"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000413420015-1

FOMENKO, T.G.; SOROKIN, I.P.

Loosening of materials in the jigging process. Izv. vys. uchcb. zav.; tsvet. met. 3 no.3:45-48 '60. (MIRA 14:3)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut zolota i redkikh metallov. Rekomendovana kafedroy obogashcheniya poleznykh iskopayemykh Krasnoyarskogo instituta tsvetnykh metallov.
(Ore dressing)

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FOMENKO, T.G.

Free settling velocity of gold grains. Izv. vys. ucheb. zav.; tsvet. met. 4 no.3:22-27 '61. (MIRA 15:1)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut zolota i redkikh metallov (VNII-1). Rekomendovana kafedroy obogashcheniya poleznykh iskopayemykh Donetskogo politekhnicheskogo instituta.

(Gold ores)
(Ore dressing)

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000413420015-1

FOMENKO, T.G.; BUTOVETSKIY, V.S.; VOLODIN, A.V.; MAMCHITS, G.O.

Increasing the output capacity of vacuum filters at coal preparation plants. Koks i khim. no.1:11-15 '61. (MIRA 15:2)

1. Institut UkrNIIUgleobogashcheniye (for Fomenko, Butovetskiy).
2. Voroshilovskiy koksokhimicheskiy zavod (for Volodin, Mamchits).
(Coal preparation plants—Equipment and supplies)
(Filters and filtration)

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000413420015-1

BLAGOV, I.S.; KOTKIN, A.M.; FOMENKO, T.G.; NYKOV, N.A., otv. red.; ROMANOVA, L.A., red. izd-va; OVSKYENKO, V.G., tekhn. red.; LAVRENT'YEVA, L.G., tekhn.red.

[Gravity ore dressing processes; theoretical principles]Gravitatsionnye protsessy obogashcheniia; teoreticheskie osnovy. Moskva, Gosgortekhizdat, 1962. 230 p. (MIRA 15:11)
(Ore dressing)

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000413420015-1"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000413420015-1

FOMENKO, Timofey Grigor'yevich; BLAGOV, Igor' Sil'vestrovich; KOTKIN, Aleksandr Matveyevich; KUNIK, V.P., red.izd-va; LOMILINA, L.N., tekhn. red.

[Slime flocculation] Flokuliatsiia shlamov. Moskva, Gos. nauchno-tekhn. izd-vo lit-ry po gornomu delu, 1962. 109 p. (MIRA 15:3)

(Flotation)

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000413420015-1

FOMENKO, T.G.; POGARTSEVA, Ye.M.; KOTKIN, A.M.; BUTOVETSKIY, V.S.

Selecting the systems for the purification of contaminated water. Koks i khim. no.7:17-22 '65. (MIRA 18:8)

1. Ukrainskiy proyektno-konstruktorskiy i nauchno-issledovatel'skiy institut po obogashcheniyu i briketirovaniyu ugley.

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VASILENKO, V.D.; OSTROVSKAYA, E.B.; FOMENKO, V.S.

Amperometric titration of thorium salts with cupferron. Zhur. anal. khim. 16 no. 4:433-437 Jl-Ag '61. (MIRA 14:7)

1. Dnepropetrovsk State University.
(Thorium—Analysis) (Cupferron)

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000413420015-1"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000413420015-1

MAL'TSEV, M.; PESENKO, I.; FOMENKO, V.

Today it is an achievement of one brigade, and tomorrow of the whole unit. Avt.transp. 40 no.9:9-10 S '62. (MIRA 15:9)
(Rostov-on-Don--Taxicabs--Maintenance and repair)

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000413420015-1

FOMENKO, V.

We can do it! Okhr.truda i sots.strakh. no.10:7-10 O '59. (MIRA 13:2)

1. Predsedatel' zavkoma Lokhvitskogo sakharnogo kombinata, Poltavskaya oblast'.
(Lokhvitsa--Sugar industry--Hygienic aspects)

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000413420015-1"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000413420015-1

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000413420015-1

Fomenko, V.A.

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Ukrainian SSR. Gosudarstvennaya planovaya komissiya

Avtomatizatsiya i priborostroyeniye; sbornik nauchnykh trudov, vyp. 1. (Automation and Instrument Making; Collected Scientific Works, No. 1) Kiyev, Gostekhizdat USSR, 1959. 107 p. 3,000 copies printed.

Ed.: V. Demskiy; Tech. Ed.: K. Ousarov; Editorial Board: P.M. Mel'nik (Chief Ed.), N.T. Zharov, G.S. Kryshtab, I.A. Orlov, (Resp. Ed.), L.A. Shoykhet, and N.V. Yarin.

PURPOSE: This collection of articles is intended for scientific and technical workers and for students of schools of higher education specializing in automation, telemechanics, and computing.

COVERAGE: The collection contains papers on the automation of metallurgical, chemical and power engineering and on the development of new instruments, telemechanical units, and a program control system for turret lathes. A bibliography on automatic analysis of solutions containing 86 items: 42 Soviet, 34 English, 5 German, 4 French and 1 Polish, is included. No personalities are mentioned.

AUTOMATION OF INDUSTRIAL PROCESSES

Korobko, M.I., A.G. Strel'chenko, V.N. Korotkevich, V.I. Kozlyuk, A.I. Tyshko, V.M. Artynskiy. Automation System for Open-Hearth Thermal Processes 9

Korobko, M.I., V.I. Kozlyuk. Open-Hearth Control System 14

Shumilov, K.A., B.G. Mikryukov. Automatic Inspection and Control of Blast Distribution in Open-Hearth Tuyeres 17

Popov, R.B. New Indirect Method for the Automatic Analysis of Multicomponent Solutions 22

Spynu, G.A., Yu.I. Kobus, V.Ye. Gizila, V.N. Afanas'yev. Program Control System of Turret Lathe 1341 F 29

Spynu, G.A., and O.V. Poritskiy. Shift Pickup Called "Magnetic Stops" 35

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Skirta, B.K. and V.I. Tupas. Circuitry for Synchronous Reception of Telemechanic Frequency Codes (Synchronous Generator-Filters) 44

Sin'kov, V.M., V.P. Kovalenko. Calculator "Ekran-2" for the Economic Distribution of Active Load in Power Systems 50

Sin'kov, V.M. and Fol'kman, K.Yu. Basis for Selecting Criterion With Regard to the Necessity of Registering Net Losses During Distribution of Load Among Electric Power Stations. 55

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Vagner, I.V., A.I. Novosel'skaya, L.P. Titarenko. β-Concentration Meter for Potassium Salt Solutions 64

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Fomenko, V.A. and B.I. Vasil'yev. Gold-Welded Germanium Pulse Diode 71

AUTOMATIC CONTROL

Shirankov, G.D. New Principle of Control Using High-Speed Nonlinear Controllers for Industrial Processes With Considerable Lag 75

Grishchuk, V.P. and Yu.I. Samoylenko. Approximate Methods for Selecting Optimum Adjustments of Discontinuous Control Systems 80

Ladiyev, R.Ya., and A.V. Ogorodnik. Selection of Control Parameters for a Mercury-Pool Electrolytic Bath 87

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000413420015-1

S/081/62/000/017/037/102
B162/B101

AUTHORS: Petukhova, L. N., Fomenko, V. A.

TITLE: Determination of small quantities of water in hydrocarbons

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 17, 1962, 141, abstract 17D151 (Azerb. khim. zh., no. 6, 1961, 121 - 125 [summary in Azerb.])

TEXT: The method is improved which has been described earlier (RZhKhim, 1959, No. 1, 2583), for determining the moisture in solvents (in particular, in gasoline) and which is based on the application of Fischer's reagent (FR). The end point of titration is determined electrometrically. A design of the apparatus is suggested (a diagram is shown), which eliminates the entering of atmospheric moisture during introduction of the sample and titration. For titration, 140 ml absolute CH_3OH is poured into a graduated flask, titrated by FR, ~40 ml of the solvent under investigation is added and again titrated by FR. Samples could be taken directly from the pipeline of the industrial installation, through a dry rubber tubing fitted with a medical needle. Reproducible results are obtained, if the volume of the sample does not exceed 1/3 of the volume

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of CH_3OH. The error in determination is 0.25 - 20% (depending on the content of moisture) with a moisture content of 11 - 70 ppm 0.25 - 9.8%, with a moisture content of 8 ppm up to 20%. [Abstracter's note: Complete translation.]

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000413420015-1

ZHAKSYBAYEV, N.; FOMENKO, V.D.; ANTONOV, V.P.; SAMARTSEV, I.A.; VASIL'YEV, B.F.; YAGODNITSYN, M.A.; VENGER, M.S.

Inadequate methods of waste water analysis are retarding the improvement of the sanitary condition of reservoirs. TSvet. met. 35 no.3:86-87 Mr '62. (MIRA 15:4)

1. Direktor Zyryanovskogo svintsovogo kombinata (for Zhaksybayev). 2. Sekretar' partiynogo komiteta Zyryanovskogo svintsovogo kombinata (for Fomenko). 3. Nachal'nik obogatitel'noy fabriki Zyryanovskogo svintsovogo kombinata (for Antonov). 4. Nachal'nik tsentral'noy khimicheskoy laboratorii Zyryanovskogo svintsovogo kombinata (for Samartsev). 5. Nachal'nik byuro stochnykh vod Zyryanovskogo svintsovogo kombinata (for Vasil'yev). 6. Rukovoditel' metodicheskoy gruppy khimicheskoy laboratorii Zyryanovskogo svintsovogo kombinata (for Yagodnitsyn). 7. Gosudarstvennyy sanitarnyy inspektor po promyshlennoy gigiyene Vostochno-Kazakhstanskoy sanitarnoy epidemiologicheskoy stantsii (for Venger).

