isomorphous with $(NH_4)_3IrCl_6.H_2O$. $a:b:c$ = 0.874:1:0.497. Forms measured {110}, {120}, {011}. n_γ = 1.750, n_β = 1.750, n_α = 1.740; $2V$ = −70°. The longitudinal direction is pos. *Iridiumdichloro(dimethylglyoximic) acid*,

$$H\left[Ir\left(\begin{matrix}MeC{=}NO\\ |\\ MeC{=}NOH\end{matrix}\right)_2Cl_2\right].$$

AVDEYEVA, A.V.; SOKOLOVSKIY, A.L.; TSYGANOVA, P.A.

Corrosion resistance of metals subjected to sugar and caramel syrups. Khleb. i kond. prom. 1 no.4:12-14 Ap '57. (MLRA 10:5)

1. Moskovskiy tekhnologicheskiy institut pishchevoy promyshlennosti.
(Corrosion and anticorrosives) (Syrups)

TSYGANOVA, P.A.

AVDEYEVA, A.V.; TSYGANOVA, P.A.; SOSNOVSKIY, L.B.

Studying the corrosion resistance of materials for making apparatus used in the production of pectin from beet pulp. Khleb. i kond. prom. 1 no.5:12 My '57. (MIRA 10:6)

1. Moskovskiy tekhnologicheskiy institut pishchevoy promyshlennosti (for Avdeyeva and TSyganova). 2. Vsesoyuznyy konditerskiy nauchno-issledovatel'skiy institut (for Sosnovskiy).
(Pectin) (Corrosion and anticorrosives)

TSYGANOVA, P.A.

AVDEYEVA, A.V., prof., doktor tekhn. nauk; SOKOLOVSKIY, A.L., prof., doktor tekhn. nauk; TSYGANOVA, P.A., assistent.

Investigating corrosion resistance of metals in confectionery production. (MIRA 10:12)
Trudy MTIPP no.10:96-103 '57.
(Confectionery) (Corrosion and anticorrosives)

SOV/137-58-11-23042

Translation from: Referativnyy zhurnal. Metallurgiya, 1958, Nr 11, p 173 (USSR)

AUTHORS: Avdeyeva, A. V., Sokolovskiy, A. L., Tsyganova, P. A., Begunova, T. N.

TITLE: Investigation of Corrosion Resistance of Metals in Aggressive Media of Caramel Production (Issledovaniye korroziynoy stoykosti metallov v agressivnykh sredakh karamel'nogo proizvodstva)

PERIODICAL: Khlebopek. i konditersk. prom-st', 1958, Nr 2, pp 14-15

ABSTRACT: A study was made of the corrosion of Zh-17-T and Ya-1-T steels, Al, Cu, and St3 steel in a caramel mass, caramel filling (1 part apple puree + 1 part sugar) and in boiled apple, apricot, and damson-plum purees. Zh-17-T and Ya-1-T steels are resistant in all three media, Al is resistant in the caramel medium, Cu in the caramel filling and in the boiled purees. The addition of 1% citric and 1% lactic acids to the caramel mass and filling does not increase corrosion. The addition into the boiled puree of 2% [a line must have been skipped in the Russian original. Trans. Note] .....Cu. Upon the addition of 2% trioxyglutaric acid to the apricot puree all metals are corroded. Tests under shop conditions showed a good resistance

Card 1/2

Investigation of Corrosion Resistance of Metals in Aggressive Media (cont.)

of Zh-17-T and Ya-1-T steels in the filling vacuum apparatus. Only Ya-1-T steel is resistant in the storage tank for puree treated with SO_2, and it can also be recommended for the manufacture of the condenser of the water-jet air pump where SO_2 of various concentrations may always be present.

T. A.

137-58-5-10155

TSYGANOVA, P.A.

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 5, p 181 (USSR)

AUTHORS: Avdeyeva, A.V., Sokolovskiy, A.L., Tsyganova, P.A.

