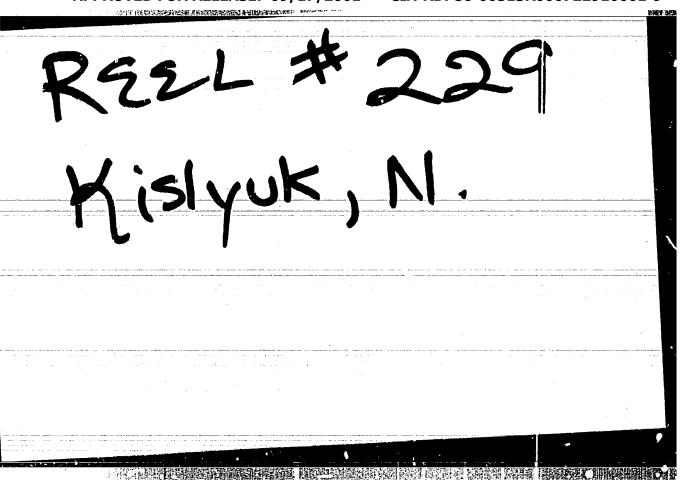


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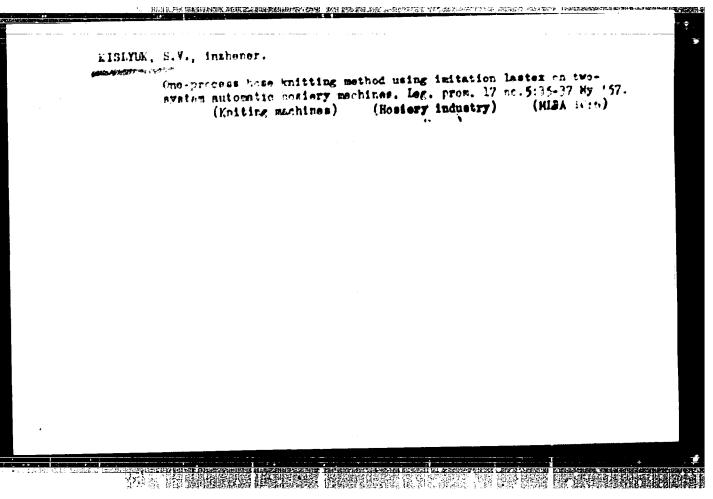
CIA-RDP86-00513R000722910001-9



MOSKALENKO, S.I.; GAJOVICH, M.S.; BACHINSKIY, Yu.V.; TOMILIN, A.V.;
MEDUPEDEV, P.M.; LOMARDVA, M.M.; GOLOVEDV, P.D.; GATHUKOV, (I.I.;
ALETHIKOV, V.V.; STEMIN, M.D.; MIEDMOVA, V.V.; BELAVINTENEVA,
Ye.S.; TSVETSIMEKIT, S.V.; ENCHEPURETY, P.; KOBZARI, M.X.;
ROZHROVA, Ye.S.; PELETMIESKIY, V.H.; GORDETCHIK, V.K.; SERKRIGO,
V.F.; KISLTUK, M.

Fifty years in 16 sugar industry. Sakh.prom. 33 no.2:18
F '59.

(Shtepan, Georgii Viacheslavovich, 1888-)



BROVMAN, M.Ys.; VYDRIN, V.N.; YERMXKHIN, F.K.; KISLYUK, V.A.; KRAINOV, V.I.;
LEVINTOV, S.D.; RIMEN, V.Kh.; SEREBRYAKOV, A.N.; SHEYDFR. B.E.

Method of controlling the tension in continuous rilling mills.
Stal' 25 no.7:629-631 J1 '65.

(MIRA 18:7)

EAT(1) OS/OW L 3422-66 UR/0000/65/000/000/0040/0049 ACCESSION NR: AT5023743 Gavrilov, I. V.; Duma, AUTHOR: TITIE: Selenocentric coordinates of 160 base points on the lunar surface SOURCE: AN UkrSSR, Figura i dvizheniye Luny (Shape and motion of the Moon). Kiev, Naukova dumka, 1965, 40-49 TOPIC TAGS: lunar surface, moon, selenography ABSTRACT: Measurements of the space coordinates of craters contained in the Schrutka-Rechtenstamm catalog (Schrutka-Rechtenstamm, G., Mitteilungen der Universitatssternwarte, Wien, 1958, 9, 17, 251-303) were made at the GAO AN Ukr. SSR. The results, together with the data of Schrutka-Rechtenstamm and R. B. Baldwin (Baldwin, R. B., The Measure of the Moon. University of Chicago Press, Chicago, 1963), served as the basis for the cumulative catalog of space coordinates of 160 base points presented in the article. Initial results oil a solution of a concrete selenodesic problem are presented, and their accuracy is discussed. Calculations show that the center of mass of the moon is located somewhat to the northeast of the accepted center of i', figure, "in con:lusion, the authors thank N. A. Vasilanko and calculators L. N. Zimina and S. A. Zaslavakaya Card 1/2

L 3422-66

ACCESSION NR; AT5023743

for assistance in the computations." Orig. art. has: 4 figures, 4 tables, and 5 formulas.

ASSOCIATION: None

SURMITTED: 12May65 ENCL: OO SUB CODF: AA

NO REF SOV: 001 OTHER: 003

Rural hydroelectric power station built of precast reinforced concrete. Sel'. stroi. 13 no.6:15 Je '58. (MIRA 11:6) 1.Starshiy inshoner Kirovskogo tresta "Sel'elektrostroy." (Kirov Province-Hydroelectric power stations) (Precast concrete construction)

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722910001-9"

KISLYY, A., nauchnyy sotrudnik

Yello pear .cale insect Quadraspidiotus pyri. Zashch. rast. ot
vred. 1 bol. 10 no.6:31-32 '65. (YRA 18:7)

1. Vasaoyuanyy nauchno-issledovatal'nkiy institut vinodeliya 1
vinogradarstva "Magarach", Yalta.

KISLTY, A.A., inch.

Splicing of rail lengths for curved sections. Put' i put.khoz.
9 no.6839-41 '55.

L. Puteveya mashinnaya stentsiya No.121, stentsiya Zhulyany,
Iugo-Zapadnoy doregi.

MANYCH, A.D., inshener-mekhanik; NOVOMIRSKIY, S.P., inshener-mekhanik; DENIGHE, KO, I.P., brigadir; SHCHEMBINSKIY, A.V., kembayner, Geroy setsialisticheskege truda; KISLYY, A.B., kembayner, Geroy setsialisticheskege truda; VASIL'CHERKO, G.A., Geroy setisialisticheskege truda; BUTERKO, V,I.; POLUYAN, V., kembayner.

Please think about it. Zuan. sila 32 ne.1:6-7 Ja 157. (MEMA 10:4)

1. Direkter Asevskey ordena Lenina Mashinne-trakterney stantsii (fer Manych). 2. Zamestitel' direktora lievskege uchilishcha mehhanisatsii sel'skege khesyaystva. No.2. (fer Nevemirskiy). 3. 10-ya traktornaya brigada Asevskey erdena Lenina Mashinne-trakterney stantsii (fer Denisenke). 4. Asevskaya Mashinne-trakternaya stantsiya (fer Macherbinskiy, Kislyy, Vasil'chenke). 5. Master preizvodstvennago obucheniya Azovskege industrial'nege tekhnikuma trudevykh reservov (fer Butenke). 6. Uchashchiysya gruppy perepedgetovki brigadirev trakternykh brigad Azovskege uchilishcha mekhanizatsii sel'skege khesyaystva, Samarskey Mashinne-trakterney stantsii (fer Poluyan).

(Cembines (Agricultural machinery))

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722910001-9"

Methods for estimating the effectiveness of insecticides. Zashch. rast. ot wred. i bol. 8 no.5:46 My '63. (MIRA 16:9) 1. Nikitskiy botanicheskiy sad, Ialta. (Insecticides—Testing)

TIXHONOVA, N.A.; KIBLYY, A.V., mladshiy nauchnyy sotrudnik

Lifective method for controlling granary pests. Zashch. rast.
ct vred. i bol. 4 no.2:26 Hr-Ap '59. (MIRA 16:5)

1. Zaveduyushchiy otdelcz zashchity rasteniy Krymskoy ohlastnoy gosudarstvennoy sel'skokhosyaystvennoy opytnoy stahtsii (for Tikhonova).

