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20-2-44/62

The Heats and Free Energies of the Formation of Zirconium Nitrides as Related to Composition and Structure.

practically remains constant.
(1 illustration, 1 table, 7 Slavic references).

ASSOCIATION Fiziko-khimicheskiy institut im. L.Ya. Karpova
PRESENTED BY MARGIT V.A., Acme. of the Academy, April 25, 1957
SUBMITTED
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PHASE I BOOK EXPLOITATION SOV/5018

Poluprovodnikovye neshistitutnykh kollektorov po tverdye fazam peremennogo sostava

Kachestvo materialov dlya poluprovodnikovoy tekhniki (Quality of Materials for Semiconductor Technology). Moscow, Metallurgizdat, 1959. 198 p. (Series: Its: Trudy, 1957-1958, vyp. 8-30) 3,600 copies printed.

Sponsoring Agencies: USSR. Sovet Ministrov. Gosudarstvennyy komitet po khimii; Akademiya nauk SSSR. Fiziko-khimicheskiy institut imeni L.Ya. Karpova.

Ed. (Title Page): B.F. Ormont, Professor; Ed. (Inside Book): Ya.V. Yakovlev; Ed. of Publishing House: L.M. El'kind; Tech. Ed.: F.G. Yalsot'yeva; Editorial Board of Series: I.P. Alimarin, Corresponding Member, Academy of Sciences USSR, Geochemistry Institute, M.V. Grigor'yev, Scientific Research Institute, Committee on Radioelectronics, E.P. Lastovskiy, Professor, Institute of Chemical Reagents, Chemistry Committee, B.F. Ormont, Professor, Academy of Sciences USSR, Institute of Physics and Chemistry imeni L.Ya. Karpov, N.K. Novoselova, State Rare Metals Scientific Research Institute, N.P. Sazhin, Corresponding Member, Academy of Sciences USSR, State Rare Metals Scientific Research Institute, G.Ya. Turanov, Scientific Research Institute, Committee on Radioelectronics, Ya.V. Yakovlev, (Resp. Secretary of the Board) Institute of Geochemistry, Academy of Sciences USSR.

PURPOSE: This book is intended for technical personnel engaged in the manufacture and utilization of semiconductors.

COVERAGE: This book treats methods of obtaining quality semiconductor materials and presents current standardized specifications for semiconductors and auxiliary materials. The book is divided into three parts. Part I consists of 16 reports delivered at two conferences in January 1957 and December 1958 at the Fiziko-khimicheskiy institut imeni L.Ya. Karpova (Institute of Physics and Chemistry Imeni L.Ya. Karpov) by members of 36 participating institutes and industrial plants. The reports deal with the standardization of characteristics of pure semiconductor materials and describe spectral and spectrochemical analysis, and chemical, vacuum-fusion, polarographic, and radioactivation methods for studying semiconductor materials and determining impurities in them, along with the equipment used.

PART I. REPORTS ON METHODS FOR THE DETERMINATION OF MICROIMPURITIES IN SEMICONDUCTOR MATERIALS PRESENTED AT THE CONFERENCE ON THE QUALITY OF SEMICONDUCTOR MATERIALS

Shafran, I.S. [NIUI NKP SSSR (All-Union Scientific Research Institute of Chemical Reagents)]. Chemical Methods for the Determination of Microimpurities in a Number of Substances of High Purity 13

Tsyrulnikov, N.M. [GEOKHI AN SSSR]. Apparatus and Methods for the Determination of Gases in Metals by the Vacuum-Fusion Method 25

Shmin, I.I. [TsNIIChermet (Central Scientific Research Institute of Ferrous Metals)]. Experiment on the Determination of Gases in Metals by the Vacuum-Fusion Method and the Possible Use of This Method for the Analysis of Semiconductor Materials 30

Gutbshteyn, Ya.P., and A.M. Dunaiz [GEOKHI AN SSSR]. Polarographic Quantitative Determination of Copper, Bismuth, Lead and Titanium Impurities in Metallurgical Silicon 41

Palek, A.I. [MKHTI imeni D.I. Mendeleyeva (Moscow Chemical and Technological Institute imeni D.I. Mendeleyev)]. Determination of Microimpurities of Certain Elements in Antimony and Gold by the Radioactivation Method 60