TITLE: An Investigation of the Corrosion Resistance of Metals in the Confectionery Industry (Issledovaniye korrozionnoy stoykosti metallov v konditerskom proizvodstve)

PERIODICAL: Tr. Mosk. tekhnol. in-t pishch. prom-sti, 1957, Nr 10, pp 96-103

ABSTRACT: A study is made of the corrosion resistance of Zh-17-T, Ya-1-T, and St 3 steels and of Al and Cu, at 120°C, in the following aggressive mediums: 1) sugar syrup with 1% added lactic and 1% added citric acid, pH 2.87; 2) invert syrup, pH 3.14; 3) caramel syrup on molasses base, pH 6.22 and 2.8; 4) caramel syrup on invert sugar base, pH 6.14 and 2.12. Zh-17-T steel proved fully resistant to all these mediums. Ya-1-T steel was less stable. St 3 steel was totally unstable. Al starts to corrode in acid caramel syrup. Cu corrodes in acidified syrups. Shop tests showed that steels Zh-17-T and Ya-1-T are completely stable in a medium of caramel crumbs and caramel syrup and are suited for the fabrication of cooking tanks. Studies

Card 1/2

137-58-5-10155

An Investigation of the (cont.)

are made of the corrosion strength of metals in caramel mass with 1% lactic and 1% citric acids added (at 145°C), in caramel fillings (1 part apple puree plus 1 part sugar at 95°) and in reboiled preparations of apples, apricots, and alycha [a member of the damson plum family; Transl. Ed. Note] (at 120°). Zh-17-T steel and Al are completely stable in caramel mass. Ya-1-T and Cu become corroded. St 3 steel is completely unstable.

T.A.

1. Metals--Corrosion 2. Industrial plants--Equipment

Card 2/2

Tsyganova, P. A.

137-1957-12-24542

Translation from: Referativnyy zhurnal, Metallurgiya, 1957, Nr 12, p 228 (USSR)

AUTHORS: Avdeyeva, A. V., Sokolovskiy, A. L., Tsyganova, P. A.

TITLE: Corrosion Resistance of Metals in Sugar and Caramel Syrups (Korrozionnaya stoykost' metallov v sakharnykh i karamel'nykh siropakh)

PERIODICAL: Khlebopek. i konditersk. prom-st', 1957, Nr 4, pp 12-14

ABSTRACT: Some results of corrosion experiments conducted on various metals in the preparation of caramel under both laboratory and industrial conditions. The degree of corrosion was determined by the weight method. Sugar (pH 2.87; 3.14) and caramel (pH 6.22; 6.14; 2.81; 2.12) syrups were investigated as the corroding media. Tests in the plant apparatus have demonstrated that steel 3 is unsuitable either for syrup made of crumbs or for caramel syrup. Cu is unsuitable for syrup made of crumbs, whereas Cr and Cr-Ni steels are corrosion resistant in the media mentioned.

O. P.

Card 1/1

1. Caramel syrup-Corrosive effects 2. Sugar syrup-Corrosive effects 3. Metals-Corrosion-Test results

L 45673-66 EWT(l)/EWT(m)/EWP(w)/T/EWP(t)/ETI IJP(c) JD/WW/JG

ACC NR: AP6021214 SOURCE CODE: UR/0294/66/004/003/0364/0368

AUTHOR: Trelin, Yu. S. (Moscow); Vasil'yev, I. N. (Moscow); Proskurin, V. B. (Moscow); Tsyganova, T. A. (Moscow)

ORG: none

TITLE: Experimental data on the speed of sound in alkaline metals at temperatures up to 800°C

SOURCE: Teplofizika vysokikh temperatur, v. 4, no. 3, 1966, 364-368

TOPIC TAGS: acoustic waveguide, sound transmission, ~~alkali metal~~, sodium, potassium

ABSTRACT: The present work discusses the method and results of measuring the speed of sound in sodium and potassium and three mixtures of these metals (69.4%, 53.1%, 28.5% of sodium in each mixture) at temperatures up to 800°C. The speed of sound was determined by an acoustic interferometer adapted to high temperature work and in chemically active substances by using steel acoustic waveguides. In all cases under investigation, the speed of sound was found to be a linear function of the temperature. The greatest speed was observed in pure sodium. The authors also computed the following quantities on the basis of the acoustic data and density: adiabatic and isothermal compressibilities, ratio of heat capacities at constant pressure to that at constant volume. These quantities were derived from the thermodynamic relations given in a seri-

UDC: 534.2.22:532.12

Card 1/2

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ACC NR: AP6021214

es of equations. For the three alloys of Na and K, density relationship in terms of relative concentrations was derived from the empirical data. The measurement errors of these quantities are also given. This work was stimulated by the need of thermodynamic data for liquid metals needed in the design of the atomic energy power generators. Orig. art. has: 3 figures, 1 table, 5 formulas.