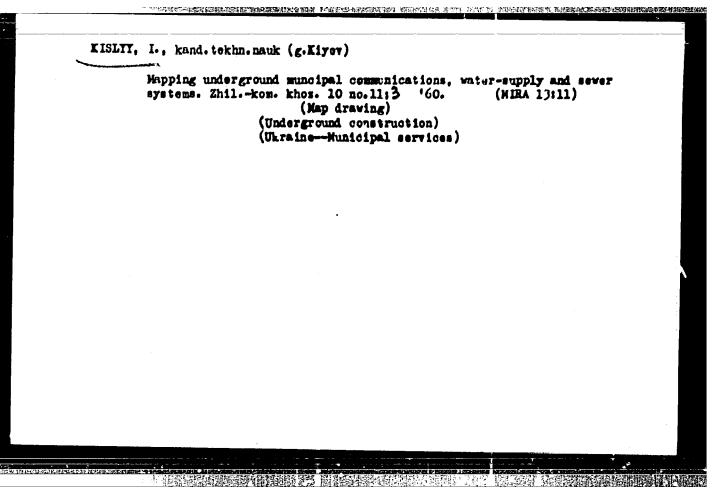
(Grimes—Granaries—Disinfection)

KISLYY, G., mladshiy nauchnyy sotrudnik

Specific manifestations of loose smut. Zashch. rast. ot vred.
i bol. 10 no.3:40 '65. (MIRA 19:1)

1. Ukrainskiy institut rasteniyevodstva, selektsii i genetiki,

Khar'kov.



KISLYUK, I.M.

Hotes on the anatomy of wood in Araucariaceae. Bot.zhur.

44 no.11:1624-1631 N '59. (NIRA 13:4)

1. Leningradskiy gosudarstvennyy ordena Lenina universitet
im. A.A.Zhdanova.

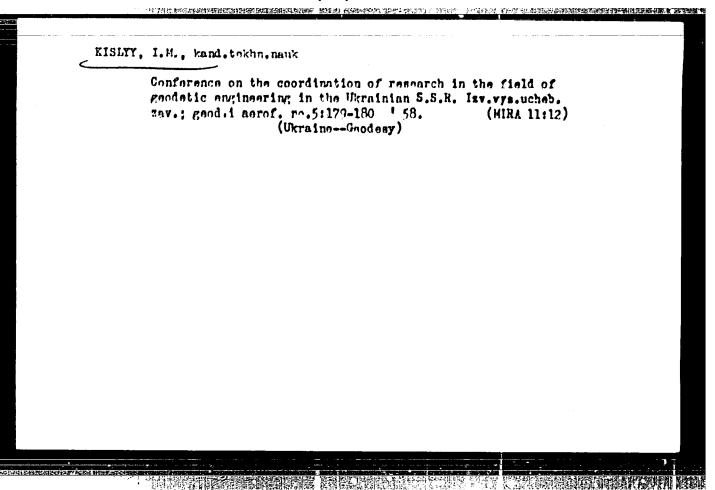
(Araucariaceae) (Wood--Anatomy)

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722910001-9"

KISLYY, I. H.

KISLYY, I. M.: "Morphographic-morphometric characteristics of the earth's surface in the Ukraine near the Sea of Azov." Min Higher Education Ukrainian SSR. Khar'kov Order of Labor Red Panner Agricultural Instiment V. V. Dokuchayev. Chair of Geodesy. Khar'kov, 1956. (Dissertation for the Degree of Candidate in Technical Science).

Source: Knizhnaya letopis! No. 28 1956 Moscow



TO THE CONTROL OF THE PROPERTY OF THE PROPERTY

KISLYY, I.M. [Kyslyi, I.M.]

Horphometrical characteristics of the surface of the Azov region of the Ukraine. Dop. AH URSR no.6:669-670 '58. (MIRA 11:9)

1. Nauchno-issledovatel'skiy institut gorodskogo stroitel'stva akademii stroitel'stva i arkhitaktury USSR. Predstavil akademik AN USSR V.G. Bondarchuk [V.H. Bondarchuk]. (Asov region--Topography)

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THE TRANSPORT AND TRANSPORTED BY THE BEALT WAS TO THE TO THE TRANSPORT OF THE TRANSPORT OF

AUTHOR:

Kislyy, I.M., Candidate of Technical Sciences (Kiyev)

TITLE:

The Fast of the Lysogor River (Froshloye reki Lysogor)

PERIODICAL:

Priroda, 1958, Nr 5, pp 112 - 113 (USSR)

ABSTRACT:

A short report is given on conditions of the Lysogor River of the Ukraine, Chernigov Oblast'.

AVAILABLE:

Library of Congress

Card 1/1

1. Lysogor River - History

22(1) 307/3-59-3-35/48

AUTHOR: Kislyy, I.M. Candidate of Technical Sciences

TITLE: Coordination of Research in the Field of Engineering

Geodesy in the UkrSSR (Koordinatsiya issledovaniy v

oblasti inzhenernoy geodezii v USSR)

PERIODICAL: Vestnik vysshey shkoly, 1959, Nr 3, p 70 (USSR)

ABSTRACT: The basic problem of the First Republican Conference

on Questions of Engineering Geodesy that took place in Kiyev was to coordinate the research work conducted in the Ukraine. Over 300 specialists from scientificresearch institutes and vuzes, design and production organizations of the Ukraine and the RSFSR participated in discussing these problems. Engineering geodesy is, first of all, geodesy in the building trade. The reports delivered by A.M. Kas'yanov, Director of the Nauchno-issledovatel'skiy institut gradestroitel'stva i arkhitektury USSR (Academy of Building and

Architecture UkrSSR) and Corresponding Member of the Academy, and by Doctor of Technical Sciences, Fro-

Card 1/4

SOV/3-59-3-35/48 Coordination of Research in the Field of Engineering Geodesy in the UkrSSR

fessor N.G. Viduyev (of the same institute) - "The Present State and Problems of Scientific Research in the Field of Engineering Geodesy" were the most important of the Conference. Over 20 persons delivered reports to the Conference. There reports were delivered by Docent V.Yu. Koiseyev (Kiyevskiy inzhenernostroitel'nyy institut - Kiyev Engineering and Construction Institute) on "Application of New Engineering Methods in Surveying and Examining Underground Constructions", Engineer G.D. Onar (Kiyevmetrostroy) - "Geodetic-Surveying Work at Building Sites of Tunnels and Subways", Engineer M.A. Brozin (Kiyevmetrostroy) - "Geodetic Work in Bridgebuilding", Professor V.G. Leontovich (Kiyevskiy khudozhestvennyy institut - Kiyev Institute of Art) - "Instruments, Required for Carrying Out Work in Engineering Geodesy", and others. The orators welcomed the opening of a Department for Engineering Geodesy at the Kiyev Engineering and Construction Institute, and the establishing of a

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307/3-59-3-35/48

Coordination of Research in the Field of Engineering Geodesy in the UkrSSR

Section of Engineering Geodesy at the UkrSSR Academy of Building and Architecture. The conference resolution indicated the basic problems of engineering geodesy science for the next 7 years. These include: solving problems of geodetic electronics, of engineering-geodetic planning and its theory, the theory of engineering geodesy, and taking of large-scale aerial photographs. It is intended to make devices for range finding, for town geodetic work, geodetic observations of deformations in constructions, geodetic work at building sites, for hydrotechnical construction, road construction, and for underground communication surveys. The conference material will be published in a special collection by the Academy of Building and Architecture of the UkrSSR.

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SOV/3-59-3-35/48

THE WALL STREET, STREE

Coordination of Research in the Field of Engineering Geodesy in the UkrSSR

ASSOCIATION: Nauchno-issledovatel'skiy institut gradostroitel'stva

Akademii stroitel'stva i arkhitektury USSR (Scientific Institute of Town Building of the UkrSSR Academy of Building and Architecture).

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Card 4/4

3(4) 807/154-59-3-14/19 AUTHOR: Kislyy, I. M., Candidate of Technical Sciences TITLE: Results of the Work of the Scientific-technical Seminar for the Leading Workers in the Field of Applied Geodesy for 1957-1958 and the Plans for 1958 - 1959 (Itogi raboty nauchnogo tekhnicheskogo seminara rukovodyashchikh rabotnikov v oblasti inzhenernoy geodezii za 1957 - 58 g. i plan raboty na 1958-59 g.) Izvestiya vysshikh uchebnykh zavedeniy. Geodeziya i aerofotos"-PERIODICAL: yemka, 1959, Nr 3, p 143 (USSR) The scientific-technical seminar for leading workers in the ABSTRACT: field of applied gendesy was organized by the Chair of Geodesy of the Kiyevskiy in:shenerno-stroitel'nyy institut (Kiyev Civil Engineering Institute), by the Department of Applied Geodesy of the Nauchno-issledovatel'skiy institut gradostroitel'stva Akademii stroitel'stva i arkhitektury Ukrainskoy SSR (Scientific Research Institute of Town-building of the Academy of Building Engineering and Architecture of the UkrSSR), and finally, by the KO VAGO. The seminar is already in its second year. Its aims are: Betterment of qualifications, exchange of experience made in Card 1/3 production, advice on operations of applied geodesy. The following