Bruner, A.Ch., B.F. Ormont, V.S. Ertsov, E.A. Chernyshev, V.A. Chernyshev, and E.I. Filin [FIAI imeni L.Ya. Karpova (Physics and Chemistry Institute imeni L.Ya. Karpov)]. The Radioactivation Method of Determining Oxygen in Semiconductors and Metals by Reaction $O^{16}(\gamma; n)O^{15}$ 68

Pereverzeva, E.S., T.A. Mozgovaya, and E.V. Simonova. Spectral Determination of Impurities in Certain Pure Substances 72

Bykovov, A.V. [FIAN (Physics Institute imeni P.N. Lebedev, Academy of Sciences USSR)]. Electrophysical Method of Determining Microimpurities in Semiconductors 95

Kuriyanov, S.Ch. [FIAI imeni L.Ya. Karpova]. Use of an MS-1 Mass Spectrometer in Analysis of Inert Gases and Determination of Small Quantities of Impurities in Them 104

Ormont, B.F. [FIAI imeni L.Ya. Karpova]. Concerning the Problem of Standardizing the Characteristics of High-Purity Semiconductor Materials 108

Gelshtein, S.M., L.S. Vasilevskaya, and A.I. Kondrashina [Giredmet (State Institute of Rare Metals)]. Spectrochemical Analysis of Elementary Silicon, Silicon Dioxide, Hydrofluoric Acid, Nitric Acid, and Hydrochloric Acid 116

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9

AUTHORS: Zhelankin, V. I., Kutsev, V. A., Ormont, B. F. 78-3-5-31/39

TITLE: Investigations of the Equilibrium in the Reduction Reactions of ZrO_2 and V_2O_3 by Carbon at High Temperatures (Issledovaniye ravnovesiya v reaktsiyakh vosstanovleniya ZrO_2 i V_2O_3 uglerodom pri vysokikh temperaturakh)

PERIODICAL: Zhurnal Neorganicheskoy Khimii, 1958, Vol 3, Nr 5, pp 1237-1240 (USSR)

ABSTRACT: Oxycarbides are formed as well as carbides from zirconium oxide and vanadium oxide with carbon at higher temperatures. The equilibria in the systems ZrC_xO_y-C-CO and VC_xO_y-C-CO, at a constant pressure of CO = 760 mm in the temperature interval 1900 to 2500°C, were investigated.
The produced carbide preparations were submitted to both chemical and X-ray analysis.
The carbon content bound in zirconium carbide increases, for a rise of temperature from 1900 to 2500°C, from 7.5% to 8.9%, and in vanadium carbide, according to the rise of temperature from 1900 to 2500°C, from 16.7% to 17.6%. $ZrC_{0,77}$ exists below 2300°C, and zirconium-carbide

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Investigations of the Equilibrium in the Reduction Reactions 78-3-1-31/39
of ZrO_2 and V_2O_3 by Carbon at High Temperatures

free from oxygen is obtained at 2300°C. Vanadium carbide free from oxygen is obtained at 2250°C.
There are 4 figures, 2 tables, and 9 references, 5 of which are Soviet.

ASSOCIATION: Fiziko-khimicheskiy institut im. L. Ya. Karpova, Vsesoyuznyy nauchno-issledovatel'skiy institut tverdykh splavov (Physicochemical Institute imeni L. Ya. Karpov, All-Union Scientific Research Institute for Hard Alloys)

SUBMITTED: May 15, 1957

AVAILABLE: Library of Congress

1. Zirconium oxide—Reduction reactions 2. Vanadium oxides—Reduction reactions 3. Carbon—Reduction reactions

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9

SMAGINA, Ye.I.; KUTSEV, V.S.; ORMONT, B.F.

Study of the equilibrium in the system zirconium - nitrogen at high temperatures, and the free energy of formation of ZrN_x as a function of the composition and structure of this system. Probl.fiz.khim. no.2:118-131 '59. (MIRA 13:7)

1. Laboratoriya kompleksnykh i tverdykh soyedineniy Nauchno-issledovatel'skogo fiziko-khimicheskogo instituta imeni L.Ya.Karpova.