SUB CODE: 20/ SUBM DATE: 25Apr65/ ORIG REF: 005/ OTH REF: 003

fv

Card 2/2

1. TSYGANOVA, T. F.

2. USSR (600)

4. Afforestation - Chelyabinsk Providence

7. Spot seeding of forests in the forest-steppe zone of Chelyabinsk Providence. Dost. sel'khoz. no. 4: 1952

9. Monthly List of Russian Accessions, Library of Congress, January, 1953. Unclassified.

1. TSYGANOVA, T. F.

2. USSR (600)

4. Chelyabinsk Province - Afforestation

7. Spot seeding of forests in the forest-steppe zone of Chelyabinsk Province. Dost. selkhoz z. no. 4, 1952

9. Monthly List of Russian Accessions, Library of Congress, January 1953. Unclassified.

SHAINSKIY, M. Ye., inzh.; TSYGANOVSKIY, B. M., inzh.

Semiautomatic face-milling machine. Mashinostroenie no.5:10 S-O '62. (MIRA 16:1)

1. Luganskiy teplovozostroitel'nyy zavod.

(Milling machines)

ACC NR: AP6036461 SOURCE CODE: UR/0196/66/002/011/0112/0117

AUTHORS: Kozlov, L. F. (Kiev); Tsyganyuk, A. I. (Kiev)

ORG: Institute of Hydromechanics, AN UkrSSR (Institut gidromekhaniki AN UkrSSR)

TITLE: Using sixth degree polynomials for calculating a boundary layer in the presence of suction

SOURCE: Prikladnaya mekhanika, v. 2, no. 11, 1966, 112-117

TOPIC TAGS: laminar boundary layer, approximation method, incompressible flow, fluid friction

ABSTRACT: The Karman-Pohlhausen momentum integral method is used to analyze the laminar viscous flow of an incompressible fluid in the presence of arbitrary pressure gradients and small suction. The velocity profile is described by a sixth degree polynomial. The integrated form of the momentum equation is given by

$$\frac{df}{dx} = \frac{dU}{dx}\frac{1}{U}(F - 2t^{**}) + \frac{\frac{d^2U}{dx^2}}{\frac{dU}{dx}}f,$$

where t is the suction velocity (nondimensional) and F is the pressure parameter given by $F = 2\zeta - (2+H)f$; where f is given by $f = \frac{dU}{dx}\frac{\delta^{**2}}{\nu}$. Plots of f versus ζ and of f

Card 1/2

ACC NR: AP6036461

versus H indicate that F can be approximated by the almost linear relationship

$$F(f, t^{**}) = A(t^{**}) - B(t^{**}) f - \varepsilon(f, t^{**}) .$$

Substituting this in the momentum integral equation, a quadrature is obtained for f and the various boundary layer parameters calculated for different values of the suction velocity. Orig. art. has: 18 equations and 6 figures.

SUB CODE: 20/ SUBM DATE: 02Sep66/ ORIG REF: 003/ OTH REF: 001

Card 2/2

ANDREYEV, A.I.; SHISHKINA, Ye.Ya., veterin.vrach; GULIYEV, M.A., veterin.vrach; DUBAKIN, N.I.; FOMINA, A.Ya., kand.veterin.nauk; SOKKAR, I.M.Kh., aspirant; KUZ'MIN, V.V., prof.; TSYGENBORD, O.A., veterin.vrach

Laboratory practice. Veterinariia 40 no.7:66-76 Jl '63.
(MIRA 16:8)

1. Direktor Akhtyrskoy mezhrayonnoy veterinarnoy laboratorii, Sumskaya obl. (for Andreyev). 2. Vsesoyuznyy institut eksperimental'noy veterinarii (for Shishkina, Fomina, Sokkar). 3. Respublikanskaya veterinarnaya laboratoriya Gruzinskoy SSR (for Guliyev). 4. Moskovskaya oblastnaya veterinarnaya laboratoriya (for Dubakin). 5. Leningradskiy veterinarnyy institut (for Kuz'min, TSygenbord).
(Veterinary medicine)

30604
S/058/61/000/008/004/044
A058/A101

26.2330
AUTHOR: Tsygikalo, A. A.

TITLE: Testing of the accelerating tubes of the 2 Mev ФТИ (FTI) electrostatic accelerator of the AS UkrSSR

PERIODICAL: Referativnyy zhurnal, Fizika, no. 8, 1961, 34, abstract 8B18 (V sb. "Elektrostat. generatory". M., Atomizdat, 1959, 23-31)

TEXT: The author discusses briefly the designs of five accelerating tubes tested in a 4 Mev electrostatic generator and discusses the results of these tests. The author notes that clipping of the maximum voltage owing to voltage "breaks" can be eliminated by altering the design of the insulator and the technology of gluing it to the electrode.