Results of the Work of the Scientific-technical Seminar SCV/154-59-3-14/19 for the Leading Workers in the Field of Applied Geodesy for 1957-1958 and the Plans for 1958-1959

participate in the seminar: Ukrainskoye aerogeodezicheskoye predprivative (Ukraine Aerogeodetical Enterprise), Geotopos "yemka, VTIZ, Glavkiyevstroy, Ukrgiproshakht, Ukrgiprosakhar, Giprozdrav, Ukrgiprogaz, Kiyevgiprotrans, Giprorechtrans, etc. Following suggestions made by these organizations, the following problems were dealt with in the seminar: large-scale aerial photography of cities (Giprograd); electronic methods in the surveying of subterranean constructions (Ukrsantekhmontazh): new methods of pegging in industrial and civil constructions 'Promstroyproyekt, Glavkiyevstroy); application of light locating (svetolokatsiya) in surveying (Giprotechtrans); principles of radiogeodesy (Ukrgeologiya); new geodetic instruments and apparatus; application of hygroscopic instruments for the orientation of subterranean production (Kiyevmetrostroy); application of aerial photography and of the echo sounder in hydrographic operations (Glavnoye "pravleniye Dneprovakogo rechnogo parakhodstva - Main Administration of the Dnepr River Mavigation); municipal geodetic frame networks (Geotopos yemka); practice of radiogeodetic surveying (Ukrneftegeofizika) . Prom September

Card 2/3

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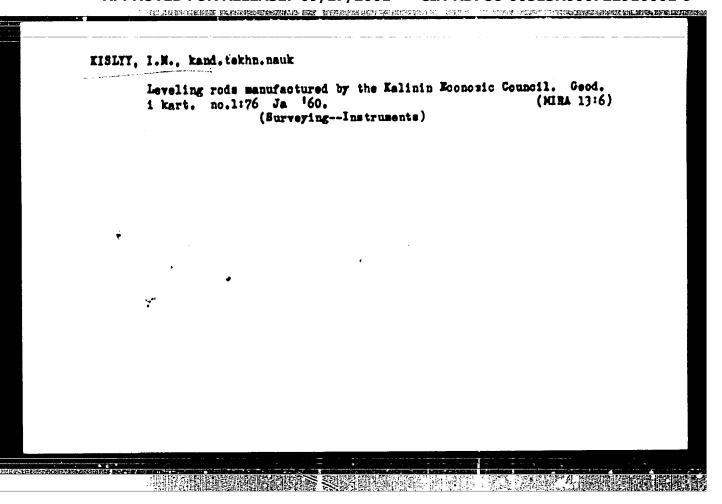
Results of the Work of the Scientific-technical Seminar SOV/154-59-3-14/19 for the Leading Workers in the Field of Applied Geodesy for 1957-1958 and the Plans for 1958-1959

> 1957 to May 1958 the seminar was regularly held twice a month. 20 lectures were delivered; from 70 to 300 persons were assembled each time. The following lectures were heard in the course of the new year: A. M. Golyshev, head of the department of state geodetic supervision of the MVD USSR (Ministry of Internal Affairs of the UkrSSR) "Survey of Geodetic Works of the Official Organizations of the Ukrainskaya SSR"; Professor N. G. Viduyev. Doctor of Technical Sciences, "The Present State of the Error Theory in Geodetic Measurements"; Professor N. I. Towstoles, Doctor of Technical Sciences, "Experimental Aerial Photography for the Technical Investigation of Auto-highways". Twenty more lectures are provided.

ASSOCIATION: Nauchno-issledovatel'skiy institut gradostroitel'stva AS i A Ukrainskoy SSR (Scientific Research Institute for City Building of the Academy of Building Engineering and Architecture of the Ukrainskaya SSR)

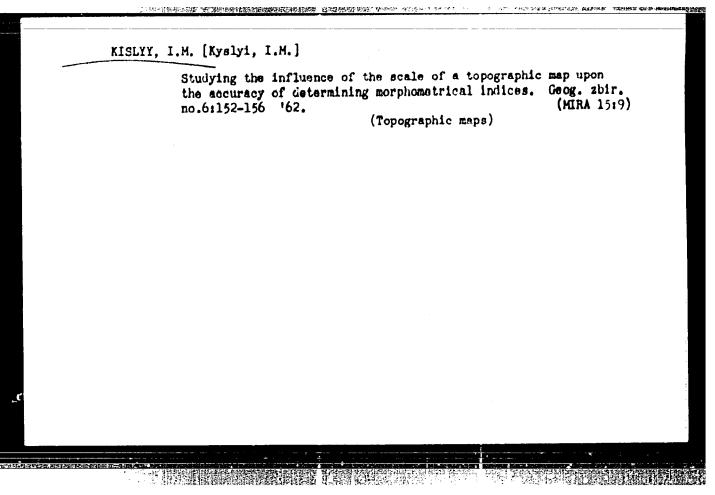
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Slopus and elevations of drainage basins in the northern part of the region of the Sea of Azov. Stor. rab. po girol. no.21144-146 '61. 1. Nauchno-issledovatel'skiy institut gradostroitel'stva Akademii stroitel'stva i arkhitektury USSR. (Azov Sea region—Valleys)

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FOR FOR THE PROPERTY OF THE PR

18(7)

507/21-59-1-12/26

AUTHORS:

Samsonov, G.V. and Kislyy, P.S.

TITLE:

A New Method of Making Pipes and Rods of Heat-Resistant Powder Metals and Their Compounds (Novyy sposob izgotovleriya trub i sterzhney iz poroshkov

tugoplavkikh metallov i ikh soyedineniy)

PERIODICAL:

Dopovidi Akademii nauk Ukrains'koi RSR, 1959, Nr 1,

pp 46-48 (USSR)

ABSTRACT:

This new method of making pipes or solid (without hole) bodies of heac-resistant and non-plastic metal powders or their compounds such as carbides, nitrides, borides, silicides, or sulfides, consists in pressing them in a mold, with the use of a punch with a central rod (for making pipes) or without such a central rod (for making solid bodies). The metal powder is mixed with 2-4% starch paste, which is the best plasticizer for this purpose. The pressed bodies are sintered

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SOV/21-59-1-12/26

A New Method of Making Pipes and Rods of Heat-Resistant Powder Metals and Their Compounds

> in an electric resistance oven at 600-700° C, for 1/2 hour, and are then heated to a clinkering temperature for 5-10 hours, whereupon the furnace and works are cooled gradually to 900-1000° C. Shrinkage averages 12-20%. Porosity changes from 5 to 12%. There are 1 diagram and 5 Soviet references diagram and 5 Soviet references.

ASSOCIATION: Institut metallokeramiki i spetssplavov AN UkrSSR (In-

stitute of Metal-Ceramics and Special Alloys of AS

Ukr SSR).

PRESENTED: September 27, 1958, by V.N. Svechaikov, Member of the

Card 2/2

15 (2), 15 (6)

AUTHORS:

Weshpor, V. S., Kislyy, P. S.

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507/131-59-5-9/12

TITLE:

Not Pressing of Chromic Boride Powder and Some Properties of the Bintered Material (Goryacheye pressovaniye pereshka borida

khroma i nokotoryye svoystva spechennogo materiala)

PERICOICAL:

Ognoupory, 1959, Nr 5, pp 231-236 (USSR)

ABSTRAST:

In the present paper, the authors investigate the sintering conditions of the chromic boride powder which is obtained by the reaction of chronic oxide and boron carbide. The chemical composition of chromic boride is given in table 1. The sintering of the chromic boride ponder was done by hot pressing by means of a laboratory lever press (Fig 1). At a

temperature of 2000 ± 500, a pressing effect of

180 kg/cm² and a sintering time of 10-12 min, it was possible to obtain samples with the minimum porosity of 35 (Fig 2). The melting temperature of the CrB, ascertained by the authors

is 2200 ± 50° which comes near the temperature ascertained by Carkovskiy (Ref 3). Figure 3 shows the relative change in

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weight at 1200° of the CrB2 samples related to 1 cm2 surface

Hot Pressing of Chromic Boride Powder and Some Properties of the Sintered Material 307/131-59-5-9/12

and figure 4 represents the curve of the change in weight. This change in weight is a function of the time of oxidation. The oxidation stability of the borides ascertained by Kotel'nikov (Ref 14) corresponds to the one in the present paper. The coefficients of expension of three samples with different porosities at 500°, as well as the resistance to pressure and rupture of chromic boride samples with different porosities, are further indicated. Some properties of the chromic boride are given in table 2. Concerning the stability of the chromic boride against the action of active reagents, the authors of this article refer to the papers by Kotel'nikov (Ref 14) and Wodylevskaya (Ref 22). The indicated properties of the chromic boride permit its use as a constituent of heat-resistant alloys. A shortcoming is its brittleness which can be reduced by cementing the boride grains with a metal binding agent. The cemented chromic boride can be used for the sanufacture of nozzles for spraying fused metals, of crucibles and costs of thermoelements for the temperature measurement in metallurgical furnaces. There are 4 figures, 2 tables, and 29 references,

Card 2/3

Hot Pressing of Chromic Boride Powder and Some 307/131-59-5-9/12 Properties of the Sintered Material

17 of which are Soviet.