(Zirconium nitride) (Nitrogen)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9

5(4) SOV/76-33-9-16/37

AUTHORS: Zhelankin, V. I., Kutsev, V. S., Ormont, B. F.

TITLE: Investigation of Equilibrium in the Reaction of the Reduction of Hafnium Dioxide by Carbon at High Temperatures

PERIODICAL: Zhurnal fizicheskoy khimii, 1959, Vol 33, Nr 9, pp 1988-1991 (USSR)

ABSTRACT: In spite of the fact that hafnium carbide is one of the highest melting compounds (3890°C), and is therefore of special interest, there are no data in publications concerning the equilibrium in the system HfO_2 - C - CO - HfC_xO_y. Investigation was made of the reduction reaction of HfO_2 with graphite in the temperature range 1743-2003°K at a pressure of 70-1000 torr, by means of an electrical vacuum furnace (Ref 10). Temperature was measured with an optical pyrometer of type OPPIR-45 which was calibrated with a standard lamp designed by G. S. Popov. Pressure of the carbon monoxide was measured with a mercury gauge with the aid of a microscope. Equilibrium values of pressure and respective temperatures are given (Table) as well as the X-ray line patterns (Fig 4). As may be observed from the latter, the following phases are found in equilibrium: carbide

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SOV/76-33-9-16/37

Investigation of Equilibrium in the Reaction of the Reduction of Hafnium Dioxide by Carbon at High Temperatures

phase (cubic face-centered lattice), HfO_2 (monoclinic lattice), graphite and CO. The lattice periods of carbide are the following: a = 4.627_2kX for 2003°K and a = 4.626_6kX for 1743°K. The reaction by which the equilibrium is brought about is: $HfO_2 + (x-y+2)C \rightleftarrows HfC_xO_y + (2-y)\ CO + Q_p$. From the diagram of lgP as a function of $10^4/T$ (Fig 3), the heat effect of reaction was computed with $Q_p = -132 \pm 3$ kcal for the temperature range 1743-2003°K and Q_{-p} = constant. Further investigations of the carbide phase are in progress. There are 4 figures, 1 table, and 10 references, 4 of which are Soviet.

ASSOCIATION: Fiziko-khimicheskiy institut im. L. Ya. Karpova (Physico-chemical Institute imeni L. Ya. Karpov), Vsesoyuznyy nauchno-issledovatel'skiy institut tverdykh splavov (All-Union Scientific Research Institute of Hard Alloys)

SUBMITTED: February 22, 1958

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9

Kutsev, V. S.

5(2) SOV/78-5-1-38/45

AUTHORS: Chizhikov, Yu. N., Kutsev, V. S., Ormont, B. F., Morzheyedova, R. N.

TITLE: A Method Used to Investigate the Differential Thermoelectromotive Force at High Temperatures

PERIODICAL: Zhurnal neorganicheskoy khimii, 1960, Vol 5, Nr 1, pp 224-225 (USSR)

ABSTRACT: The authors point out that only methods used to measure the temperature coefficient α of the thermoelectromotive force have been described in publications which are applicable up to 1500°K. They describe a method permitting measurement up to 2000°K. The substance to be tested is clamped between two holders which do not enter into chemical reaction with the substance at the test temperatures T_1 and T_2 (e.g., graphite). Pt-PtRh thermocouples are attached to the holders, which are outside the hot zone and do not react with the holder material at the temperatures t_1 and t_2 to which they are subjected. The device is shown in figure 1. The thermoelectric potential was measured by means of a recording potentiometer (type EPP-09).

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SOV/78-5-1-38/45

A Method Used to Investigate the Differential Thermoelectromotive Force at High Temperatures

Next, an equation is derived for the dependence of α on t_1, T_1 and t_2, T_2. Experimental results obtained with tungsten carbide within the range 1400-1900°K are compared in figure 2 with data of publications concerning the range 500-1400°K. There are 2 figures and 4 references, 3 of which are Soviet.

SUBMITTED: May 26, 1959

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9

KUTSEV, V.S., ORMONT, B.F., CHIZHIKOV, Yu.N., MORZHEYEDOVA, R.N.