D. Koshkarev

[Abstracter's note: Complete translation]

X

Card 1/1

GLEZER, V.D.; TSUKKERMAN, I.I.; TSYKUNOVA, T.M.

Relation between visual transmission capacity and brightness. Dokl. AN SSSR 136 no. 3:730 Ja '61. (MIRA 14:2)

1. Institut fiziologii imeni I.P. Pavlova AN SSSR. Predstavleno akademikom V.M. Chernyshevskim.
(VISION)

TSYGANOVA, YE. V.

USSR/Chemistry - Suspension
Chemistry - Dispersed Systems

Mar 49

"The Adherence of Microscopic Particles to the Hard Surface of Liquids," G. I. Fuks, V. M. Klychnikov, YE. V. Tsyganova, All-Union Sci Res Inst for Fertilizers, Agrotech, and Soil Studies imeni K. K. Gedroyts, 4 pp

"Dok Ak Nauk SSSR" Vol LXV, No 3

Studied adherence of monodispersed suspensions of quartz, glass, graphite, clay, soils, and rosin to quartz, glass, metals, paraffin in water, mineral oils, and several other liquids. Submitted by Acad Rebinder 3 Jan 49

PA 39/49T11

TSYGANOVA, Ye.V.

TILICHEYEV, M.D.; GOYSA, Ye.I.; TSYGANOVA, Ye.V.

Gravimetric method for the quantitative determination of arenes in light-colored petroleum products. Trudy VNII NP no.6:148-155 '57. (MIRA 10:10)

(Aromatic compounds) (Petroleum products--Analysis)

SHAINSKIY, M.Ye., inzh.; TSYGANOVSKIY, B.M., inzh.; MOGIL'NYY, N.I., inzh.

Semiautomatic machine for milling center flanges in bolts, rollers, and pins. Mashinostroenie no.6:64-66 N-D '63.

MATAKSIS, T. [Mataxis, T.], polkovnik; GOLDBERG, S., podpolkovnik; ALEKSANDROV, I.A. [translator]; GROMOV, Yu.Ye. [translator]; PETROV, V.G. [translator]; TSYGICHKO, N.P., red.; NEPODAYEV, Yu.A., red.; IOVLEVA, N.A., tekhn.red.

[Pentomic Divison; tactics, armaments and firepower of the pentomic division, battle groups and companies operating under conditions of atomic warfare] Pentomicheskaia diviziia; taktika, vooruzhenie i ognevaia moshch' pentomicheskoi divizii, boevoi gruppy i roty v usloviiakh primeneniia iadernogo oruzhiia. Pod red. N.P.TSygichko. Moskva, Izd-vo inostr.lit-ry, 1959. 345 p. Translated from the English. (MIRA 13:6)

(United States--Army) (Atomic warfare)

TSYGIKALO, A. I.

Telegrafiya (by) V.V. Novikov, A.I. Tsygikalo, P.A. Naumov. Moskva, Svyaz'izdat, 19--.

v. illus., diagrs.
Includes references.
Contents: ; v.2, Telgrafnyye Apparaty i Stantii;

TSYGIKALO, A.A.

9(314) PHASE I BOOK EXPLOITATION SOV/2746

Akademiya nauk USSR. Fiziko-tekhnicheskiy institut

Elektrostaticheskiye generatory; sbornik statey (Electrostatic Generators; Collection of Articles) Moscow, Atomizdat, 1959. 255 p. 4,100 copies printed.

Ed. (Title page): A. K. Val'ter, Member, Academy of Sciences, USSR; Ed. (Inside book): Z. D. Andreyenko; Tech. Ed.: N. A. Vlasova.

PURPOSE: This collection of articles may be useful to scientists and engineers working with high-voltage electrostatic generators.

COVERAGE: The authors discuss the construction and operation of a number of electrostatic generators developed in the USSR and describe methods of generating negative hydrogen ions. They discuss the operation of accelerating tubes and present methods of stabilizing accelerator voltages. No personalities are mentioned. References appear at the end of some articles.