AND REPORT OF THE PARTY OF THE

ASSOCIATION:

Institut metallokeramiki i spetnial'nykh splavov AM USGR (Institute of Powder Metallurgy and Special Alloys of the ÀS UkrSSR)

Card 3/3

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SOV/180-59-6-20/31

AUTHORS: Kislyy, P.S., and Samsonov, G.V. (Kiyev)

TITLE: High-Temperature Semiconductor Thermocouples?

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Metallurgiya i toplivo, 1959, Nr 6, pp 133-137 (USSR)

ABSTRACT: The authors classify service conditions for high-temperature thermocouples and discuss suitable materials with a view to extending the present range of temperature and composition conditions. They give e.m.f. vs temperature curves (Fig 1) for the following alloys (mol \$6\$): 20 MoSi2 + 80 ByC; 20 TiC + 80 CrSi2;

20 TiC + 80 B₄C. The highest e.m.f. is obtained with systems of titanium or zirconium borides with boron carbide, the temperature dependence of which is linear above 300 °C, and these systems are stable. The authors propose a thermocouple design in which molybdenum silicide or titanium or zirconium boride or carbide or

similar material forms the sheath. The sheath at the same time is one electrode of the couple, the other being a rod of e.g. boron carbide located inside the sheath. The junction is formed at the tip of the sheath by welding. Fig 3 shows the calibration curves for

Card 1/3

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High-Temperature Semiconductor Thermocouples

 $TiB_2 - B - C; ZrB_2 - B - C; MoSi_2 - B - C.$ Leads are attached either by soldering to a silver-paste deposit or with the aid of copper clips. Laboratory tests of couples for 150 hours at 1600 °C showed their stability to equal that of platinum/platinum-rhodium couples tested at 12000C but under otherwise similar conditions; production tests were carried out at the Alchevskiy metallurgicheskiy zavod imeni Voroshilova (Alchevsk metallurgical works im

Voroshilov); measuring open-hearth furnace waste-gas temperature showed their suitability for temperatures of 1800-1900°C under oxidizing conditions. The authors maintain that by suitable choice of materials a very wide range of requirements can be covered. For example a sories of couples of borided graphite with borides are suitable

Card 2/3

for vacuum, inert or reducing atmospheres up to 2200-2300 °C, the e.m.f. rising linearly up to 90-120 mV from 5-6 at 300-400 °C.

There are 3 figures and 16 references, of which 13 are Soviet, 2 German and 1 is English.

67838

sov/180-59-6-20/31

High-Temperature Semiconductor Thermocouples

Institut metallokeramiki i spetsial'nykh splavov AN USSR, Kiyev ASSOCIATION:

(Institute of Metallo-Ceranics and Special Alloys, Academy of Sciences, Ukr. SSR, Kiyev)

SUBMITTED:

June 29, 1959

Card 3/3

15(2)

AUTHORS: Samsonov, C. V., Kislyy, P. S. 507/131-59-6-9/15

TITLE:

Technology of Producing Tubes and Rods of Molybdenum Disilicide (Tekhnologiya izgotovleniya trub i sterzhney

iz disilitsida molibdena)

PERIODICAL:

Ogneupory, 1959, Nr 6, pp 276-278 (USSR)

ABSTRACT:

For the production of tubes and rods of HoSi, a mold is used in which the mass is pressed through a nozzle, as is shown in figure 1. The unworked tubes and rods were dried for 1 - 2 days at room temperature and then sintered in Tamman furnaces in a hydrogen medium. In doing no, the unworked pieces were at first heated up to a temperature of 600 - 7000, halting time 30 minutes, and then the sintering process was

finished at a temperature of 19500, halting time 5 - 10 minutes. After that the products together with the furnace

were cooled down to 900 - 10000. A deficiency is the high electrical conductivity of the heating elements made of molybdenum disilicide. Experiments introducing silicon-

Card 1/2

-aluminum- and zirconium oxide in the layer were made to

Technology of Producing Tubes and Rods of Molybdenum SCV/131-59-6-9/15 Disilicide

increase the electric resistance. Tubules of molybdenum disilicide can be used for the production of electrodes for semi-conductor thermocouples. V. S. Sinel'nikova took part in this work (footnote 1). Figure 3 shows the characteristics of such a thermocouple. There are 3 figures, 1 table, and 4 Soviet references.

ASSOCIATION:

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

Card 2/2

18 (

Samsonov, H.V., Synel'hykovs, V.S., Kyslyr, P. O.

AUTHOR: (Samsonov, G. V., Sinel'nikova, V. S., Eislyi, P. S.)

TITLE: Alloys of the Boron Carbide - Molybdenum Disilicide System

PERIODICAL: Dopovidi Akademii nauk Ukrains'koi RSB, 1959, Nr 8, pp 866 - 868 (USSR)

ABSTRACT: The alloys of boron carbide with molytdenum disilicide posses a high and stable thermal e, m. f. which is used when creating high-temperature thermocouples [Ref. 1]. The boron carbide, however, is, at its high resistance to heat, [Ref. 2] not yet sufficiently resistant to oxidation at high temperatures. This calls forth the necessity to add components to the alloy which avert or stop its oxidation. In connection with this, the properties of boron carbide—molybdenum disilicide alloys were subjected to investigations based upon the method of metallography, X-ray patterns, conductivity and thermal e.m. f. Formation of the quadripartite phase Mo (B₁C₁, Si) is found. It has a very wide homogeneous region across which (from 10 to 50 mol. MoSi₂

Card 1/2 in alloys with boron carbide) electrical resistance

307/21-59-8-12/26

Alloys of the Boron Carbide - Molybdenum Distlictde System

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increases and thermal e.m. f. decreases, in accordance with the degree of defectiveness of the lattice of this phase. The investigation of alloys in view of their resistance to oxidation has shown (Photo 2), that an alloy which according to its composition corresponds approximately to the quadripartite chemical compound, possesses the highest resistance to oxidation. Additions of distlicide of less than 50 mol.% decrease the resistance of alloys to oxidation. There is one set of photos, I diagram and 5 references, 3 of which are Soviet, I American and I German.

ASSOCIATION:

Institut metallokeramiki 1 spetsial nych splavov AN USSR (Institute of Powder Metallurgy and Special Alloys of the AS of UkrSSR)

PERIODICAL:

By V. M. Svechnikov, Member of AS Uki33R

SUBMITTED:

December 22, 1958

Card 2/2

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S/181/60/002/008/007/045 B006/B070

24.7500

AUTHORS:

Kislyy, P. S., Samsonov, C. V.

TITLE:

The Diffusion of Boron in Carbon

PERIODICAL:

Fizika tverdogo tela, 1960, Vol. 2, No. 8, pp. 1729-1732

TEXT: The authors have already performed preliminary experiments on the diffusion of boron in graphite and investigations of the properties of the boron carbide obtained in this way. It is found that by the diffusion of boron in graphite alloys are obtained which show greater solidity and lower brittleness than boron carbide obtained by compression under heat. These alloys have semiconductor properties, and can be utilized for the preparation of high temperature thermocouples. By the diffusion of boron into the surface of graphite samples, their corrosion resistance becomes noticeably higher, particularly at higher temperatures (Refs. 1-5). The purpose of the present work was to investigate the mechanism of diffusion and to determine its parameters. The object to investigated was a cylindrical sample of spectroscopically pure graphite

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The Diffusion of Boron in Carbon

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onto whose surface a 2 mm thick layer of a paste of amorphous boron was applied. After the samples had been dried at 150°C, they were enclosed in a graphite shell and preheated in an atmosphere of hydrogen (700 - 800°C, 60 - 80 min). After this treatment the samples were subjected to metallographic, chemical, and X-ray analyses. Further, the reverse process of diffusion of carbon in boron was investigated. For this purpose, boron samples of a porosity of 36% were employed. They were prepared by compression of boron powder and sintering at 1900°C. In this case there resulted a saturation of the carbon samples with carbon in 30 minutes in a vacuum oven at 1940°C. Experiments showed that in similar conditions the boron penetrates deeper in carbon (1.4 - 1.6 mm) than carbon does in boron (0.6 - 0.8 mm). This indicates a remarkably higher mobility of boron atoms. The diffusion coefficients were calculated to be $6.2 \cdot 10^{-6} \text{cm}^2/\text{sec}$ (B-C) and $1.8 \cdot 10^{-6} \text{cm}^2/\text{sec}$ (C-B). Numerical data for two samples showing boron content at different depths of the carbon sample (chemical analysis) are given in Table 1. Their graphical representation is given in Fig. 2. The boron concentration diminishes exponentially with depth. That a solid solution is formed due to

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The Diffusion of Boron in Carbon

S/181/60/002/008/007/045 B006/BC70

diffusion, is shown by an X-ray analysis. Here the interplanar spacings of raphite lattice are measured as function of boron concentration (Fig. 3). Further, the temperature dependence of diffusion of boron in graphite is investigated (Fig. 4). D = 3.02 exp(-28625/T) is found to hold. Numerical values are given in Table 2. There are £ figures, 2 tables, and 6 Soviet references.