(Water--Analysis) (Reservoirs)

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000413420015-1

GREBENYUK, V.A.; PUSTOVALOV, A.I.; YEROFEYEV, I.Ye.; KARABACH, T.L.; TURGAMBAYEV, B.M.; BOSYAKOV, P.Ye.; YERMOLAYEV, A.G.; FOMENKO, V.D.; YEGOROCHKIN, A.A.; GROMOV, D.I.; ZHUYKO, Yu.P.; PANOV, S.A.;

[Twenty-second Congress of the Communist Party of the Soviet Union Mine] Rudnik imeni XXII s"ezda KPSS. Moskva, Nedra, 1964. 87 p. (MIRA 17:10)

1. Russia (1917- R.S.F.S.R.) Vostochno-Kazakhstanskiy ekonomicheskiy rayon. Zyr'yanovskiy svintsovyy kombinat.

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000413420015-1

FOMENKO, V. G.

PA 18T58

USSR/Mines and Mining - Equipment Jul 1947
Excavating Machinery

"Relationship of Excavators to Transportation and Drilling - Blasting Mining," V. G. Fomenko, Mining Engineer at Kounrad Pits, 4 pp

"Gornyy Zhurnal" Vol CXXI, No 7

Discusses, with diagrams and illustrations, the relative positions of rail spurs to the excavator. Different statistics are shown for the UZTM, M-N-E the Bucyrus 120-V, the Marion 4160 and the Menk DN1 type excavator.

18T58

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000413420015-1

FOMENKO, V. G.

Turkic elements in the toponymy of Zaporozh'ye Province. Izv Vses geog ob-va 96 no. 1:70-73 Ja-F '64. (MIRA 17:5)

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000413420015-1

FOMENKO, V.G.

Where was the ancient Protolcha ford located? Izv. Vses. geog. ob-va 95 no.6:547-550 N-D '63. (MIRA 17:1)

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000413420015-1

SMOLIN, V.V.; FOMENKO, V.I.

Hemangioma of the kidneys. Urologiia 28 no.3:49-50 '63 (MIRA 17:2)

1. Iz urologicheskogo otdeleniya (zav. V.V.Smolin) Sumskoy oblastnoy bol'nitsy.

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000413420015-1

FRENKEL, V. M.

9
2 May

Distr: 4E2c(1)

Composition for retarding the aging of electric-insulating rubber. P. S. Il'in, Ya. N. Kaplunov, S. N. Frenkel, V. M. Fomenko, Ya. M. Chupushkin, and G. I. Dubrovin. U.S.S.R. 107,135, Oct. 25, 1957. Rubber cable covers are protected by coating them with a liquid mixt. of polychloroprene rubber with fillers and plasticizers to which mercaptans and oxides of bivalent metals are added. M. Hosch

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000413420015-1

FOMENKO, V.M., inzh.; KHARUZIN, M.Ye., inzh.

Operation and repair of regenerative air preheaters. Elek. sta. 34 no.11: 85-87 N '63. (MIRA 17:2)

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000413420015-1

130-58-5-5/16

AUTHORS: Kamenev, R.D. and Fomenko, V.N.

TITLE: Charging a Large Blast Furnace with a Sized Charge (Zagruzka moshchnoy domennoy pechi shikhtoy, sortirovannoy po krupnosti)

PERIODICAL: Metallurg, 1958, Nr 5, pp 8 - 10 (USSR).

ABSTRACT: This is a critique of an article by P.S. Balevich (Metallurg, 1957, Nr 1) and contains the authors' own proposals on the belt feeding of materials to the skips of a large blast furnace. They question Balevich's ideas on the size and disposition of the bunkers, on the use of rotating plate feeders, on the screening of sinter with a rotary screen and they disagree with his apparent proposal to use a rubberised belt for hot sinter. Balevich's proposals, state the authors, overcome none of the disadvantages of present methods and, in particular, fail to provide for charging with sized ore. The authors propose (Figure 1) that the material from the bunkers should go to the skip pit by two main conveyors on to which it is fed by two covered vibrating feeders per bunker and from there to the furnace top by skip. From the conveyors, the material goes to the skip through a weigh hopper. Between the conveyors and hoppers, six screens (three for each of the conveyors) and six fraction bunkers (also three each) for screening sinter and ore-

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limestone and other components proceed direct to the weight hoppers. They show how the system would operate with a fluxed and combined sinter as the main component: this would be accommodated in larger bunkers arranged to one side of the inclined-bridge axis, smaller bunkers on the other side (i.e. backing onto the larger bunkers) being provided for the other components. For a 2 000 m^3 furnace, there would be twenty of each bunker size, the total capacity being 5 400 m^3. A 1 m wide and 0.3 m deep tray conveyor is proposed for hot sinter, that for the other components being 0.5 m wide and the maximal speed being 0.5 m/sec. The sinter passes from the conveyor onto a vibrating screen, followed by two others, the last removing sinter fines which are returned to the sinter plant. Patkovskiy's data (Ref 2) suggest that 1 250 x 2 500 mm standard vibrating screens have an adequate productivity. The sizes of the bunkers for the three fractions provide a reserve of 30-35 tons of each. The ore skip and weigh hopper have volumes of 9 and 11 m^3, respectively. Coke storage and feed is of the ordinary type but with a larger (600 m^3) bunker. For coke screening, the authors again recommend a vibrating screen. They discuss the operation of their system for a two-component

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Charging a Large Blast Furnace with a Sized Charge 130-58-5-5/16

(sinter and coke) charge and for one consisting of sinter, coke and other components.
There are 2 figures and 3 Soviet references.

ASSOCIATION: Zavod "Krivorozhstal'" ("Krivorozhstal'" Works)

Card 3/3

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000413420015-1

TSAREVSKIY, A.M.; PUGAVKO, B.I., inzh.; FOMENKO, V.N., inzh.

Excavating pumps with new working parts. Gidr. i mel. 13 no.2: 51-56 F '61. (MIRA 14:9)

1. Chlen-korrespondent Vsesoyuznoy akademii sel'skokhozyaystvennykh nauk imeni V.I.Lenina (for TSarevskiy).
(Excavating machinery)

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000413420015-1

FOMENKO, V.P., inzh.

Processing of geraniums. Masl.-zhir.prom. 26 no.3:38-41 Mr '60. (MIRA 13:6)

1. Nauchno-tekhnicheskiy komitet Soveta Ministrov Tadzhikskoy SSR.
(Tajikistan--Geraniums)

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000413420015-1

UMNOVA, I.I.; FOMENKO, V.P.

Trichophytosis in field mice causing human infection. Vest. derm. i ven. 34 no.11:36-38 N '60. (MIRA 13:12)

1. Iz TSentral'nogo kozhno-venerologicheskogo instituta (direktor - dotsent N.M.Turanov) Ministerstva zdravookhraneniya RSFSR i Krasninskoy rayonnoy bol'nitsy Lipetskoy oblasti.
(RINGWORM transm.)

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000413420015-1

GRIDYUSHKO, V.I., kand.tekhn.nauk; FOMENKO, V.S., inzh.; SENDEROV, G.K.; inzh.; SHAKHOVA, N.M., inzh. (g.Sverdlovsk).

Gondola car design needs improvement. Zhel.dor.transp. 42 no.8:48-51 Ag '60. (MIRA 13:8)
(Railroads--Cars)

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000413420015-1"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000413420015-1

[illegible], L. F., Romanyuk, L. I., [illegible]

[illegible] of lanthanum hexaboride as [illegible]

[illegible]ns'kyy fizychnyy zhurnal, v. 8, no.6, 1963, [illegible]

TOPIC TAGS: lanthanum hexaboride cathode, ion source

[illegible] The suitability of lanthanum hexaboride as a cathode of an ion [illegible] electron oscillations in a magnetic field was investigated. [illegible] powder was obtained through reduction of La [illegible] [illegible] of 10 sub -2 mm Hg at 1400C for [illegible] [illegible] powder was as follows: La, 62.[illegible] [illegible] diameter and 1.5 mm thick were pre[illegible] [illegible] cleaned and heated slowly [illegible] [illegible] for about [illegible] hr. [illegible] [illegible] of the tablets [illegible] [illegible] elements, the discharge voltage, [illegible]

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were 200 v, 1.5 amp, and 900 e, respectively. The density of discharge [illegible] the cathode was 5.3 amp/cm sup 2. The density of ion current at [illegible] source was 0.3 amp/cm sup 2. The life of [illegible] during discharge in hydrogen a similar [illegible] [illegible] operate as stably as in helium, and [illegible]

[illegible] Instytut fizyky AN URSR (Physics Institut AN URSR), [illegible] i spetssplaviv AN URSR, Kiev (Institute [illegible] and Special Alloys AN URSR)

SUBMITTED: 21Dec62 ENCL: 00 SUB CODE: NP,IQ

NO REF SOV: 002 OTHER: 001 ATD PRESS: 2027

Card 2/2

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000413420015-1

LASHKAREV, Georgiy Vladimovich; TARANETS, Aleksey Mikhaylovich; FOMENKO, Vladlen Stepanovich; KILLEROG, N.M., red.; MATVEYCHUK, A.A., tekhn. red.

[New sources of electric energy] Novye istochniki elektricheskoi energii. Kiev, Izd-vo Akad. nauk USSR, 1962. 85 p. (MIRA 16:4)

(Photoelectric cells) (Fuel cells) (Thermoelectricity)

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000413420015-1

LASHKAREV, G.V.; FOMENKO, V.S.

Scientific session of the Department of Technical Sciences of the Academy of Sciences of U.S.S.R. on methods for direct conversion of energy. Izv. AN SSSR. Otd. tekh. nauk. Energ. i avtom. no.4:145-150 Jl-Ag '62. (MIRA 15:8)
(Thermoelectric generators--Congresses)
(Electric power--Congresses)
(Thermoelectricity--Congresses)

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000413420015-1

FOMENKO, Vladlen Stepanovich; SAMSONOV, G.V., red.; KILLEROG, N.M., red

[Emissive characteristics of chemical elements and their compounds; a manual] Emissionnye svoistva khimicheskikh elementov i ikh soedinenii; spravochnik. Kiev, Naukova dumka, 1964. 101 p. (MIRA 17:11)

1. Chlen-korrespondent AN Ukr.SSR (for Samsonov).

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000413420015-1

L 15159-65 EWP(e)/EWT(m)/EPF(n)-2/EPR/EWP(t)/EWP(b) Pe-4/Pu-4 IJP(c)/ ESD(gs)/SSD/AFWL/ASD(f)-2/ASD(m)-3/AS(mp)-2/ASD(p)-3/AFMDC AT/WH/WW/JD/JG

ACCESSION NR: AP4047377 S/0294/64/002/005/0730/0735

AUTHORS: Samsonov, G. V.; Fomenko, V. S.; Paderno, V. N.; Rud', B. M.