Koval', A. G., L. I. Krupnik, A. D. Timofeyev and Ya. M. Fogel'. Problem of Producing a Beam of Negative Hydrogen Ions by Overcharging Positive Ions in a Cathode Channel of a High-frequency Source 15
The authors discuss a negative hydrogen-ion source based on the production of a negative ion beam by overcharging positive ions in a gas flowing through a cathode channel of a high-frequency source. They also derive expressions for determining amount of negative hydrogen ions in that beam. There are 11 references: 6 Soviet, 4 English and 1 German.

Tsygikalo, A. A. Testing of Accelerating Tubes of a 4 Mev Electrostatic Accelerator Developed by FTI AN UkrSSR
The author briefly discusses the construction of a number of accelerating tubes and describes testing of these tubes in a 4 Mev electrostatic accelerator. He also discusses the results of testing and presents the configuration of the electric field in a tube with conical electrodes. There is 1 Soviet reference.

Fogel', Ya. M., R. P. Slabospitskiy and I. T. Ougkovskiy. Generation of Negative Ions of Helium, Carbon, Oxygen and Chlorine When Passing Positive Ions Through a Supersonic Jet of Mercury Vapor. 32
The authors study the transformation of positive ions of helium, carbon, oxygen and chlorine into negative ions when former are passed through a supersonic jet of mercury vapor. They also consider the possibility of producing a source of heavy negative ions and present graphs showing variation of the transformation coefficient with temperature and ion energy. There are 7 references: 3 Soviet and 4 English.

Akshanov, B. S. Electrostatic Generator as an Injector for an Accelerator 46
The author discusses the use of electorstatic generators as injectors of high-energy particles for accelerators. He describes basic features of these generators and considers the operation of generator ion sources. He also discusses control and supply circuits of ion sources and briefly describes generators developed in the laboratory of FTI AN UkrSSR. There are no references.

Pivovar, L. I., and V. M. Tubayev. Study of Electric Strength of Some Compressed Gases and Gaseous Mixtures With the Aid of an Electrostatic Generator 56
The authors discuss a compact electrostatic generator developed in the laboratory of FTI AN UkrSSR and used in testing electric strength of compressed gases and gaseous mixtures such as carbon dioxide, nitrogen, hydrogen and mixtures of nitrogen and carbon dioxide, nitrogen and an electrically negative gas, sulfur hexafluoride (SF_6); carbon dioxide and sulfur hexafluoride. They describe the experimental setup, discuss the procedure used in testing and present experimental results. There are 12 references: 11 English and 1 Soviet.

Novikovskiy, E. S. Voltage Stabilization of a High-current Direct-acting Accelerator 73
The author discusses the operation of a voltage stabilization system for a high-current accelerator. The system was developed and tested in the laboratory of FTI AN UkrSSR and it may be used in accelerators using an electrostatic generator and a multiplier circuit. There are no references.

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Tsygikalo, A.A.

9(314) PHASE I BOOK EXPLOITATION SOV/2746

Akademiya nauk UkSSR. Fiziko-tekhnicheskiy institut

Elektrostaticheskiye generatory; sbornik statey (Electrostatic Generators; Collection of Articles) Moscow, Atomizdat, 1959. 255 p. 4,100 copies printed.

Ed. (Title page): A. K. Val'ter, Member, Academy of Sciences, UkSSR; Ed. (Inside book): Z. D. Andreyenko; Tech. Ed.: N. A. Vlasova.

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Koval', A. G., L. I. Krupnik, A. D. Timofeyev and Ya. M. Fogel'. Problem of Producing a Beam of Negative Hydrogen Ions by Overcharging Positive Ions in a Cathode Channel of a High-frequency Source 15
The authors discuss a negative hydrogen-ion source based on the production of a negative ion beam by overcharging positive ions in a gas flowing through a cathode channel of a high-frequency source. They also derive expressions for determining amount of negative hydrogen ions in that beam. There are 11 references: 6 Soviet, 4 English and 1 German.

Val'ter, A. K., A. Ya. Taranov, L. I. Pivovar, Ya. M. Fogel', V. Kh. Bulyanov and S. P. Tsytko. 5-Mev Horizontal Overcharging Electrostatic Generator 195
The authors discuss the principle of operation and construction of a EG-5 type electrostatic generator and describe methods of ion acceleration and overcharging. They also explain the operation of an ion-beam focusing system and briefly discuss the stabilization and measurement of generator voltages. There are 4 references: 3 Soviet and 1 English.