ASSOCIATION:

Institut metallokeramiki i spetsial nykh nplavov AN USSR

(Institute of Powder Metallurgy and Special Alloys of the

AS UkrssR)

SUBMITTED:

October 20, 1959

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Samsonov, C. V., Kislyy, P. S., Panasyuk, A. D.,

Strel'chenko, A. G., Khavrunyak, I. G., Serikova, G. N.

TITLE:

AUTHORS:

Shield tubes from zirconium boride for immersion

thermocouples

PERIODICAL:

Ogneupory, no. 2, 1961, 72-74

TEXT: The article describes experiments and studies leading to the manufacture of shield tubes from zirconium boride which have a high thermal resistivity. Shield tubes produced from zirconium dioxide, which withstand immersion into molten steel at 1650-1720°C for a short time. were elaborated at the Leningradskiy tekhnologicheski; institut imeni Lenseveta (Leningrad Technological Institute imeni Lensovet). Studies of their stability in molten cast iron and steel, made at the laboratoriya tugoplavkikh materialov (Laboratory for High-melting Materials) of the Institut metallokeramiki i spetsial nykh splavov AN USSR (Institute of Pender Metallurgy and Special Alloys AS UkrSSR), showed that zirconium boride ZrB, is of extremely high thermal resistivity and thus well suited

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Shield tubes from zirconium boride ...

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for shield tubes of thermocouples. Such a shield tube is schematically shown in Fig. 1. The blanks of the shield tube are dried and sintered in an electric furnace at a temperature of 2050-2200°C. The sintered shield tubes have a fine-grained fracture and a porosity of 5-12%. Shield tubes with an outer diameter of 11 and 16 mm and an inner diameter 4 and 1! mm were made. They were tested at the following metallurgical plants: zavod "Zaporozhstal'" ("Zaporozhstal'" Plant), zavod im. Dzerzhinskogo (Plant imeni Dzerzhinskiy), Alchevskiy zavod (Alchevskiy Plant), as well as the Kiyev plants: zavod "Bol'shevik" ("Bol'shevik" Plant) and zavod "Leninskaya kuznitsa" ("Leninskaya kuznitsa" Plant). When testing the shield tubes in molten cast iron at 1400 to 1450°C in a Kryptol furnace, it was found that they are only slightly covered by slag and not corroded, and that they maintain their initial structure. When tested during tapping of cast iron in a blast furnace, they withstand 15 tappings with a total stay of 10 hr 53 min in molten metal. In an open hearth furnace with basic lining, shield tubes are corroded by basic slags and destroyed after 30-40 min. The outer diameter of the shield tures is not reduced during immersion in molten steel and a stay of

Card 2/5

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Shield tubes from zirconium boride ...

S/131/61/000/002/001/002 B105/B206

40 45 min. In small open-hearth furnaces, shield tubes withstood the total melting time (2 hr) without any damage. Their thermal resistivity is determined by the number of immersions into the tank of the openhearth furnace and is at least 15 to 20 immersions, permitting the temperature of the steel to be regulated during the entire heating-up period. At the Kiyevskiy armaturno-mekhanicheskiy zavod (Kiyev Plant for Pittings and Mechanical Equipment), zirconium boride shield tubes withstood 86 hr in molten brass at 850 ± 50°C without any damage. At the "Leninskaya kuznitsa" Plant, the same results were obtained during a test in molten bronze of the type AMU, -10-2 (AMTs-10-2). Besides the authors, A. G. Petrenko, Ya. S. Gayvoronskiy, N. M. Tenishev, V. G. Tishchenko, I. R. Krichker, G. G. Bespalyy, G. A. Yasinskaya, as well as collaboraters of the plants mentioned participated in this study. Shield tubes from silicon nitride (SigN4) also show high stability in molten brass at 850°C. The high stability of zirconium boride shield tubes in molten steels and cast iron makes it possible to use them in tanks of openhearth furnaces, blast furnace channels, and steel ladles. Zirconium boride shield tubes showed high stability in molten bronzes and brass. Continuous temperature measurement of metals in melting furnaces can be Card 3/5

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Shield tubes from zirconium boride ...

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made with their aid. There are 3 figures and 6 Soviet-bloc references.

ASSOCIATION: Institut metallokeramiki i spetsial'nykhsplavov AN USSR (Institute of Powder Metallurgy and Special Alloys AS UkrSSR) Samsonov, G. V., Kislyy, P. S., Panasyuk, A. D.; Institut avtomatiki Gosplana USSR (Institute of Automation of the Gosplan of the UkrSSR) Strel'chenko, A. G., Khavrunyak, I. G., Serikova, G. N.

Card 4/5

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722910001-9"

KISLYY, P.S.; LAKH, V.I.; SAMSONCV, C.V.; STADNYK, B.I.; KHARENKO, R.F.; CHEKHOVICH, A.B.

Thermoelectric characteristics of high-temperature thermocouples with refractory electrodes. Izm.tekh. no.5:21-23 My '61. (MIRA 14:5)

(Thermocouples)

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At filling Samsonov G V Kielvy P S, and Panasynk, A D

TIPE Thermoelectric properties of thermocouples with high melting point solid electrodes

PERIODICAL: Izmeritel naya tekhnika, no 10 1961 32-34

ZrC and Zrii, have the tavourable combination of high strength low electric resistance, good thermal conductivity. moderate coefficients of thermal expansion and a high resistance against the effect of aggressive media, including molten metals The authors describe the results of investigations of and slags. the thermoelectric properties of thermocouples with electrodes The following electrode compositions made of these materials. were used. 1) virtually stoichiometric ZrB, with a free carbon admixture of approximately 0.4%; 2) ZrC containing 85.1% Zr, 12.8% C total (1.62% free C), and 0.05% Fe; and 3) ZrC of the same composition as above after apparation of the free carbon by means of a 2^{5} scap solution. From these materials thermoelectrode specimens were prepared and coupled with platinum. Their thermal e.m.f. was determined after treasment for 10 and 20 hours at high Card 1/2

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incomoclectic properties of ...

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temperatures in H, and CO + H, media. The presence of free carbon sharply affects the stability of the thermal e m (, of /rC. Determination of the variation with temperature of the thermal e.m.f. of ZrB, and ZrC showed that in a thermocouple with ZrC or ZrB, electrodes a virtually linear relationship exists between temperature and thermal com. for (~ B 7 at/10) . Thermocouples based on these materials have only slight thermal c m f fluctus. tions. The thermocouple was calibrated against another thermocouple in the temperature range 20 to 1200°C and by means of an optical pytometer in the temperature range dun to 2000°C. graphite heater of a design which is illustrated in the paper was used: this enabled calibration no to 5000°C. The stability of the calibration curve was checked by holding the thermocouple at 1800°C in a hydrogen atmosphere. Subsequent re-calibration at 500, local 1500 and 2000°C showed that at 2000°C the course did not exceed 25 C, i.e. it was of the order of 1s. There are 4 figures 2 tables and b references: 5 Soviet and 1 non-poviet.

Card 2/2

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722910001-9"

LAKH, V.I.; PROKHORENKO, V.Ya.; TEREBUKH, L.S.; KISLYY, P.S.; PANASYUK, A.D.; SAMSONOV, G.V.

Temperature measurement of the atmosphere of an aluminum electrolysis cell. Tovet. met. 34 no.8138-40 Ag '61. (HIRA 14:9) (Aluminum-Electrometallurgy)

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722910001-9"

S/226/6-2/000/002/004/010 1003/1203

AUTHOR:

Kislyy, P.S., Panasyuk, A. D. and Samsonov, G. V.

TITLE

Activated sintering of niobium carbide

PERIODICAL:

Poroshkovaya metallurgiya, no. 2 1962, 38-43

TEXT: Niobium carbide is used in construction of high-temperature resistance furnaces and for high-temperature thermocouples. Sintering of niobium carbide should be done at temperatures up to 3000°C which are, however, difficult to attain. This work investigates the possibilities of lowering sintering temperatures of niobium carbide poweders by activating the sintering process. Since additions of rickel fail to activate the process to any substantial extent, the authors used 270 mesh niobium carbide powder containing 88.5% of Nb and 11% of C with an addition of 1% of Fe and 2% of CoCl₂. Physicochemical properties are given of powders sintered in resistance furnaces at temperatures ranging from 1700 to 2600°C in an atmosphere of hydrogen. Their lower porosity as compared with that of niobium carbide powders sintered without any activating additions is stressed. There are 5 figures and 3 tables.