TITLE: Thermoemission characteristics of isomorphous carbide alloys

SOURCE: Teplofizika vy*sokikh temperatur, v. 2, no. 5, 1964, 730-735

TOPIC TAGS: heat emission, carbide, alloy, porous material, titanium, niobium, hafnium, zirconium, work function, electron shell,/ OMP 19A micropyrometer

ABSTRACT: A method for the preparation of homogenoous alloys of different composition and for obtaining compact tablets of isomorphous alloys of TaC-ZrC, TaC-HfC and HfC-NbC has been developed. The thermoemission characteristics of these alloys and their dependence on the concentration were studied in the temperature range of 1100-2500C. The tablets were pressed at 2500-2700C over a period of 5 minutes under a pressure of 300 kg/cm^2, and were ground and polished to 6 mm in diameter and 0.6-0.7 mm in height. Their residual porosity did not exceed 5-9%. The thermoemission experiment was conducted following the method of V. I. Marchenko, G. V. Samsonov, and V. S. Fomenko (Radiotekhnika i elektronika, 8, 1076, 1963). Temperatures were measured with a micropyrometer OMP-19A. It was found that the thermoemission characteristics of these alloys depended on the

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L 15159-65

ACCESSION NR: AP4047377

electron shell structure of the constituent metal atoms. The work functions of these alloys were shown to be higher than the work functions of the individual carbides because of the strong interactions between the metal atoms. The nature of variation of the thermoemission characteristics of carbide solid solutions was determined from the relationship between the acceptor capacity of the metal [illegible] and the probability of having a d^5 type electron configuration [illegible] art. [illegible] figures and 1 table.

ASSOCIATION: Institut problem materialovedeniya, Akademii nauk SSSR (Institute of Material Research Problems, Academy of Sciences USSR)

SUBMITTED: 21Feb64

ENCL: 00

SUB CODE: MM

NO REF SOV: 011

OTHER: 006

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000413420015-1

L 57105-65 EWP(e)/EWT(m)/EWP(i)/EPF(n)-2/EWG(m)/EPR/EWP(t)/IWP(b) Ps-4/
Pu-4 IJP(c) JD/JG/AT/WH

ACCESSION NR: AP5015438 UR/0185/65/010/006/0622/0629

AUTHOR: Samsonov, H. V. (Samsonov, G. V.); Paderno, Yu. B.; Fomenko, V. S.

TITLE: Thermal emission characteristics of transition metals and their compounds

SOURCE: Ukrayins'kyy fizychnyy zhurnal, v. 10, no. 6, 1965, 622-629

TOPIC TAGS: work function, thermionic emission, transition emission, transition metal, refractory compound, electron configuration, boride structure, nitride structure, silicide structure, carbide structure

ABSTRACT: The purpose of this article was to bring together some of the data collected to date on the thermal emission properties of various transition metals. The authors discuss the relationship between the electronic structure of transition metals, their alloys [illegible] compounds with boron, carbon, silicon and nitrogen and the characteristics of their [illegible]. The article shows the work function of [illegible] borides, nitrides, and silicides as a function [illegible] (Figure 1 of the Enclosure). The effects of the electron configurations in alloys of transition metals containing d-electrons, transition metals with other metals containing the [illegible] electrons, and transition metals with boron, carbon [illegible] with respect to their work function. It [illegible]

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ACCESSION NR: AP5015438

function depends significantly on the nature of filling of the p- and d-electron shells of the [illegible] The magnitude of the electronic work function of refractory compounds is [illegible] by the degree of filling of the electron states of transition metals and the ionization potential of metalloid atoms. The largest values of the electronic work function are [illegible] for either half-filled or completely-filled stable electron states. The work [illegible] electrons from the metalloid-containing refractory compounds is lowered as a [illegible] lesser degree of coupling between the electrons and the atomic nuclei. This property, in conjunction with their high melting points, makes them extremely suitable for the production of efficient thermoemission tube filaments. Orig. art. has: 2 figures and 1 table. [08]

ASSOCIATION: Instytut problem materialoznavstva AN URSR, Kiev (Institute for Material Research Problems, AN URSR)

SUBMITTED: 27Mar64 ENCL: 01 SUB CODE: TD, MM

NO REF SOV: 018 OTHER: 001 ATD PRESS: 4036

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L 07105-65

ACCESSION NR: AP5015438

ENCLOSURE: 01

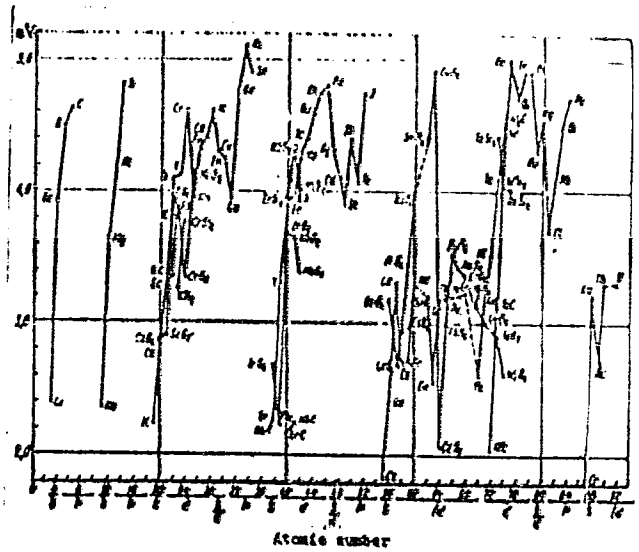

Fig. 1. Work function of elements and compounds as related to their position in the periodic table

x - Element; O - boride; Δ - carbides; o - silicides.

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L 35866-66 EWP(e)/EWT(m)/EWP(w)/T/EWP(t)/ETI IJP(c) JD/JG

ACC NR: AP6020958 (A) SOURCE CODE: UR/0226/66/000/006/0017/0023

AUTHOR: Samsonov, G. V.; Lapshov, Yu. K.; Podchernyayeva, I. A.; Fomenko, V. S.; Yerosov, Yu. I.; Dudnik, Ye. M.

ORG: Institute of the Problems of Material Science, AN UkrSSR (Institut problem materialovedeniya AN UkrSSR)

TITLE: Production and physical properties of alloys of the W-LaB_6 system

SOURCE: Poroshkovaya metallurgiya, no. 6, 1966, 17-23

TOPIC TAGS: tungsten base alloy, lanthanum hexaboride ~~containing alloy~~, tungsten boride ~~containing alloy~~, ~~alloy~~ metal, physical property, alloy phase diagram, x ray diffraction analysis

ABSTRACT: Six tungsten-base alloys containing 1, 3, 5, 10, 30 or 50 mol% lanthanum hexaboride were prepared from alloy powder with a particle size of 50 μ by hot compacting in an argon atmosphere in graphite molds coated with boron nitride. It was found that the reaction of tungsten with lanthanum hexaboride results in decomposition of the latter and in the formation of W_2B and WB borides. Metallographic and x-ray diffraction analysis showed that alloys containing 1, 3, or 5% lanthanum hexaboride had a two-phase structure consisting of tungsten-base solid solution and tungsten boride (W_2B) and a microhardness of 620, 597, and 535 dan/mm^2, respectively. Alloy with 10%

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L 35866-66

ACC NR: AP6020958

lanthanum hexaboride had a four-phase structure consisting of tungsten-base solid solution, W_2B, WB, and LaB_6-base phase. Alloys with 30 or 50% lanthanum hexaboride contained two W_2B-base and LaB_6-base phases. The alloys containing 1, 3, 5 and 10% lanthanum hexaboride have a resistivity at room temperature of 6.9, 17.75, 23.1, and 41.6 kohm·cm, respectively. Small additions of lanthanum hexaboride (about 1 mol%) sharply reduced the work function of tungsten at 1700C. These alloys appear to be promising materials for cathodes working at medium and high temperatures. Orig. art. has: 7 figures and 1 table. [AZ]

SUB CODE: 11/ SUBM DATE: 27Dec65/ ORIG REF: 017/ OTH REF: 003
ATD PRESS: 5036

Card 2/2

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000413420015-1"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000413420015-1

DEMIKHOVSKIY, Ye.I., prof.; POMENKO, V.S.

Seasonal fluctuations in the relative quantity of bacterial antagonists in river water. Vrach.delo no.10:1067-1068 O '59.

(MIRA 13:2)

1. Kafedra mikrobiologii (zaveduyushchiy - prof. Ye.I. Demikhovskiy) i obshchey gigiyeny (zaveduyushchiy - prof. F.Kh. Chekhlatyy) Dnepropetrovskogo meditsinskogo instituta.

(DNIEPER RIVER--WATER--ANALYSIS) (BACTERIAL ANTAGONISM)

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000413420015-1"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000413420015-1

DEMIKHOVSKIY, Ye.I., prof.; FOMENKO, V.S.

Relative quantity of bacterial antagonists in the water as an index of the degree of its pollution. Gig.i san. 25 no.8:97-98 Ag '60. (MIRA 13:11)

1. Iz kafedr mikrobiologii i obshchey gigiyeny Dnepropetrovskogo meditsinskogo instituta.
(WATER—POLLUTION)

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000413420015-1

FOMENKO, V.S., Cand. Med. Sci., — (diss) "Experimental investigation of the sanitary index value of microbe-antagonists in the water of an open reservoir," Odessa, 1961, 15 pp (Odessa State Medical Institute im N. I. Pirogov) 300 copies (KL-Supp 9-61, 193)

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000413420015-1"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000413420015-1

DEMIKHOVSKIY, V.I. [Demikhovs'kyi, V.I.]; FOMENKO, V.S.

Sanitary-hygienic significance of the study on the quantitative composition of bacterial antagonists in river water. Mikrobiol. zhur. 23 no.1:70-74 '61. (MIRA 14:5)

1. Dnepropetrovskiy meditsinskiy institut.
(WATER—MICROBIOLOGY)

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000413420015-1"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000413420015-1

PADERNO, Yu.B.; ROMANYUK, L.I.; FOMENKO, V.S.