Val'ter, A. K., and A. A. Tsygikalo. Experience Acquired in the Design, Testing and Operation of a 4-Mev Vertical Electrostatic Accelerator Developed by FTI AN UkrSSR 200
The authors discuss the construction and requirements of a 4-Mev vertical electrostatic accelerator developed by FTI AN UkrSSR and present the results of a study of insulating materials for the accelerator and the accelerating tube. They also discuss the results of testing of the accelerator and its components and present current and voltage characteristics. There are 17 references: 8 Soviet, 5 English and 1 French.

Malyshev, I. F., F. G. Zheleznikov and G. Ya. Roshal'. Experience Acquired in the Development of Industrial Types of Electrostatic Generators 224
The authors discuss the construction and operation of a EG-2.5 million-volt electrostatic generator and its components and present the results of testing. They also briefly describe the operation of a EG-5-1 type 4-5 million volt electrostatic generator developed by OKB in 1956. There are 9 references: 4 Soviet (including 1 translation) and 5 English.

AVAILABLE: Library of Congress

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Tsygikalo, A.A.

PHASE I BOOK EXPLOITATION SOV/4012

Akademiya nauk Ukrainskoy SSR. Otdeleniye fiziko-matematicheskikh nauk. Sessiya po mirnomu ispol'zovaniyu atomnoy energii

Trudy (Transactions of the Session on Peaceful Uses of Atomic Energy), Kiyev, Izd-vo AN Ukrainskoy SSR, 1958. 188 p. 2,500 copies printed.

Resp. Ed.: M. V. Pasechnik, Doctor of Physics and Mathematics; Editorial Board: A. K. Val'ter, Academician, Academy of Sciences Ukrainskaya SSR, O.F. Nemets, Candidate of Physics and Mathematics, M. V. Pasechnik, Doctor of Physics and Mathematics; Ed. of Publishing House: T. K. Remennik; Tech. Ed.: N. P. Rakhlina.

PURPOSE: This collection of articles is intended for physicists and scientific personnel working in nuclear research.

COVERAGE: The articles in this collection discuss linear proton accelerators, electron accelerators, electrostatic accelerators, magnetron lenses, the interaction of charged particles and neutrons with nuclei, the applications of tagged atoms in physics research, and experimental methods. Some of the articles are descriptions of already existing nuclear installations and experimental apparatus. No personalities are mentioned. There is a bibliography of Soviet and non-Soviet sources at the end of most of the articles.

Sinel'nikov, K.D., P.M. Zeydlits, A.M. Sekrashevich, L.I. Bolotin, Ya. S. Shutskever, B.S. Akshanov, N. Ye. Kovnak, K.A. Leontovich, A.I. Akhiyezer, I.M. Lifshits, Ya. B. Faynberg, L.N. Rozentsveyg (Deceased), G. Ya. Lyubarskiy, M.I. Kaganov, and L.E. Pargamanik. 20.5-Mev Linear Proton Accelerators

Sinel'nikov, K.D., P.M. Zeydlits, I.A. Grishayev, L. Kh. Kitayevskiy A.I. Akhiyezer, Ya. B. Faynberg, N.P. Selivanov, and N. A. Khizhnyak. Electron Accelerator With an Output Energy of 3.5 Mev 16

Val'ter, A.K., and A.A. Tsygikalo. A 4-Mev Electrostatic Accelerator for Precision Nuclear Measurements 24

Akshanov, B.S., and P.I. Strel'nikov. A 2.5-Mev Horizontal-Type Electrostatic Generator 35

Akhiyezer, A.I., and A.G. Sitenko. Interaction of Fast Deuterons With Nuclei 57

Klyucharev, A.P., A.K. Val'ter, and B. N. Yesel'son. Reaction of He³ With Deuterons 64

Tsytko, S.P., and Yu. P. Antuf'yev. Gamma-Resonances in Reactions of Proton Capture by Silicon Isotopes and Energy Levels of the Nucleus 70

Vanetsian, R.A., and Ye. D. Fedchenko. Investigation of Elastic Scattering of 18.7-Mev Energy Protons on Nickel and Copper Nuclei 77

Val'ter, A.K., and N. Ya. Rossomakhina. Elastic Scattering of Neutrons by Nickel, Copper, Lead, Bismuth and Uranium Nuclei 80