ASSOCIATION: Institut metallokeramiki i spetsial'nykh splavov AN USSR (Institute of Powder Metallurgy

and Special Alloys AS UkrSSR)

SUBMITTED:

June 11, 1961

Card 1/1

S/226/62/000/002/007/010 1003/1203

AUTHOR:

Kislyy, P. S.

TITLE:

A device for measuring the shrinkage and the electric resistance of pswders during the

sintering process

PERIODICAL:

Poroshkovaya metallurgiya, no. 2 1962, 74-76

TEXT: Because sintering is the last significant stage in the production of metal powders, it requires a process control, such as provided in the present article. This device permits direct measurements of shrinkage and electric resistance which properties reveal any faults in the micro- and macrostructure of the sintered material. The device consists of an original dilatometer of high-grade graphite, which also measures the electric resistance of the sample. It was first calibrated on copper and quartz samples, and a comparative measurement of electric resistance of copper showed that the maximum error of the device is 1.8%. There are 2 figures.

ASSOCIATION: Institut metallokeramiki i spetsial'nykh splavov AN USSR (Institute of Powder Metallurgy

and Special Alloys AS UkrSSR)

SUBMITTED:

September 12, 1961

Card 1/1

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\$/226/62/000/003/005/014 1003/1203

AUTHOR

Kislyy, P. S. and Samsonov, G. V.

TITLE

Extrusion die-forming of pipes and rods from refractory metal powders

PERIODICAL:

Poroshkovaya metallurgiya, no. 3, 1962, 31-48

The article deals with the problem of extrusion die-forming of mixtures of refractory compounds with plasticizers, outlines the technological process of manufacture by a method never before used for refractory metal powders. The initial conditions of the powders, the method of preparation of the mixtures, initial grain size, the type, amount, and method of introduction of the plasticizer, applied pressure and humidity of the powder and their effects on the properties of the finished products are discussed. There are 15 figures and 2 tables.

ASSOCIATION: Institut metallokeramiki i spetsial'nykh splavov AN USSR (Institute of Powder Metal-

lurgy and Special Alloys AS UkrSSR)

SUBMITTED

January 4, 1961

Card 1/1

CIA-RDP86-00513R000722910001-9" **APPROVED FOR RELEASE: 09/17/2001**

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AUNIONA:

L'vov, S.m., henchem.o, V.F., Kislyy, P.S., Verghoglysdova, T.S.

ma nosolapova, T.Ya.

TITLE:

Electric properties of sociaces, carbides, and nitrices of chromium

Priculation:

Poroshkovaya metallurdiya, mo.4, 1962, 20-25

The electric properties of the above compounds have not been buildeently investigated. In the present work the electric resistivity, the Hall effect, the thermal emf., the thermal coefficient of electric resistivity and the coefficient of neat conductivity of all borides, and nitrides of chronium were investigated at room temperature. The influence of carbon, borom, and nitrogen on the electric properties of their compounds with chronium is in good agreement with the regularities displayed by the borides, carbines, and nitrides of all group IV-VI transition metals. There are 3 figures and 1 table.

ASSOCIATION:

Khersonskiy gosudarstvennyy pedagogicheskiy institut im. N.K. krupskoi i Imutitut metallokeramiki i spetsial'nykh splavov in Unik

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Submitted: Jan 1962

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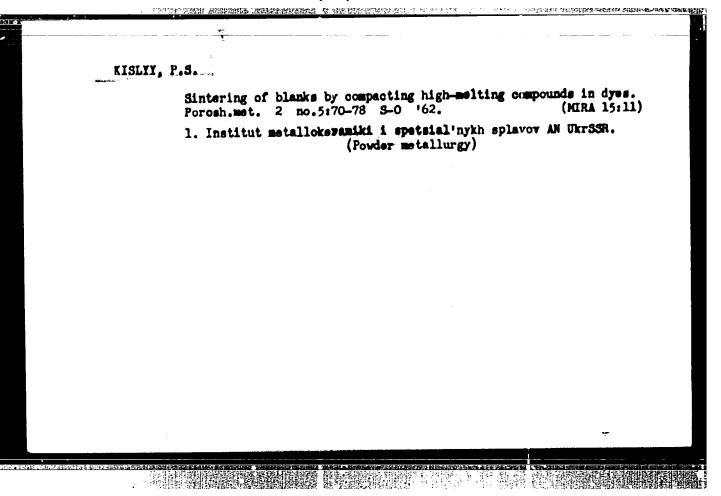
of high-temperature thermocouples

Principality Ali:

Poroslikovaya metallurunya , mo.4, 1962, 50-55

The following thermocouples were prepared: hoSi_wSi_for temperature measurements in oxidizing media up to 1700°C, C/ars_for measurements of the temperature of molten metals, steels and slag and Cfric for measurements in reducing and in corrupting media at temperatures up to 2500°C. The testing of the above and of the Zrb /ZrC thermocouples in various modia, showed that their enf changed after 155 hours of testing by values permissible according to technical specifications. The production of metal powder thermocomples with the same emf versus temperature values is rather difficult as these values are strongly influenced by even the smallest charges in the preparation and in the sintering of the actal powder wires. There are 4 figures and 2 tables.

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KISLYY, P.S.; L'VOV, S.N.; NEMCHENKO, V.P.; SAMSOHOV, G.V.

Physical properties of the boride phases of chromium. Porosh. met. 2 no.6:50-53 N-D '62. (MIRA 15:12)

1. Khersonskiy gosudarstvennyy pedagogicheskiy institut imeni N.K.Krupskoy i Institut metallokeramili i spetsial'nykh splavov AN UkrSSR.

(Chromium boride-Testing)

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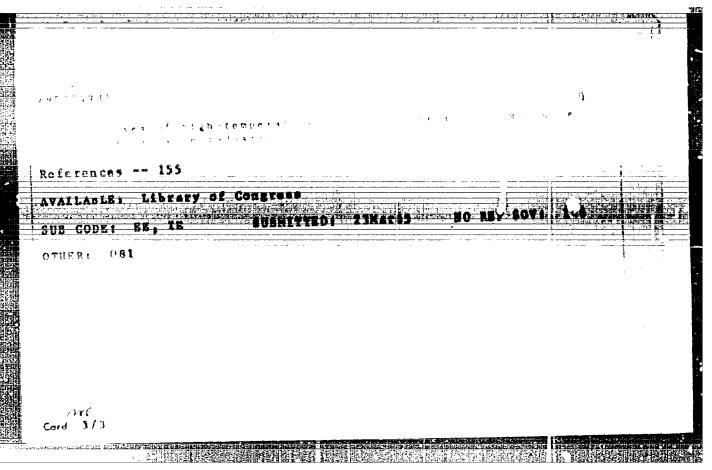
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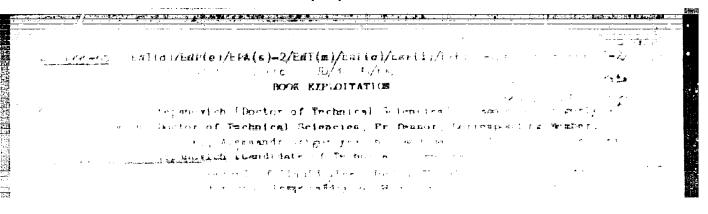
Measuring the temperature of the metal during the process of smelting in a converter with a top oxygen blow. Het. i gornorud. prom. no. 2:28-31 Mr-Ap '64. (MIRA 17:9)

High-temperature non-zetallic termocouples and tip. Tysokic temperaturnyve nemetallic termocouples and tip. Tysokic temperaturnyve nemetallic termorary i nakonechniki Kiev, temperaturnyve nemetallichenive termopary i nakonechniki Kiev, temperaturnyve nemetallic termopary i nakonechniki Kiev, temperaturnyve nemetallic thermocouple, nonmetallic thermocouple, thermocouple sheath termocouple, thermocouple sheath puppour AND COVERAGE: This book in intended for scientists and emperature conducting research in the field of physics and engineers and automatical in metallurgy; it may also be useful to perform plant laborapories and to students and espirant contains metallurgy and heat power engineering. The book is neither for producing thermoelectrodes and their recommendation of metallurgy and heat power engineering. The book is neither for producing thermoelectrodes and their recommendation and sheathing of metallic thermocouples.	AK5014981	BOOK EXPLOITATION	UR (2
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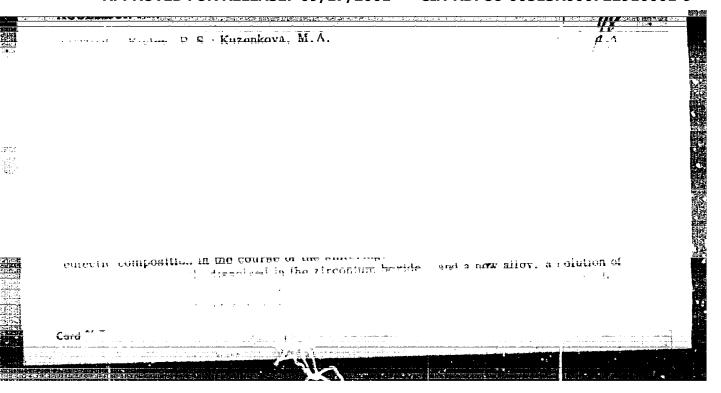