Use of lanthanum hexaboride as the cathode of an ion source. Ukr. fiz. zhur. 8 no.6:707-708 Je '63. (MIRA 16:7)

1. Institut fiziki AN UkrSSR i Institut metallokeramiki i spetsial'nykh splavov AN UkrSSR, Kiyev.
(Lanthanum boride) (Ion sources) (Cathodes)

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000413420015-1

L 20502-65 EPF(n)-2/EPR/EWT(m)/EWP(b)/EWP(e)/EWP(t) Pe-4/Pu-4 IJP(c)
AT/WH/JD/JG

ACCESSION NR: AP4038654 S/0109/64/009/005/0902/0904

AUTHOR: Rakitin, S. P.; Fomenko, V. S.; Paderno, V. N.

TITLE: Results of using the carbides of some metals for the cathodes of electron devices

SOURCE: Radiotekhnika i elektronika, v. 9, no. 5, 1964, 902-904

TOPIC TAGS: electron device, electron device cathode, zirconium carbide cathode, hafnium carbide cathode, niobium carbide cathode, tantalum carbide cathode

ABSTRACT: An experimental study of the possibility of using ZrC, HfC, NbC, and TaC as cathode emitters in electron guns is briefly reported; a vacuum of 10^{-6} torr, an ion bombardment with a few tens kev energy, and a cathode-current density of up to 20 a/cm^2 were used. Emitter tablets of carbide powders, 6 mm in diameter and 1.2-1.3 mm thick, were prepared by hot pressing at 180 kg/cm^2

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ACCESSION NR: AP4038654

for 10-15 min at 3000C. These conclusions are offered: (1) Carbide-type [illegible] can be successfully employed in demountable tubes to produce large emission currents under conditions of soft vacuum and severe ion bombardment; [illegible] bombardment resistance exceeds that of lanthanum hexaboride; (2) ZrC [illegible] are most promising as they yield up to 20 a/cm² emission at [illegible] (3) Considerable power is needed for heating such cathodes, which [illegible] limitation. Orig. art. has. 4 figures.

ASSOCIATION: none

SUBMITTED: 05Jun63 ENCL: 00

SUB CODE: MT, EC NO REF SOV: 004 OTHER: 000

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L 1[illegible] EWP(e)/EWT(m)/EPF(n)-2/EPR/EWP(b) Ps-4/Pu-4 [illegible] ID/
ACCESSION NR: AP4045190 [illegible] S/0080/64/037/[illegible]/1872/1878

AUTHOR: Samsonov, G. V.; Obolonchik, V. A.; Paderno, Yu. B.; [illegible], R. V.; Fomenko, V. S.; Ogorodnikov, V. V.

TITLE: Synthesis and some physical and chemical properties of the binary lanthanum-sodium boride

SOURCE: Zhurnal prikladnoy khimii, v. 37, no. 9, 1964, 1872-1878

TOPIC TAGS: boride, lanthanum boride, lanthanum sodium boride, lanthanum sodium boride synthesis, boride synthesis, lanthanum sodium boride property

ABSTRACT: The binary lanthanum-sodium boride was obtained by electrolysis of a fused salt electrolyte consisting of 160 g borax, 30 g sodium fluoride, and 15 g lanthanum oxide. The electrolysis was performed at 900—950C with a current density of 0.5 amp/cm^2. The cathode deposits obtained under the above conditions contained 55.6% lanthanum, 6.8% sodium, 36.8% boron, 0.4% free carbon, and no free boron. The composition could be varied by changing the amount of

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ACCESSION NR: AP4045190

borax in the electrolyte. X-ray diffraction patterns of three binary borides of different compositions contained only the lanthanum hexaboride lines. The increase of the lattice constant with increasing sodium content indicates that sodium atoms first replace lanthanum atoms in the lanthanum hexaboride lattice and then gradually replace octahedral boron complexes. Hot compacted binary boride has a uniform structure consisting of square-shaped crystals with a microhardness of 2200—2300 kg/mm^2. At a porosity of 2%, the hot-compacted boride has a resistivity of 113.4 μohm·cm at room temperature, which increases linearly to 275 μohm·cm at 900C. The work function also increases linearly from 2.6 ev at 1000C to 4.05 ev at 1770C. The work function has a tendency to increase with the time. The emission current of binary boride is two orders lower than that of lanthanum hexaboride. Orig. art. has: 7 figures and 6 tables.

ASSOCIATION: none

SUBMITTED: 07Jan63 ATD PRESS: 3131 ENCL: 00

SUB CODE: IC, GC NO REF SOV: 005 OTHER: 005

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000413420015-1

28311 S/081/61/000/016/018/040
B143/B101

5.2410

AUTHORS: Samsonov, G. V., Paderno, Yu. B., Fomenko, V. S.

TITLE: Production and some properties of neodymium hexaboride

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 16, 1961, 87, abstract 16B5 (Sb. "Vopr. poroshk. metallurgii i prochnosti materialov", Kiyev, AN USSR, no. 8, 1960, 66 - 68)

TEXT: Two methods of NdB_6 production by means of the reactions $Nd_2O_3 + 3B_4C \longrightarrow 2NdB_6 + 3CO$ and $Nd_2O_3 + 15B \longrightarrow 2NdB_6 + 3BO$ were described. In both cases the process took place in a vacuum furnace with graphite heater in the temperature interval 1100 - 1800°C, with permanent removal of the gaseous reaction products. The completeness of the reaction was checked by X-ray pictures and analytically as well as according to the yield. In both cases the holding time for the optimum production process of NdB_6 at 1600 - 1650°C is one hour. NdB_6 is a finely disperse dark blue powder, the parameter of the crystal lattice is a = 4.124Å. Compact NdB_6

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Production and some...

is obtained from powder by the method of hot pressing. The optimum holding time was 15 - 20 min at 2000°C at a pressure of 175 - 200 kg/cm^2. In this case minimum porosity of the compact NdB_6 was 3%. The resistivity of NdB_6 is 28 μohm·cm. Studies of the thermoelectromotive force of NdB_6 paired as a thermocouple with Pt in the interval 20 - 700°C gave a negative value of the coefficient of thermoelectromotive force whose absolute amount slightly increases with increasing temperature. The radiation coefficient of NdB_6 is 0.7 (at 1600°C). The microhardness of NdB_6 at an indentor load of 70 g was 2540 ± 170 kg/mm^2, the melting temperature of NdB_6 was 2540°C. The work function of the electrons in thermionic emission is 3.97 ev. [Abstracter's note: Complete translation.]

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24.7700 1043, 1143, 1559 only
5.2610 1273, 1160 only

S/126/60/010/004/022/023
E073/E435

AUTHORS: Paderno, Yu.B., Samsonov, G.V. and Fomenko, V.S.

TITLE: Electrical Properties of Lanthanum Boride

PERIODICAL: Fizika metallov i metallovedeniye, 1960, Vol.10, No.4, pp.633-635

TEXT: To determine the dependence of the electric resistance on the porosity for hexaborides of rare earth metals, the authors produced specimens of lanthanum boride with a porosity between 2 and 37%, increasing by steps of 1 to 2%. The specimens were of 6 mm diameter, 10 mm length. The measurements were carried out by the compensation method by means of a potentiometer. The obtained results (resistance, $\rho \times 10^{-6}$ versus porosity, percent) are plotted in Fig.1. In the same figure, the following relations are also plotted which are applied by various authors (Refs.1 to 5) in calculating values of the electric resistance of porous specimens:

$$\rho_o = \rho(1 - P)^{3.5} \quad (1)$$

$$\rho_o = \rho(1 - P)^{3} \quad (2)$$

$$\rho_o = \rho \frac{2 - 3P}{3} \quad (3)$$

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E073/E435

Electrical Properties of Lanthanum Boride

$$\rho_o = \rho(1 - P) \quad (4)$$

$$\rho_o = \rho \exp\left(-\frac{A}{1 - P}\right) \quad (5)$$

These dependences were obtained for the conductivity of a mixture of phases. In the case under consideration, the specimen can be considered as consisting of two phases, the compact material and cavities. It was found that the experimental results agree best with those obtained by Eq.(2) of Landau and Lifshits (Ref.2) although this equation was derived on the assumption that the difference between the conductivities of the phases was low. As was to be anticipated, the emf proved practically independent of the porosity (Fig.2). On a specimen with a 2% porosity the temperature dependence of the electric resistance of lanthanum hexaboride was measured up to 2000°C (Fig.3). It was found that lanthanum boride is a typical metallic conductor with a thermal resistance coefficient of 0.060 microohm cm/°C. This value is considerably lower than the thermal resistance coefficient of

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Electrical Properties of Lanthanum Boride

metallic lanthanum. This is attributed to the considerably larger rigidity of the crystal lattice of hexaboride compared to that of the metal (the characteristic temperature of lanthanum boride is 885°K whilst that of lanthanum is 152°K) and also to a change in the energy states of the electrons of the metal when forming compounds. There are 3 figures and 6 references: 4 Soviet and 2 English.

X

ASSOCIATION: Institut metallokeramiki i spetsial'nykh splavov AN USSR (Institute of Cermets and Special Alloys AS UkrSSR)

SUBMITTED: March 8, 1960, initially
April 27, 1960, after revision

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15.2142 only 2308

S/073/60/026/004/002/009
B016/B054

AUTHORS: Paderno, Yu. B., Fomenko, V. S., and Samsonov, G. V.