Nemets, O.F., and M.V. Pasechnik. Neutron Spectrometer in the 0.7 to 3-Mev Energy Band 84

Barchuk, I.F., V.P. Vertebnyy, B.D. Konstantinov, O.F. Nemets, and M.V. Pasechnik. Spectra of Fast Neutrons Scattered by Atomic Nuclei 94

Batalin, V.A., N.S. Kopytin, G.S. Kryshtab, M.V. Pasechnik, and V. I. Strizhak. Nonelastic Scattering Cross Sections of Fast Neutrons 102

Akhiyezer, A.I., N.I. Akhiyezer, and G. Ya. Lyubarskiy. Effective Boundary Condition for Multiplying and Moderating Media Interface 107

Aleksandrov, B.S., B.I. Verkin, and B.G. Lazarev. Obtaining Pure Metals by Repeated Zonal Recrystallization and the Use of Radioactive Isotopes for Investigating the Mechanism of Refining Metal Impurities by This Method 119

Morgulis, N.D. Using the Radioactive Indicator Method in Investigations of Surface Phenomena Physics 138

Miselyuk, Ye. G., P.I. Baranskiy, and V. Ye. Kosenko. Using Radioactive Isotopes in Investigations of Condition and Distribution of Impurities in Germanium 140

Tsyg, Kalo, A.A.

82134

S/058/60/000/02/05/023

21.2000

Translation from: Referativnyy zhurnal, Fizika, 1960, No. 2, p. 25, # 2734

AUTHORS: Val'ter, A. K., Tsygikalo, A. A.

TITLE: An Electrostatic 4-Mev Accelerator for Precision Nuclear Measurements

PERIODICAL: Tr. Sessii AS UkrSSR po mirn. ispol'zovaniyu atomn. energii. Kiyev, AS UkrSSR, 1958, pp. 24-34

TEXT: The design and the operation experience are described in detail of an experimental vertical electrostatic generator of FTI AS UkrSSR for an energy of 1.2-3.8 Mev. The generator is placed into a reservoir filled with compressed gas (a mixture of nitrogen and carbon dioxide under a pressure of up to 20 atm). The reservoir is 2.2 m in diameter and ~7.5 m long. The generator is loaded on two accelerating tubes with an operation vacuum (at the lower end) of $(1.5\text{-}2)\cdot10^{-6}$ mm Hg. In sources of the Penning type (with a cold cathode) for a current of up to 70 μa are installed at each of the accelerating tubes. The beam from one accelerating tube is used for measuring the absolute energy by means of an electrostatic analyzer. The ion beam of the other tube is an operational beam and is directed, through a magnetic analyzer onto the target. The accuracy of the energy measuring

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S/058/60/000/02/05/023

An Electrostatic 4-Mev Accelerator for Precision Nuclear Measurements

is up to 0.05%.

ASSOCIATION: Fiz.-tekhn. in-t AN UkrSSR (Physico-Engineering Institute of AS UkrSSR)

V. G. Lopato

Card 2/2

PHASE I BOOK EXPLOITATION SOV/6536

Val'ter, A. K., F. G. Zheleznikov, I. F. Malyshev, G. Ya. Roshal', A. N. Serbinov, A. A. Tsygikalo, and S. P. Tsytko

Elektrostaticheskiye uskoriteli zaryazhennykh chastits (Electrostatic Accelerators of Charged Particles) Moscow, Gosatomizdat, 1963. 301 p. 4700 copies printed.

Ed. (Title page): A. K. Val'ter, Academician, Academy of Sciences of the UkrSSR.

Ed.: A. V. Gorokhovskiy; Tech. Ed.: N. A. Vlasova.

PURPOSE: This book is intended for scientists, students, engineers, and technicians developing, utilizing, or studying high-potential engineering and acceleration of charged particles.

COVERAGE: This textbook on electrostatic generators is devoted chiefly to electrostatic accelerators intended for nuclear research.

Card 1/8

Sections 1—3 of Ch. I are written by A. K. Val'ter; Section 4 of Ch. I and Chs. II, V, and VII are written by A. A. Tsygikalo; Ch. III, by A. N. Serbinov; Ch. IV, by S. P. Tsytko; and Ch. VI, by I. F. Malyshev, F. G. Zheleznikov, and G. Ya. Roshal'. There are 182 references: 73 Soviet and 109 non-Soviet.