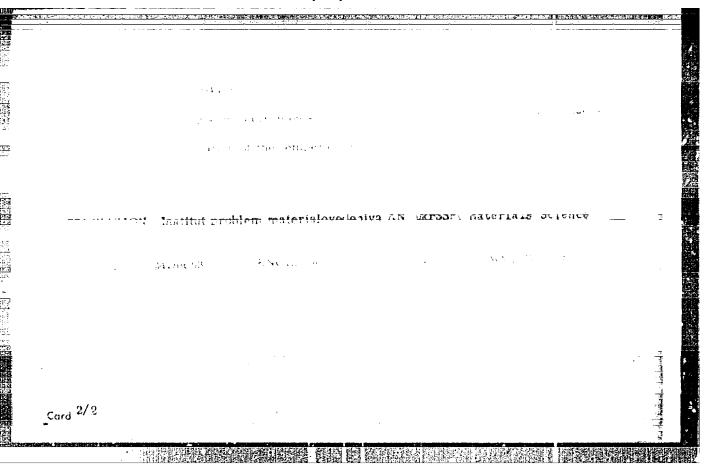


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Toshkovaya metallurgiya	, ao. 4, 1965, 18-24	
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/ JTHOR: Samsonov, G.V.; Kislyy, P.S.		
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SOURCE: Ogneupory, no. 4, 1965, 28-32		
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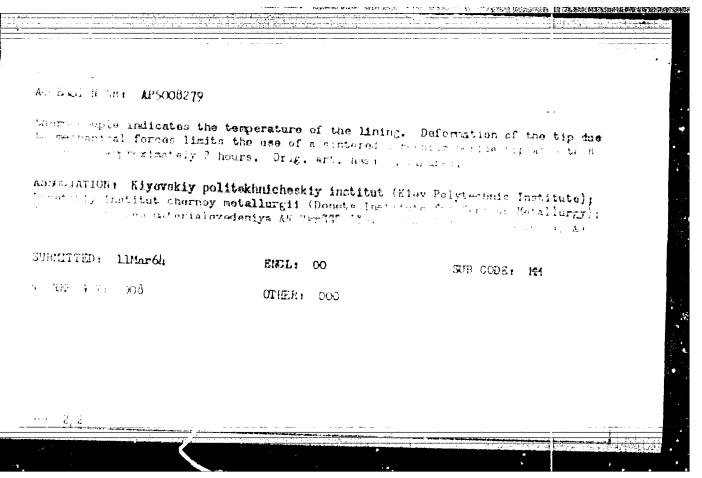
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KISLYY, P.S.; KUZENEGVA, M.A.

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Performance of Tireonium boride therauce	
Station Foroshkovaya metallurgiya, no. 3, 1965,	•
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MACTRACT: The use of a multileyer thermoccuple of Therefore convertor with an sold lining is discussed for measuring the temperature in convertor with nonacid lining. The purpose of the convertor with nonacid lining. The purpose of the convertor with nonacid lining. The purpose of the convertor temperature-indicating system by using the convertor of the convertor to be approximately against the convertor of the	issent. Phis procedure had been the open hearth furnace and in a sis supertment was to develop a procedure procedure.



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KIS:YV, NOWERSONA, M.A.

Investigating the process of freezing-on thermocouple tips made of zirconium borido. Porosh. met. 5 no.8:45-49 Ag '65, (MIRA 18:9)

1. Institut problem materialovedeniya AN UkrSSR.

KU ENKOVA, M.A.; KISLYY, P.S.

Investigating the scale resistance of alloys of sirconium toride with molybdenum disilicide. Porosh. met. 5 no.10: 75-79 0 165. (MIRA 18:11)

1. Institut problem materialovedeniya AN UkrSSR.

KISLYY, P.S., KUZENKOVA, M.A.

Tips and high-temperature thermoccupies with thermoelectrodes made of silicon carbide. Porosh.met. 5 no.11:41-44 N 165.

(MIR4 18:12)

1. Institut problem materialcvedeniya AN UkrSSR. Submitted February 23, 1965.

ENT(m)/ENT(a)/ENP(w)/ENP(1)/END(m)/ENP(t)/ENA(d)/ENF(n)-2/T/EPI/ENF(b) Ella (c) Po-li/Pu-li IJP(c) JD/WW/JO ACCESSION NR: APSO16036 UR/0226/65/000/006/0055 '0059 AUTHOR: Kuzenkova, M. A.; Kislyy, P. S. TITLE: Synthesis and some properties of alloys of zirconium boride with mo. ybdenum SOURCE: Poroshkovaya metallurgiya, no. 6, 1965, 55-59 TOPIC TAGS: zirconium boride, zirconium boride alloy, molybdenum disilicide containing alloy, alloy synthesis, alloy structure, alloy physical property ABSTRACT: The structure and properties of sintered zirconium-boride base alloys containing from 5 to 25% molybdenum disilicide have been investigated. The maximum sillicon content, even in alloys with 15, 20, or 25% MoSi, did not exceed 4.0% probably because of evaporation of silicon at high temperatures. Alloys contain- | for up to 15% MoSi₂ had a single-phase structure. Their molting temperature ons of from 2545 ± 25 to 2410 ± 250, the microbardness from 34 36 -2035 to 2 35 to on min2, and the resistivity from 32 to 27.4 unharms. The resistivity of the al. ye increased linearly with increasing temperature (meta, lin conductivity). Alloys containing 25% HoSi2 a.e two-phase miloys consisting of a zirconium-invide base solid solution with a hexagonal lattice, and another phase with a micro-Card 1/2

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ACCESSION NR: AP5020769

UR/0226/65/000/008/0045/0049

AUTHOR: Kislyy, P. S. Kuzenkova, M. A.

TITLE: Immersion method of making thermocouple jackets from zirconium bor: de

SOURCE: Poroshkovaya metallurgiya, no. 8, 1965, 45-49

TOPIC TAGS: thermocouple, immersion thermocouple, thermocouple jacket, zircenium boride jacket

ABSTRACT: Zirconium-boride Jackets for immersion-type thermocouples can be made by dipping a metallic pattern into a mixture of zirconium-boride powder [70.6]. Zr. 17.6% B, 0.21% $C_{\rm tot}$, 0.23% Fe) and paraffin, with eleic acid added as a surface-active diluent. The coefficient of packing $K_{\rm p} = V_{\rm p}/V_{\rm s}$, where $V_{\rm p}$ is the volume of powder and $V_{\rm s}$ is the volume of semifinished product, was used as a criterion of the final quality of the semifinished product. The mixture containing $R_{\rm mix} = 101$ paraffin with 1% eleic acid was found to be the most suitable and was used for lackets with a wall thickness of 2—2.2 mm. Unsintered Jackets had a $K_{\rm p}$ of 0.6, i.e., close to the theoretical $K_{\rm p}$ for spherical particles. Mixtures with a higher paraffin centent, e.g., containing more than 25, 18, and 19% paraffin in mixtures with pure paraffin and 1 and 2% eleic acid, were structurally unstable. Paraffin was removed

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ACCESSION NR: AP5020769

before sintering by heating the jackets, which were packed in roasted alum: num-oxide powder. This was followed by sintering! The finished jacket had a porosity of 10-12% and a banding strength of 150 Mn/m², which is almost equal to the density and bending strength of extruded and sintered jackets. Orig. art. has: 2 figures.