TITLE: Production and Some Properties of Neodymium Hexaboride

PERIODICAL: Ukrainskiy khimicheskiy zhurnal, 1960, Vol. 26, No. 4, pp. 409-411

TEXT: The authors studied two methods of producing neodymium hexaboride: 1) the reduction of neodymium oxide by the carbon of boron carbide with simultaneous reaction of the metal with boron, and 2) direct reduction of the metal oxide by boron (see reaction schemes). In both cases, the process was carried out in a vacuum furnace with a graphite heating element (1100 - 1800°C). The gaseous reaction products were continuously pumped off. The completeness of the reaction process was controlled by means of X-ray and chemical analyses of the product. The authors conclude from the results that in both cases the best results of hexaboride production are attained by heating the components to 1600-1650°C for 1 h. A finely disperse, dark-blue powder was formed, whose B-content was near the stoichiometric composition. The parameter a = 4.124 Å was calculated

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Production and Some Properties of Neodymium Hexaboride

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B016/B054

by the data of the radiograph (Table 1), which agrees with the data found in publications (Ref. 2). Compact samples were prepared from powdery neodymium hexaboride by pressing at 2000°C for 15-20 min at a pressure of 175-200 kg/cm^2 (optimum conditions). Minimum porosity of these samples was 3%. The value measured by the authors for the electrical resistivity (20 μohm · cm) lay considerably below that of the metal (64.5 μohm · cm). The coefficient of the electromotive force, measured as a BN_6-Pt thermocouple between room temperature and 700°C, rises continuously with the temperature, as corresponds to metallic conductivity. Finally, the authors measured the radiation coefficient at 1600°C, the microhardness, the melting temperature, and the electron work function. A comparison of the properties of neodymium hexaboride with those of the borides of other rare earths showed that the electrical resistivity and the work function increase in the order from lanthanum to neodymium. This agrees with Hund's rule. There are 1 table and 12 references: 8 Soviet, 2 French, and 2 German.

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83064

Production and Some Properties of Neodymium Hexaboride

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B016/B054

ASSOCIATION: Institut metallokeramiki i spetssplavov AN USSR (Institute of Powder Metallurgy and Special Alloys of the AS UkrSSR)

SUBMITTED: March 13, 1959

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APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000413420015-1"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000413420015-1

FOMENKO, Vadim Stepanovich; SAMSONOV, G.V., red.; LIBERMAN, T.R., tekhn. red.

[Emissivity of elements and chemical compounds; handbook] Emissionnye svoistva elementov i khimicheskikh soedinenii; spravochnik. Pod red. G.V.Samsonova. Kiev, Izd-vo Akad. nauk USSR, 1961. 48 p. (MIRA 15:3)

1. Chlen-korrespondent Akademii nauk USSR (for Samsonov).
(Radiation)

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000413420015-1"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000413420015-1

24898

S/109/61/006/008/018/018
D207/D304

26.2253

AUTHOR: Fomenko, V.S.

TITLE: Thermionic emission properties of carbides of hafnium and niobium and of borides of scandium and thulium

PERIODICAL: Radiotekhnika i elektronika, v. 6, no. 8, 1961, 1406

TEXT: The author describes briefly the thermionic emission properties of ScB_6 TuB_6 with small additions of TuB_4, HfC and of NbC, for which there are no data in technical literature. The samples for investigation were prepared using the methods described in G.V. Samsonov, Ya.S. Umanskiy (Ref. 7: Tverdyye soyedineniya tugoplavkikh metallov (Hard Compounds of Hard Smelting Metals) Metallurgizdat, 1957). The cathode was a 0.3 mm tantalum, tungsten or molybdenum wire, coated with the suspension of the respective metal powders to obtain harshness of the cathode surface. The analyzed material was deposited on top, in the form of a paste. The thickness of the cathode, so prepared, was 0.8 - 1.2 mm. The catho-

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S/109/61/006/008/018/018
D207/D304

Thermionic emission properties ...

de was heated at 1100°K and at a vacuum $\sim 10^{-5}$ mm Hg. The cathode temperature was measured with a pyrometer through a special window in the anode, with a correction factor for radiation. The table shows the data obtained during the experiment. The small work function of TuB_6 could be explained by the fact that its thermionic effect is masked by β-decay, so that determining the work function of TuB_6 is rather difficult and may even be impossible. There are 1 table and 9 references: 6 Soviet-bloc and 3 non-Soviet-bloc. The references to the English-language publications read as follows: D. Goldwater, R. Haddad, J. Appl. Phys., 1951, 22, 1, 70; M. Lafferty, J. Appl.Phys., 1952, 22, 3, 299; R. Pidd, G. Grover, D. Roehling, E. Salmi, J. Farr, N. Krikorian, W. Witteman, J. Appl. Phys., 1959, 30, 10, 1575.

ASSOCIATION: Institut metallokeramiki i spetsiyal'nykh splavov, AN USSR (Institute of Metallo-Ceramics and Special Alloys AS UkrSSR)

SUBMITTED: September 7, 1960

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000413420015-1

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Thermionic emission properties ... S/109/61/006/008/018/018
D207/D304

Table.

Legend: 1 - Material; 2 - φ_1 eV; 3 - A, amp/cm^2 $^oC^2$; 4 - measurement temperature interval ^oK; 5 - emission density at a temperature 1400^oK, amp/cm^2.

TABLE/ Таблица

1 Вещество	2 φ, эв	3 A, а/см²·град²	4 Температурный интервал измерения, °К	5 Плотность тока эмиссии при температуре 1400° К, а/см²
ScB_2	2,29 ± 0,08	$\sim 10^{-5}$	1100—1600	$5,0 \cdot 10^{-6}$
TuB_6 (+ TuB_4)	0,6 — 0,9	$\sim 10^{-6}$	1100—1800	$1,69 \cdot 10^{-4}$
HfC	2,03 ± 0,2	$\sim 10^{-5}$	1100—1400	$7,5 \cdot 10^{-4}$
NbC	2,23 ± 0,04	$\sim 10^{-6}$	1200—1400	$9,5 \cdot 10^{-6}$

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32665

S/131/62/000/001/002/002
B105/B110

15.2630
21.2300

AUTHORS: Samsonov, G. V., Fomenko, V. S., Paderno, Yu. B.

TITLE: Radiation coefficients of difficulty fusible compounds

PERIODICAL: Ogneupory, no. 1, 1962, 40-42

TEXT: The radiation coefficients of a number of borides, carbides, silicides, and nitrides of transition metals were measured in the temperature range of 800-2000°C, according to T. I. Serebryakova et al. (Ref. 1: Optika i spektroskopiya, 1960, 8, 410) at the Institut metallokeramiki i spetsial'nykh splavov AN USSR (Institute of Powder Metallurgy and Special Alloys AS UkrSSR). Powders of the compounds investigated were applied in a paste like form to the surface of a hollow cylinder provided with an 1mm opening, and uniformly heated. The temperatures (°K) on the cylinder surface (T_{br}) and in the cylinder opening (T_{tr}) (br = brightness, tr = true) were determined with the optical pyrometer of the type ОППИР-09 (OPPIR-09) and the microoptical pyrometer of the type МП(MP), respectively. The radiation coefficients were calculated according to the formula

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32665

Radiation coefficients of ...

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B105/B110

$\ln\varepsilon_\lambda = \frac{c}{\lambda}\left(\frac{1}{T_{tr}} - \frac{1}{T_{br}}\right)$, where c = 1.438 cm degree, λ = 650 mμ. A difference of about 0.15-0.20 existed between the radiation coefficients of powders and compact bodies from beryllium oxide, graphite, and tantalum. This permits a utilization of the tabulated data for calculating the radiation coefficients of smooth surfaces of difficulty fusible materials. There are 1 table and 2 references: 1 Soviet and 1 non-Soviet.

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ASSOCIATION: Institut metallokeramiki i spetsial'nykh splavov AN USSR (Institute of Powder Metallurgy and Special Alloys AS UkrSSR)

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000413420015-1

ACCESSION NR: AP4000407 S/0294/63/001/001/0145/0148

AUTHORS: Rakitin, S. P.; Fomenko, V. S.; Paderno, V. N.

TITLE: Some results of using transition metal carbides as thermionic emitters in electronic devices

SOURCE: Teplofizika vy*sokikh temperatur, v. 1, no. 1, 1963, 145-148

TOPIC TAGS: transition metal carbide, thermionic emitter, heated cathode, zirconium, niobium, tantalum, electron gun, electron tube design, hafnium

ABSTRACT: To check on the suggestion by M. I. Yelinson and G. A. Kudintseva (Radiotekhnika i elektronika, v. 7, No. 6, 1511, 1962) that the relative hardness and thermal conductivity of the carbides of some metals, as well as the relatively large mean-square displacements of the atomic vibrations, can permit their use for

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ACCESSION NR: AP4000407

cathodes capable of enduring large ion bombardment, a procedure was developed for the manufacture of pellets made of carbides of zirconium, hafnium, niobium, and tantalum. These were tested for use as emitting elements in cathodes of dismountable electron guns under not too high vacuum (on the order of 10^{-5} mm Hg) and under intense ion bombardment (the ion energy reaching several dozen keV). The emission current was large (about 1 A), corresponding to a cathode current density of 15--20 A/cm^2 and more. It is concluded that cathodes made of these carbides have higher endurance against ion bombardment than those of lanthanum hexaboride. The most promising are cathodes of hafnium and zirconium carbides, which provide an emission current density up to 20 A/cm^2 at a temperature on the order of 2100--2200°C. A factor limiting the use of such cathodes is the appreciable power necessary to raise these cathodes to the operating temperatures. Orig. art. has: 4 figures and 1 table.

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000413420015-1

L 10023-63 EWG(k)/EWP(q)/EWT(1)/EWT(m)/BDS--AFFTC/ASD/ESD-3--Pz-4--
IJP(C)/AT/WH/JD/HW-2/JG

ACCESSION NR: AP3002126 S/0185/63/008/006/0700/0702

AUTHOR: Samsonov, H. V.; Fomenko, V. S.; Paderno, Yu. B.