Method of investigating the differential thermo-emf at high temperatures. Zhur. neorg. khim. 5 no.4:891-893 Ap '60. (MIRA 13:7)

1. Fiziko-khimicheskiy institut im. L.Ya. Karpova.
(Electromotive force) (Thermoelectricity)

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9

S/078/60/005/05/20/037
B004/B016

AUTHORS: Trusova, V. P., Kutsev, V. S., Ormont, B. F.

TITLE: The Range of Homogeneity of Chromium Disilicide and Its Electrical Properties

PERIODICAL: Zhurnal neorganicheskoy khimii, 1960, Vol. 5, No. 5, pp. 1119-1122

TEXT: The authors have previously investigated the electrical properties of several silicides of the metal period Ti - Ni and studied the composition CrSi - $CrSi_{2.5}$ by means of chemical and X-ray analysis. The silicide was synthesized in evacuated quartz ampuls at 1100 - 1050° with subsequent slow cooling. The composition of the compound was determined after melting with soda by gravimetric analysis of SiO_2 and iodometric analysis of Cr (Table 1). The X-ray analysis was made by means of an RKU-114 camera, a BSV tube, as well as by means of the URS-50I apparatus. The line spacings were measured on an IZA-2 comparator. Table 2 lists the data of X-ray analysis, and Fig. 1 shows the corresponding X-ray pictures. The CrSi lines appear only in preparations with a composition below $CrSi_{1.95}$. The disilicide has a range of homogeneity of between $CrSi_{1.99}$ and $CrSi_{2.29}$. The lattice constants are a = 4.421±0.002 kX, c = 6.35±0.01 kX, and

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The Range of Homogeneity of Chromium Disilicide and Its Electrical Properties

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B004/B016

agree with Ref. 15. In the range of homogeneity the coefficient of the thermoelectromotive force and its temperature dependence were measured. The measuring apparatus were supplied by Ye. I.Smagina and Yu. V. Zherdev, the measurement was carried out by Yu. N. Chizhikov. Fig. 2 shows the temperature dependence of electrical conductivity obtained by the authors, and, for comparison, also the data of Ref. 3, 4. $CrSi_{1.99}$ and $CrSi_{2.29}$ show the same course of electrical conductivity in spite of different composition. There are 2 figures, 2 tables, and 5 references, 4 of which are Soviet.

ASSOCIATION: Fiziko-khimicheskiy institut im. L. Ya. Karpova (Institute of Physical Chemistry imeni L. Ya. Karpov)

SUBMITTED: January 28, 1959

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9

BREGER, A.Kh.; ORMONT, B.F.; VITING, B.I.; GRIZHKO, V.M.; KOZLOV, V.A.; KUTSEV, V.S.; CHAPYZHNIKOV, B.A.; CHEPEL', L.V.

Radioactivation method of determining oxygen in semiconducting materials and metals on the basis of the photonuclear reaction O^{16} (γ,n) O^{15}. Trudy kom.anal.khim. 10:137-141 '60. (MIRA 13:8)

1. Fiziko-khimicheskiy institut im. L.Ya.Karpova, Moskva.
(Oxygen--Analysis)
(Oxygen--Isotopes)
(Semiconductors--Oxygen content)

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18.7530
18.1200 2708, 2808, 2308

S/076/60/034/010/017/022
B015/B064

AUTHORS: Smagina, Ye. I., Kutsev, V. S., Ormont, B. F.

TITLE: Investigation of Equilibrium in the System Zr - N at High Temperatures

PERIODICAL: Zhurnal fizicheskoy khimii, 1960, Vol. 34, No. 10, pp. 2328-2335

TEXT: Investigations of the reaction between zirconium and nitrogen at high temperatures are important since zirconium has recently much been used as a construction material. In recent papers, e.g., by Hoch et al. (J.Amer.Chem.Soc., 77, 304, 1955) the metal nitrides are wrongly regarded as phases of constant composition. In the present case, the nitride equilibrium of zirconium nitrides was investigated at temperatures of up to 2800°K. A vacuum furnace described in Ref. 8 was somewhat modified and the experiments carried out in it; special attention was paid to chemical and X-ray analyses to check the changes in the nitride phase. The temperature in the vacuum furnace was measured with an optical ОППИР-45 (OPPIR-45) pyrometer, calibrated for an ЛТ-2 (LT-2) standard lamp