ASSOCIATION: Institut problem materialovedeniya AN UkrSSR (Institute of the Prob-

lems of the Science.of Materials, AN UkrSSR)

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SUB CODE: IE, TO

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OTHER: 001

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EMP(a)/EWT(m)/EPF(c)/EWP(1)/EPF(n)-2/EWP(t)/EMP(k)/EMP(z)/EWP(b)ACC NR. AP5026275 IJP(e) JD/WW/JD/WB SOURCE CODE: UR/0226/65/000/010/0075/0079 AUTHOR: Kuzenkova, M. A.; Kislyy, P. S. ORG: Institute of the Problems of the Science of Materials, AN UkrSSR (Institut problem materialovedeniya AN UkrSSR) TITLE: Investigation of the oxidation resistance of alloys of zirconium boride with molybdenum disilicide SOURCE: Poroshkovaya metallurgiya, no. 10, 1965, 75-79 TOPIC TAGS: zirconium boride, zirconium boride alloy, molybdenum disilicide containing alloy, alloy oxidation, oxidation resistance ABSTRACT: Hot-extruded pure zirconium boride (ZrB₂) with a porosity of 8%, and compacted and sintered ZrB₂ and alloys of zirconium boride with molybdenum lisilicide? (ZrB_{1.9})₂₃·MoSi_{1.1}, (Zr_{1.7})₁₃·MoSi_{1.2}, and (ZrB_{1.6})₈·MoSi_{1.4}, were oxidized in air at temperatures up to 1000C for up to 10 hr. Sintered ZrB₂ had a porosity of about 15%; the porosity of the alloys was within the limits of 5 to 13%. In the 800-1000C range the oxidation of pure ZrB2 followed a linear rate. More porous ZrB2 had an appreciably higher oxidation rate; specimens with a porosity of about 15% completely disintegrated after 8-10 hr exposure. At 1200-1400C the oxidation rate was higher but the specimens did not disintegrate because of the formation of a dense, protective, oxide film which greatly impedes the oxygen diffusion. The film Card 1/2

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disintegrates at 1450C. The oxidation rate of zirconium boride-molybdenum disilicide alloys at temperatures of about 1000C followed a pattern similar to that for pure ZrB2. At high temperatures, up to 1500—1550C, dense, oxidation-resistant films are formed at the surface of the base metal. The films are continuous with a small number of closed pores, adhere strongly to the base metals, and effectively block the access of oxygen to the base material. The films formed at 1600C have interconnected pores which reach the metal surface, and the oxidation rate changes to linear. Thus, the alloys of zirconium boride with molybdenum distlicide have very high oxidation resistance and can be used at temperatures up to 1500—1550C. Orig. art. has: a figures and 1 table.

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SUB CODE: MT, IC/ SUBM DATE: O9Jul64/ ORIG REF: O05/ OTH REF: O03/ AND PRESS:

KISLYY, P.S.; KUSENKOVA, M.A.; SHTAYNUYAUR, G.I.; DOLOWYKH, M.A.

Thermocouple tips for nontinuous temperature control in copyer smelting furnaces. Ognewory 30 no.9:36-39 '65.

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1. Institut problem materialovedeniya AN UkrSSR (for Kislyy, Kuzenkova). 2. Balkhashskiy gornometallurgicheskiy kombinat (for Shtaynlyauf, Solovykh).

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722910001-9"

EVENKOVA, M.A.; KISLYY P.S.

Preparation of zirconium diboride. Porosh.met. 5 no.1218-12
D '65.

1. Institut problem materialovedeniya AN UkrSSR. Submitted
March 26, 1965.

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L 21144-66 EWT(m)/EPF(n)-2/T/EWP(t) IJP(c) JD/WW/JG ACC NR: AP6001468 SOURCE CODE: UR/0226/65/000/012/0008/0012

AUTHORS: Kuzenkova, M. A.; Kislyy, P. S.

ORG: Institute of Problems of Metal Science AN UkrSSR (Institut problem meterialovedeniya AN UkrSSR

TITLE: Preparation of zirconium diboride

SOURCE: Poroshkovaya metallurgiya, nr. 12, 1965, 8-12

TOPIC TAGS: zirconium, diboride, boron, carbide, metallographic analysis, x ray analysis, reduction

ABSTRACT: On the basis of x-ray and metallographic analyses it is shown that zirconium diboride, obtained by the method of boron carbide reduction at temperatures above 1650C, contains about 4.94 ± 0.12% ZrB12. One-phase zirconium poride may be obtained at temperatures below 1650C or at high temperatures with subsequent slow cooling (6--8 degrees/min) within a temperature range of 1650--1400C. The Microhardness of zirconium dodecarboride was determined as 45 ± 1.5 Gn/m². Orig. art. has: 2 tables, 3 formulas. (Based on author's abstract.)

SUB CODE: 07, 11/ SUBM DATE: 26Mar65/ ORIG REF: 006/ OTH REF: ()10/Cord 1/1

EWP(e)/ENT(m)/EWP(t)/ETI/EWF(k) IJP(c) JD/cm/Ja L 31930-66 ACC NR. AP6015348 ์ (ห) SOURCE CODE: UR/0226/66/000/005/0016/0023 AUTHOR: Kislyr, P. S.; Kuzenkova, M. A. ORG: Institute for Problems in the Science of Materials AN UkrSSR (Institut problem materialovedeniya AN UkrSSR) Sintering of zirconium diboride with molybdonum alloys 17 SOURCE: Poroshkovaya metallurgiya, no. 5, 1966. 16-23 TOPIC TAGS: sintering, zirconium alloy, molybdenum alloy, activation energy, shrinkage, zirconium molybdenum alloy ABSTRACT: The article deals with the shrinkage of samples from mixtures of zirconium diboride with 5-, 10-, and 15-% molybdenum in the process of slow heating to temperatures 18000 or during the initial period of sintering. With rapid heating to 1700-17500, growth of samples (rather than shrinkage) is observed during the formation of a solid solution of Mo in ZrB2, due to heterodiffusion. The activation energy of the shrinkage process, based on the computation of the shear viscosity, equals, respectively, 367 ± 48 , 352 ± 28 , and 379 ± 46 kj/mol for ZrB_2 alloys with the 5-, 10-, and 15% molybdenum, i.e., less than the activation energy in the shrink-age of zirconium diboride (678 ± 55 kJ/mol), which indicates that the presence of molybdenum activates the diffusion processes during sintering. Crig. art. has: 5 Card 1/2

figures, 2 for	mulas, and 1 table.	[Translation of	author's	abstract) (AM)	
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ACC NR: AP6013340

(A) SOURCE CODE: UR/0363/66/002/004/0617/0625

AUTHOR: Kislyy, P.S.; Kuzenkova, M.A.

36

ORG: Institute of Materials Science Problems, Academy of Sciences UkrSSR (Institut problem materialovedeniya Akademii nauk UkrSSR)

TITLE: Study of the conversion of zirconium dodecaboride into zirconium diboride

SOURCE: AN SSSR. Izvestiya. Neorganicheskiy materialy, v. 2, no. 4, 1966, 617-625

TOPIC TAGS: zirconium compound, boride

maphic, and microstructural methods. It was shown that during heating, ZrB_{12} converts into ZrB_2 in the 1530 — 1650C temperature range. The transformation is associated with a decrease in volume, evolution of heat, and increase of general porosity. The kinetics of the transformation are determined by pure diffusion processes. The generation of centers of the new phase is observed in the volume of the matrix at the site of micropores and other defects. The diboride formed accretes coherently around the primary grain of diboride, and thus the latter increases in size. Pores are formed in place of the dodecaboride grains. The coefficient of linear expansion of zirconium

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dodecaboride was found to be $28 \times 10^{-6} \text{ deg}^{-1}$ in the 1600 - 2200 C range. Orig. art.

has: 8 figures.

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	AUTHOR: Kuzenkova, M. A.; Kislyy, P. S.	
	ORG: Institute for Problems in Science of Materials, AM UkrssR (Institut	
	problem materialovedeniya An	<u> </u>
	TITLE: Growth of zirconium diboride trains during sintering	
	SOURCE: Poroshkovaya metallugiya, no.1, 1966, 12-16	
	TOPIC TAGS: zirconium compound . grain growth, sintering, shrinkage,	
	surface tension, activation energy, boride	
	ABSTRACT: This paper presents the results of the investigation of growth of zirconium diboride grains during sintering. It is assumed that during the initial period of sintering (about 5 minutes), the grain growth is conditioned by the mechanism of migration of the particles under the effect of surface tension forces causing grains to combine on polygonized borders. At sintering temperatures exceeding 1800C, very intensive shrinkage is observed in the zirconium diboride samples with isothermal holding up to 30 min. Actually, with 1 to 2 min at temperatures from 2100—1700C, the average grain size is found	
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to increase	by 140%. The	activation	energy of gr	ain growth	-au-la	
120 * 40 kJ/	mol. Orig. ar	t. has: 6 f	igures and 3	formulas, [Based	
on author's	abstract				[HA]	i
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IJP(c) JD/WW/JG/WB/AT/WH AUTHOR: Kislyy, P. S.; Kuzenk	оvа, м. л. 92
ORG: Institute for the Study of A	faterials, AN Ukrssn (Institut problem materialovedeniya $\mathcal S$
A.1 11	gh-temperature thermocouples with silicon carbide thermo-
electrodes	and a minimized with a micon carpine thermo-
OURCE: Poroshkovaya metallur	giya, no. 11, 1965, 41-44
COPIC TAGS: silicon carbide, the protection, thermoelectromotive is	ermocouple, high temperature material, corrosion force
hermocouple tips and thermoelectespect to use in oxidizing and, espect to which causes ceramic ti	rvey of literature data it is shown that SiC prepared from virtually nonporous material and, when used as the material dirodes, it is superior to high-temperature ceramics with specially, redox media, since it resists intercrystalline hermocouple tips to lose their imperviousness to gas within 1700-1800°C. SiC of this kind displays constant physico-