79
78

TITLE: Thermionic emission properties of some refractory compounds

SOURCE: Ukrains'kyy fizychnyy zhurnal, v. 8, no. 6, 1963, 700-702

TOPIC TAGS: TuB (+TuB), ScB; HfC, NbC, TiN, ZrN, NbN, thermionic emission, work function, emissivity coefficient, emission current density

ABSTRACT: In a search for new materials for cathodes, an investigation has been conducted of the thermionic emission properties of TuB sub 6 (+TuB sub 2), [Tu is the Soviet symbol for thulium.] ScB sub 2, HfC, NbC, TiN, ZrN, and NbN compounds at temperatures ranging from 1000 to 2000K. The compounds tested were deposited in the form of a paste on Ta or W cathode filaments of diodes with triple tantalum anodes, evacuated to 10 sup -6 or 10 sup -7 mm Hg. The coated cathodes were from 0.8 to 1.2 mm thick. The experimental data showed the work function to vary from 3.25 ev for HfC at 1550K to 3.92 ev for NbN at 1950K; the respective emissivity coefficients (at A wavelength of Lambd = 0.65 micron)

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ACCESSION NR: AP3002126

were 0.77 and 0.83. The saturation current density varied from 0.00024 amp/cm sup 2 for NbC at 1500K to 0.22 amp/cm sup 2 for TuB sub 6 (+TuB sub 4) at 1900K. The work function for TuB sub 6 (+TuB sub 4) were found to increase linearly from about 2.65 ev at 1050K to a maximum of about 3.9 ev at 1650K and then decrease with increasing temperature. The x-ray diffraction patterns revealed that at 1800K no phase transformations occurred in TiN coating on either a tantalum or tungsten core. In general, the emission current density of almost all the compounds in the temperature range investigated were not high. However, calculations showed that with a further increase in temperature the emission may increase sharply and, at temperatures of the order of 1900--2000C may reach several amp/cm sup 2. For carbides and nitrides with melting temperature of 2700--3000 and 2100--2200C, respectively, the calculated density of the emission current added up to tens of amperes per square centimeter. Hence, refractory compounds can be used advantageously as materials for cathodes where high operating temperatures are required and the intensity of their heating is not restricted. Orig. art. has: 1 figure and 2 tables.

ASSOCIATION: Insty*tut metalokeramiky* ta spetssplaviv AN URSR, Kiev (Institute of Powder Metallurgy and Special Alloys AN URSR)

Card 2/3

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000413420015-1

L 10023-63
ACCESSION NR: AP3002126

SUBMITTED: 20Nov62 DATE ACQ: 12Jul63 ENCL: 00

SUB CODE: 00 NO REF SOV: 004 OTHER: 002

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APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000413420015-1"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000413420015-1

ACCESSION NR: AP3002130 S/0185/63/008/006/0707/0708

AUTHOR: Paderno, Yu. B.; Romanyuk, L. I.; Fomenko, V. S.

TITLE: Utilization of lanthanum hexaboride as the cathode of an ion source

SOURCE: Ukrains'kyy fizychnyy zhurnal, v. 8, no. 6, 1963, 707-708

TOPIC TAGS: lanthanum hexaboride cathode, method of preparation, use in ion sources

ABSTRACT: The suitability of lanthanum hexaboride as a cathode of an ion source with electron oscillations in a magnetic field was investigated. The LaB sub 6 powder was obtained through reduction of La sub 2 O sub 3 by boron in a vacuum of 10 sup -2 mm Hg at 1600C for 1 hr. The composition of the LaB sub 6 powder was as follows: La, 68.5%; B, 30.7%; and C, 0.11%. Tablets 6 mm in diameter and 1.5 mm thick were pressed from the powder. The tablets were cleaned and heated slowly up to 1800C in vacuum and held at this temperature for about 3 hr. Then they were slowly cooled and polished. The porosity of the tablets was 9 to 22%. During helium-discharge experiments, the discharge voltage, current, and magnetic

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ACCESSION NR: AP3002130

field were 200 v, 1.5 amp, and 900 oe, respectively. The density of discharge current on the cathode was 5.3 amp/cm sup 2. The density of ion current at the output of the source was 0.3 amp/cm sup 2. The life of the cathode was 30 to 40 hr. During discharge in hydrogen at a similar current density, the cathode did not operate as stably as in helium, and its life was only 5 to 10 hr. Orig. art. has: 1 formula.

ASSOCIATION: Insty*tut fizy*ky* AN URSR (Physics Institute AN URSR); Insty*tut metalokeramiky* i spetsplaviv AN URSR, Kiev (Institute of Powder Metallurgy and Special Alloys AN URSR)

SUBMITTED: 21Dec62 DATE ACQ: 12Jul63 ENCL: 00

SUB CODE: 00 NO REF SOV: 002 OTHER: 001

Card 2/2

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000413420015-1"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000413420015-1

L 10295-63 EWT(1)/EWG(k)/EWP(q)/EWT(m)/BDS/ES(w)-2--
AFFTC/ASD/ESD-3/SSD--Pz-4/Pab-4--AT/JD/LJP(C)/JG
ACCESSION NR: AP3001008 S/0109/63/008/006/1076/1081

AUTHOR: Marchenko, V. I.; Samsonov, G. V.; Fomenko, V. S.

77

TITLE: Thermionic emission of lanthanum and cerium sulfides

SOURCE: Radiotekhnika i elektronika, v. 8, no. 6, 1963, 1076-1081

TOPIC TAGS: thermionic emission, rare-earth compounds

ABSTRACT: Experimental investigation of thermionic emission of mono- and sesquisulfides of the above metals is reported. Specimens 0.6 - 0.8 -mm thick and 6-mm in diameter were subjected to electronic bombardment from a tungsten filament kept at 400 v; anode voltage was 600 v. Table 3 (see Enclosure 1) gives the results of the investigation: work-function values at 1200 and 1700K, its variation with temperature, and emission-current density at 1700K. The sulfides have a low emission-current density at medium through rather high temperatures: at 1700K, a few ma per cm sup 2. The temperature coefficient of work function, around (1-2) x x 10 sup -3, is characteristic for ionic compounds. "The authors express their gratitude to N. G. Ushakov for hooking up and pre-testing the experimental outfit." Orig. art. has: 5 figures and 3 tables.

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APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000413420015-1"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000413420015-1

RAKITIN, S.P.; FOMENKO, V.S.; PADERNO, V.N.

Some results of the use of carbides of transient metals in cathodes of electronic devices. Radiotekh. i elektron. 9 no.5: 902-904 My '64. (MIRA 17:7)

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000413420015-1"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000413420015-1

FOMENKO, V.S., kand.med. nauk

Species of antagonistic microbes in the water of the Dnieper Reservoir on the Auly-Staryye Kaydaki section. Vrach. delo no.1:119-121 Ja'64 (MIRA 17:3)

1. Kafedra obshchey gigiyeny (zav. - prof. F.K.Chekhlatyy) i kafedra mikrobiologii (zav. - prof. Ye.I.Demikhovskiy) Dnepropetrovskogo meditsinskogo instituta.

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000413420015-1

AP4009931

S/0057/64/034/001/0128/0130

AUTHOR: Marchenko, V.I.; Samsonov, G.V.; Fomenko, V.S.

TITLE: Thermionic emission of praseodymium and neodymium sulfides

V.39 ?

SOURCE: Zhurnal tekhnicheskoy fiziki, v.34, no.1, 1964, 128-130

TOPIC TAGS: thermionic emission, rare earth sulfides, work function, thermoelectric emission, praseodymium sulfide work function, neodymium sulfide work function, praseodymium sulfide, neodymium sulfide

ABSTRACT: Because of the importance of compounds of rare earth metals with Group VI elements, the thermoelectric emissions of PrS, Pr_2S_3, NdS, and Nd_2S_3 were measured at temperatures from 800 to 1500°C. The sesquisulfides were prepared by heating compressed powder pellets in H_2S at 1400°C. The monosulfides were prepared from intermediate products of a reaction discussed elsewhere (S.V.Radzikovskaya, G.V. Samsonov, Ukr.khim.zhurn.,26,412,1960). The thermoelectric currents were measured by a procedure described earlier (V.I.Marchenko, G.V.Samsonov, V.S.Fomenko, Radiotekhnika i elektronika,8,6,1067,1963). From measured saturation currents the work function was obtained as a function of temperature by employing the tables of C. Jansen and R.Loosjes (Phil.Res.Rep.,8,81,1953).The work functions of all four com-

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pounds increase approximately linearly with temperature up to about 1400 or 1500°C. At higher temperatures the increase continues, but ata slightly lower rate. Comparison of the present results with similar measurements for lanthanum and cerium sulfides shows that 1) the work functions of the two sulfides of the same metal are close (at a given temperature) and 2) the work function of the sulfide decreases slightly on going from the lanthanum to the cerium to the praseodymium compound. These results are regarded as confirmation of a previous suggestion that the work function is related to the 4f-5d electron transition probability. The work function of neodymium sulfide is slightly greater than that of praseodymium sulfide. Orig.art.has: 5 figures and 1 table.

ASSOCIATION: Institut metallokeramiki i spetsial'ny*kh splavov AN UkrSSR,Kiev (Institute of Cermets. and Special Alloys, Academy of Sciences, UkrSSR)

SUBMITTED: 03Nov62 DATE ACQ: 10Feb64 ENCL: 00

SUB CODE: PH NR REF SOV: 004 OTHER: 001

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APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000413420015-1"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000413420015-1

SAMSONOV, G.V.; OBOLONCHIK, V.A.; PADERNO, Yu.B.; SERBINA, R.V.; POMENKO, V.S.; OGORODNIKOV, V.V.

Preparation of a double boride of sodium and lanthanum and the study of its physical and chemical properties. Zhur. prikl. khim. 37 no.9:1872-1878 S '64.

(MIRA 17:10)

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000413420015-1"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000413420015-1

SAMSONOV, G.V. [Samsonov, H.V.]; PADERNO, Yu.B.; FOMENKO, V.S.