TABLE OF CONTENTS [Abridged]

Foreword 3

Ch. I. Introduction
1. Short outline of the development of electrostatic generators 5
2. Application of accelerated particles for the investigation of atomic nuclei 8
3. Comparative evaluation of linear, cyclic, and electrostatic accelerators within the range of moderate energies 21
4. Application of electrostatic generators and accelerators in industry 31

TSYGIKALO A A

PHASE I BOOK EXPLOITATION SOV/6536

Val'ter, A. K., F. G. Zheleznikov, I. F. Malyshev, G. Ya. Roshal', A. N. Serbinov, A. A. Tsygikalo, and S. P. Tsytko

Elektrostaticheskiye uskoriteli zaryazhennykh chastits (Electrostatic Accelerators of Charged Particles) Moscow, Gosatomizdat, 1963. 301 p. 4700 copies printed.

Ed. (Title page): A. K. Val'ter, Academician, Academy of Sciences of the UkrSSR.

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COVERAGE: This textbook on electrostatic generators is devoted chiefly to electrostatic accelerators intended for nuclear research.

Card 1/8

Electrostatic Accelerators (Cont.) SOV/6536

Sections 1—3 of Ch. I are written by A. K. Val'ter; Section 4 of Ch. I and Chs. II, V, and VII are written by A. A. Tsygikalo; Ch. III, by A. N. Serbinov; Ch. IV, by S. P. Tsytko; and Ch. VI, by I. F. Malyshev, F. G. Zheleznikov, and G. Ya. Roshal'. There are 182 references: 73 Soviet and 109 non-Soviet.

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4. Application of electrostatic generators and accelerators in industry 31

Card 2/8

NOVIKOV, Vasiliy Vasil'yevich; TSYGIKALO, Arkadiy Iosifovich; NAUMOV, Pavel Alekseyevich; TOMASHEVSKIY, B.A., otv.red.; KOKOSOV, L.V., red.; MARKOCH, K.G., tekhn.red.

[Telegraph] Telegrafiia. Moskva, Gos.izd-vo lit-ry po voprosam sviazi i radio. Pt.2. [Telegraph stations and apparatus] Telegrafnye apparaty i stantsii. 1960. 461 p. (MIRA 13:10)
(Telegraph)

Tsygikalo, A.A.

120-4-1/35

AUTHORS: Val'ter, A.K. and Tsygikalo, A.A.

TITLE: A 4 MV Vertical Electrostatic Generator of the FTI Ac.Sc. Ukrainian SSR (Vertikal'nyy elektrostaticheskiy generator FTI AN USSR na 4 MV)

PERIODICAL: Pribory i Tekhnika Eksperimenta, 1957, No.4, pp. 3-12 (USSR)

ABSTRACT: The 4 MV electrostatic generator of the Physico-technical Institute of the Ac.Sc. USSR was designed for nuclear work requiring an accurate knowledge of the energy of the accelerated particles (± 0.05%). The design was worked out in 1949-1950. The following requirements had to be satisfied: a) high degree of stabilisation of the voltage of the electrostatic generator; b) continuous variation of the energy of the accelerated particles; c) control of magnitude, form, and density of the beam current; d) best utilisation of the working time of the generator; e) safety and simplicity of servicing. To obtain both high resolution and the necessary ion current, two accelerating tubes were used. The beam accelerated in one of these is used for measurements and stabilisation, and the beam accelerated in the other is the "working" beam used to irradiate targets.

Card1/2 Using the upper limit of resolution of the electrostatic

A 4 MV Vertical Electrostatic Generator of the FTI Ac.Sc. Ukrainian SSR.

analyser under the first tube, and an electromagnetic analyser under the second tube, it is possible to obtain a beam from the latter tube whose strength is governed only by the current capabilities of the generator and the thermal stability of targets. Beam currents of up to 500 μA have been obtained. The generator works in compressed gas (20 atm.). The belt is 53 cm wide and moves with a speed of 20 m/sec. The charge is put on the inner side of the belt by four brushes working in parallel and supplied with 70 kV through a resistance of 4 Megohms. A cold cathode ion source is used in each tube. There are 20 figures and 9 references, of which 5 are Slavic.

ASSOCIATION: Physico-Technical Institute of the Ac.Sc.Ukrainian SSR (Fiziko-tekhnicheskiy institut AN USSR)

SUBMITTED: March 7, 1957.

AVAILABLE: Library of Congress