Thermionic emission characteristics of transition metals and their compounds. Ukr. fiz. zhur. 10 no.6:622-629 Je '65. (MIRA 18:7)

1. Institut problem materialovedeniya AN UkrSSR, Kiyev.

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000413420015-1

L 4988-66 EWT(1)/EWP(e)/EWT(m)/EWP(i)/ETC/EPF(n)-2/EWG(m)/EPA(w)-2/T/EWP(t)/EWP(b)

ACC NR: AP5025901 IJP(c) JD/JG/AT/WH SOURCE CODE: UR/0057/65/035/010/1860/1862

AUTHOR: Paderno, Yu. B.; Fomenko, V. S.; Podchernyayeva, I. A.; Makarenko, G. N. 44,55

ORG: Institute for the Study of Problems of Material Sciences, AN SSSR, Kiev (Institut problem materialovedeniya AN SSSR) 44,55

TITLE: Thermionic emission from CeC_2

SOURCE: Zhurnal tekhnicheskoy fiziki, v. 35, no. 10, 1965, 1860-1862

TOPIC TAGS: thermionic emission, rare earth metal, cerium carbide, carbide, cathode, cerium bicarbide

ABSTRACT: The thermal emission properties of CeC_2, whose electronic structure resembles that of ThC_2 (which is known to be a good emitter) have been investigated in the temperature range of 1200—1770K, in view of the possible use of the material for the production of efficient cathodes. The methods and instrumental setup used for the experiments were described in an earlier work (Samsanov, G. V., V. S. Fomenko, V. N. Paderno, and B. M. Rud'. Teplofizika vysokikh temperatur, 2, 730, 1964). Suspended in absolute alcohol, the carbide was deposited onto a tantalum substrate upon which it formed a 0.2—0.3-mm-thick layer. To prevent oxidation, the deposition did not last more than three

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ACC NR: AP5025901

minutes. The measurements of the work function taken during the activation process showed a minimum of 2.49 ev at 1380K, which value remained unchanged until 1520K, when an insignificant increase could be observed. At any given fixed temperature, the stationary value of the work function was attained rapidly when the cathode temperature was high. The good emission properties of CeC_2 are indicated by its fast activation, with the work function changing from 3.20 to 2.49 ev in the temperature range of 1220—1380K. The maximum current density actually measured was 3 amp/cm^2 at a cathode temperature of 1700K, but a rough extrapolation leads to a value of 17 amp/cm^2 at 2300K. The authors hope that studies of other rare-earth metal carbides may help to explain the influence of the electronic structure on the emission properties of materials. Orig. art. has: 2 figures. [ZL]

SUB CODE: EM,IC/ SUBM DATE: 05Feb65/ ORIG REF: 004/ OTH REF: 004

ATD PRESS: 4131

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APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000413420015-1"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000413420015-1

L 06579-67 EWT(m)/EWP(e)/EWP(w)/EWP(t)/ETI IJP(c) JD/JG

ACC NR: AP6029821 SOURCE CODE: UR/0363/66/002/008/1454/1459

AUTHOR: Samsonov, G. V.; Lapshov, Yu. K.; Podchernyayeva, I. A.; Fomenko, V. S.; Yerosov, Yu. I.; Dudnik, Ye. M.

ORG: Institute of Material Science Problems, Academy of Sciences SSSR (Institut problem materialovedeniya akademii nauk UkrSSR)

TITLE: Some physical properties of the W-LaB_6 alloys

SOURCE: AN SSSR. Izvestiya. Neorganicheskiye materialy, v. 2, no. 8, 1966, 1454-1459

TOPIC TAGS: solid mechanical property, tungsten, boron, lanthanum, x ray, alloy, phase composition, phase diagram

ABSTRACT: The phase composition of several W-LaB_6 alloys (1-50 mole % LaB_6) was studied by x ray technique Microhardness, specific electrical resistivity in 293°-1273°K range, and thermal emission parameters and emanation coefficients in the 1200-1950°K range were determined for various W-LaB_6 alloys. The alloy samples were prepared by hot pressing of suitable W+LaB_6 mixture in an argon atmosphere. The x ray analyses were made with a URS-501M apparatus provided with CuKα-emission source. It was found that during the interaction between W and LaB_6 there occurs a simultaneous formation of two borides, W_2B and WB, and a decomposition of LaB_6. These processes were accompanied by an increase in the specific electrical resistivity of the samples. It was also

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000413420015-1

L 06579-67

ACC NR: AP6029821

found that an addition of as little as 1 mole % LaB_6 to W results in a sharp decline in the samples work function. This effect is explained in terms of the declining statical weight of the stable d^5- configurations in the tungsten atoms leading, in turn, to an easy thermal excitation of the metals' non-localized electrons. Orig. art. has: 5 figures and 3 tables.

SUB CODE: 11,20/SUBM DATE: 21Jul65/ ORIG REF: 015/ OTH REF: 002

Card 2/2

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000413420015-1

L 45915-66 EWT(1)/EWT(m)/EW[illegible]/T/EWP(t)/ETI IJP(c) JD/JG/AT

ACC NR: AP6028618 SOURCE CODE: UR/0057/66/036/008/1435/1448

AUTHOR: Samsonov, G.V.; Paderno, Yu.B.; Fomenko, V.S.

ORG: Refractory Materials Section, Institute of Problems in the Study of Materials, AN UkrSSR, Kiev (Sektor tugoplavkikh materialov Instituta problem materialovedeniya AN UkrSSR)

TITLE: Concerning the thermionic emission characteristics of the transition metals and their compounds

SOURCE: Zhurnal tekhnicheskoy fiziki, v. 36, no. 8, 1966, 1435-1448

TOPIC TAGS: work function, thermionic emission, electron structure, transition element

ABSTRACT: From considerations of elementary logic and a correct philosophical position concerning the relation of base to superstructure, the authors conclude that the main factor that determines the work function of a thermionic emitter is the electronic structure in the body of the material, and not merely the structure of the surface layers, to which, they say, the majority of investigators in the field have erroneously confined their attention. This paper is an extensive defense of that thesis. The work functions of elements from all parts of the periodic table are compared with the corresponding electronic structures, and the conclusion emerges that a high statistical weight of the stable electron configuration and a low statistical weight of the

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000413420015-1

L 45915-66

ACC NR: AP6028618

collectivised electron states favor a high work function. The difference between the work functions of the different faces of a single crystal is due to the different statistical weights of the stable states characteristic of the different faces and directions. The last few pages are devoted to a more detailed discussion of the metals from Sc to Ni, from Y to Pd, and from Hf to Pt, and their borides, carbides, nitrides and silicides. A great many data from different sources are discussed. The authors feel that the concepts that they present will make possible a more thorough investigation of the nature of the work function and will be useful in the search for new thermionic emitters. Orig. art. has: 1 formula, 5 figures and 1 table.

SUB CODE: 20 SUBM DATE: 24Mar64 ORIG. REF: 031 OTH REF: 013

Card 2/2 mjs

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000413420015-1"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000413420015-1

L 32678-66 EWT(m)/EWP(k)/EWP(t)/ETI IJP(c) JD/HW

ACC NR: AP6006440 SOURCE CODE: UR/0420/65/000/003/0084/0085

AUTHORS: Lopatin, A. I.; Balyberdin, V. V.; Chumachenko, V. S.; Fomenko, V. I.; Ivanov, G. V.; Trubchaninov, F. A.; Kirichenko, R. F.

ORG: none

TITLE: Radiotechnical method for measuring the motion parameters of the blank during sheet metal stamping

SOURCE: Samoletostroyeniye i tekhnika vozdushnogo flota, no. 3, 1965, 84-85

TOPIC TAGS: metal stamping, test instrumentation, UHF instrument

ABSTRACT: A mostly qualitative description of a radiotechnical method for measuring the displacement of the die during sheet metal stamping is briefly presented. The method consists of attaching a metal "flag" to the die and using this flag to partially block the path between two ultrahigh frequency waveguides, one of which serves as a transmitter and the other as detector. After calibrating the change in transmitted UHF energy as a function of flag position in the gap between the guides, this curve can be used to interpret the die motion (position or velocity) as recorded on an oscilloscope during a stamping operation. Any centimeter range UHF generator can be used. A sample calibration curve and a sample stamping curve are presented without details or specifications as to operating ranges, accuracy, etc. Orig. art. has: 3 figures.

SUB CODE: 13/ SUBM DATE: none/ ORIG REF: 001

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L 31678-66 EWT(m)/EWP(e)/EIC(f)/EWP(t)/ETI IJP(c) WW/JD/JG/AT/WH/GD

ACC NR: AT6013557 SOURCE CODE: UR/0000/65/000/000/0108/0115

54
50
B+1

AUTHOR: Samsonov, G. V.; Paderno, Yu. B.; Fomenko, V. S.

ORG: Institute of Materials Science Problems, AN UkrSSR (Institut problem materialovedeniya AN UkrSSR)

TITLE: Thermoemission characteristics of transition metals and their compounds

SOURCE: AN UkrSSR. Institut problem materialovedeniya. Vysokotemperaturnyye neorganicheskiye soyedineniya (High temperature inorganic compounds). Kiev, Naukova dumka, 1965, 108-115

TOPIC TAGS: transition element, work function, silicide, boride, carbide, nitride

ABSTRACT: The work function was determined by cathode electronic technique for all transition elements as well as for their silicides, borides, carbides, and nitrides. The purpose of the work was to determine a relationship between the electron work function and the electronic structure of an element. It was found that the work function increases with increasing occupation of the valence orbitals in the case of p-elements and with increasing occupation of the d-orbitals in the case of d-elements. This dependence has maxima at p^6, d^{10}, p^3, and d^5. The work function of the compounds of transition elements was found to depend upon the ionization potential of the metalloid moiety of the compound. Intermetallic compounds exhibit generally lower work function

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values than compounds involving nonmetals. The dependence of the work function of several elements and their compounds upon the atomic number of the elements is shown in figure 1. The dependence of the work function of transition elements and their compounds upon the degree of occupation of the *d*-orbitals of the metal atoms is shown in figure 2. Orig. art. has: 2 figures, 2 tables.

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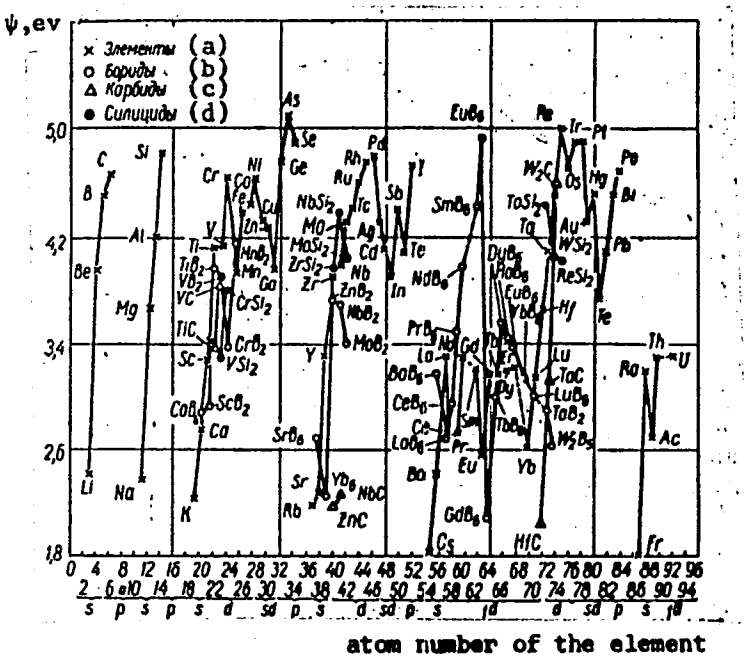

Fig. 1. a--elements; b--borides; c--carbides; d--silicides

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ACC NR: AT6013557

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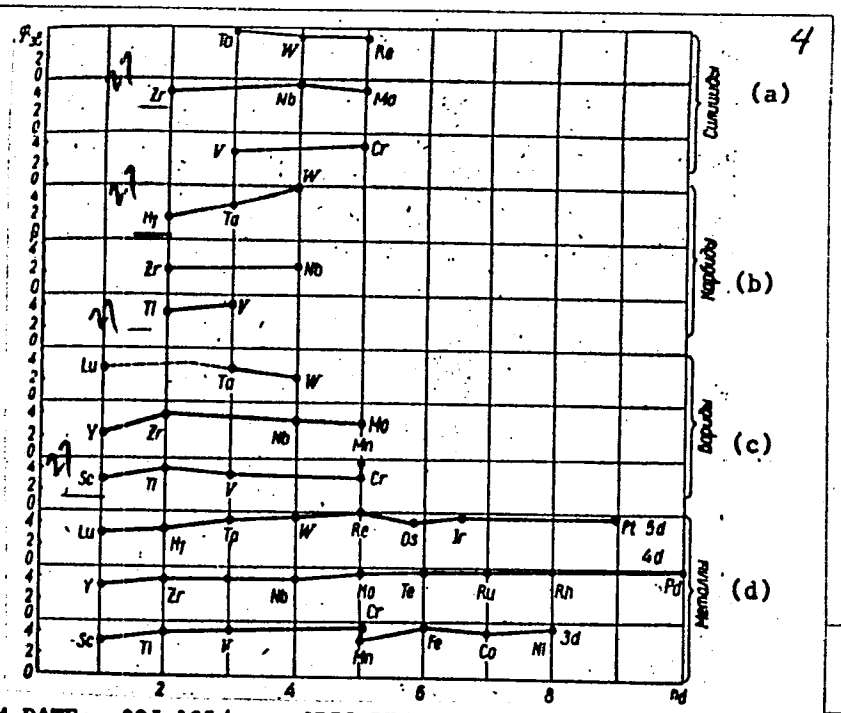

Fig. 2. a--silicides; b--carbides; c--borides; d--metals

SUB CODE: 07,11/ SUBM DATE: 03Jul65/ ORIG REF: 018/ OTH REF: 001

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000413420015-1

L 32676-66 EWT(1)/EWT(m)/EWP(w)/T/EWP(t)/ETI IJP(c) JD/WW/GD

ACC NR: AT6013566 (A) SOURCE CODE: UR/0000/65/000/000/0278/0285

AUTHOR: Samsonov, G. V.; Fomenko, V. S.; Paderno, V. N.; Rud', B. M.

ORG: Institute of Material Science Problems, AN UkrSSR (Institut problem materialovedeniya AN UkrSSR)

TITLE: Thermal emission characteristics of alloys of isomorphic carbides

SOURCE: AN UkrSSR. Institut problem materialovedeniya. Vysokotemperaturnyye neorganicheskiye soyedineniya (High temperature inorganic compounds). Kiev, Naukova dumka, 1965, 278-285

TOPIC TAGS: heat radiation, zirconium carbide, tantalum compound, hafnium compound, niobium compound, work function, CARBIDE

ABSTRACT: The concentration dependence of the thermal emission properties of the TaC-ZrC-, TaC-HfC-, and HfC-NbC carbide system was studied in the 1100°-2500°C range. The carbide samples were prepared by fusing suitable mixtures of oxides with carbon at 2500°-2700°C. At the fusion temperature, the carbide samples were pressed into tablets and machined into bars 6 mm in diameter and 0.6-0.7 mm in length. The measurements were taken at $3\text{-}5\cdot10^{-6}$ mm Hg pressure. It was found that the work function of the isomorphic carbide mixtures is generally greater than the work function of the corresponding individual carbides. This is due to the stronger interaction among the

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metal atoms within the isomorphic mixed carbides. It was also found that the thermal emission properties of the solid solutions are a function of electron receptivity of the metal atoms and of the stability of the d^5-shell configuration of the mixed carbide systems. The dependence of the work function upon temperature for the mixed carbides is shown in figure 1. The dependence of the effective work function at 2000°K upon mixed carbide composition is shown in figure 2. Orig. art. has: 4 figures, 1 table.

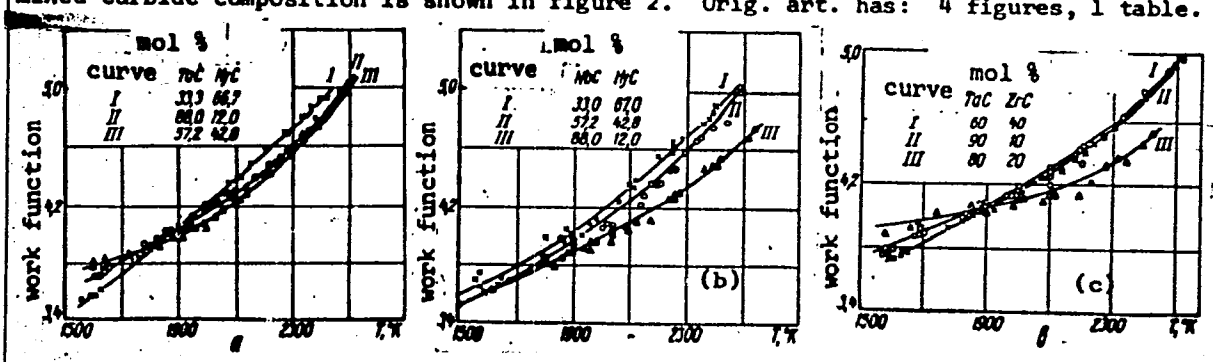

Fig. 1. The dependence of the work function upon temperature for TaC-HfC (a); NbC--HfC (b), and TaC-ZrC (c).

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ACC NR: AT6013566

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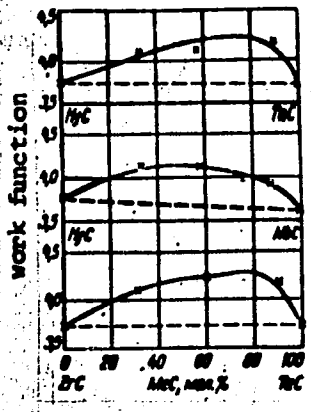

Fig. 2. The dependence of the effective work function at 2000°K upon composition of the TaC-HfC, NbC-HfC, and TaC-ZrC systems.

SUB CODE: 07/ SUBM DATE: 03Jul65/ ORIG REF: 012/ OTH REF: 005

Card 3/3 BLG

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FOMENKO, V.T.

Bending of surfaces of positive curvature under certain boundary conditions. Dokl. AN SSSR 142 no.2:286-288 Ja '62.
(MIRA 15:2)

1. Rostovskiy-na-Donu gosudarstvennyy universitet. Predstavleno akademikom I.N.Vekua.

(Boundary value problems)
(Surfaces of constant curvature)

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FOMENKO, V.T.

Study of the solutions to the fundamental equations of the theory of surfaces. Dokl.AN SSSR 144 no.1:69-71 My '62. (MIRA 15:5)

1. Rostovskiy-na-Donu gosudarstvennyy universitet. Predstavleno akademikom A.N.Kolmogorovym.
(Surfaces) (Differential equations)

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FOMENKO, V.T.

Flexure and single-valued determinateness of edged surfaces of positive curvature. Dokl.AN SSSR 144 no.2:283-285 My '62. (MIRA 15:5)

1. Rostovskiy-na-Donu gosudarstvennyy universitet. Predstavleno akademikom I.G.Petrovskim.

(Surfaces of constant curvature)

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000413420015-1

BARKHIN, G.S.; FOMENKO, V.T.

On the deformation of surfaces of positive curvature with a boundary. Sib.mat.zhur. 4 no.1:32-47 Ja-F '63. (MIRA 16:2)

(Boundary value problems) (Surfaces, Deformation of)

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000413420015-1

FOMENKO, V.T.

Bending of a surface having an edge. Dokl. AN SSSR 151 no.4:793-795 Ag '63. (MIRA 16:8)

1. Predstavleno akademikom I.N.Vekua. Predstavleno akademikom I.N.Vekua.

(Surfaces, Deformation of)

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000413420015-1

BARKHIN, G.S.; FOMENKO, V.T.

Single-valued definiteness of a piecewise regular surface of positive curvature with a boundary condition. Dokl. AN SSSR 152 no.5:1023-1026 O '63. (MIRA 16:12)

1. Rostovskiy-na-Donu gosudarstvennyy universitet. Predstavleno akademikom I.N.Vekua.

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000413420015-1

FOMENKO, V.T.

Single-valued determinacy of ovaloids with cuts. Dokl. AN SSSR 152 no.6:1320-1323 O '63. (MIRA 16:11)

1. Rostovskiy-na-Donu gosudarstvennyy universitet. Predstavleno akademikom I.N. Vekua.

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FOMENKO, V.T. (Rostov-na-Donu)

Infinitesimal flexures of surfaces with edges under certain boundary conditions. Ukr. mat. zhur. 16 no.5:699-704 '64. (MIRA 17:10)

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000413420015-1

FOMENKO, V.T. (Rostov-na-Donu)

Flexure and single-valued determination of surfaces of positive curvature with an edge. Mat. sbor. 63 no.3:409-425 Mr '64. (MIRA 17:4)

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