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Investigation of Equilibrium in the System Zr - N at High Temperatures

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B015/B064

designed by G. S. Popov. Pulverized zirconium nitride (and not metallic zirconium) served as initial product. The equilibrium in the system Zr - N was statically established by filling, at T = const, the vacuum furnace with nitrogen until a pressure of 0.5 - 1 atm had been reached. The initial zirconium nitride having a composition from $ZrN_{0.6}$ to $ZrN_{0.8}$ absorbed the nitrogen quickly, and after 30 minutes equilibrium was established. The effect of the equilibrium pressure upon the composition at T = const was investigated by applying various initial pressures and subjecting the preparation to chemical and X-ray analyses. In another test series, nitrogen was investigated by Kjeldahl's semimicro-method, zirconium gravimetrically, and the phase composition by X-ray analysis; for this purpose a УРС -50И (URS-50I) X-ray diffractometer was used. The experimental results obtained for 2100°-2750°K and approximately 10^{-1} to 100 mm Hg show different equilibrium compositions of ZrN_x. To check the composition more accurately, the course of the curve "equilibrium - composition" was investigated for the range 10 - 300 mm Hg, where a slight change was found to exist. The experimental results (Table 1) show that equal equilibrium compositions of the nitrides are obtained

Card 2/5

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Investigation of Equilibrium in the System Zr - N at High Temperatures

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irrespective of the fact whether nitrides rich or poor in nitrogen are taken as a basis, if the same temperature and pressure were maintained. This may be regarded as a proof that true equilibrium has been attained for the given pressure and temperature. The data of the X-ray phase-shift analysis show that all preparations were single-phase nitrides ZrN_x with cubic face-centered lattices, and that with a change of x between 0.7 and 0.96 the lattice period is between 4.577 and 4.584 A. Contrary to Ref. 1, it was found that in equilibrium the phases ZrN_x - N_2 coexist, and not ZrN, Zr_{solid} and N_2. A table gives the equilibrium compositions as a function of temperature and pressure. There are 6 figures, 3 tables, and 13 references: 4 Soviet, 5 US, and 4 German.

Legend for the Table: Dependence of equilibrium compositions of zirconium nitrides on temperature and pressure, 1 - formula of initial product, 2 - T, K^o of furnace (true), 3 - equilibrium pressure, mm Hg, 4 - formula of final product according to chemical analysis, 5 - lattice period, A, 6 - nitride with low nitrogen content, 7 - dto.

Card 3/5

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Таблица 1

Table 1

Зависимость равновесных составов нитридов циркония от температуры и давления

1. Формула исходного продукта	2. T, °K печи (истинная)	3. Равновесное давл., мм рт. ст.	4. Формула конечного продукта по хим. анализу	5. Период решетки, Å
6 Нитрид с низким содержанием азота	2133	13,0	$Zr_1N_{0,924\pm0,02}$	4,577
$Zr_1N_{0,937}$	2148	$1,5\cdot10^{-1}$	$Zr_1N_{0,783\pm0,06}$	4,578
$Zr_1N_{0,935\pm0,01}$	2235	6,0	$Zr_1N_{0,941}$	4,577
$Zr_1N_{0,935\pm0,01}$	2235	6,0	$Zr_1N_{0,918}$	4,578
$Zr_1N_{0,658}$	2235	17,0	$Zr_1N_{0,89}$	4,577
$Zr_1N_{0,804}$	2235	20,0	$Zr_1N_{0,920}$	4,578
$Zr_1N_{0,967}$	2235	105,0	$Zr_1N_{0,905}$	4,577
6 Нитрид с низким содержанием азота	2235	350,0	$Zr_1N_{0,952}$	4,578
$Zr_1N_{0,956}$	2320	11,5	$Zr_1N_{0,911}$	4,577
$Zr_1N_{0,781}$	2350	3,0	$Zr_1N_{0,87}$	4,577
$Zr_1N_{0,935\pm0,01}$	2350	27,5	$Zr_1N_{0,895}$	4,578
6 Нитрид с низким содержанием азота	2353	195,0	$Zr_1N_{0,958}$	4,576

Card 1/5

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$Zr_1N_{0,783}$	2448	$2,3\cdot10^{-1}$	$Zr_1N_{0,765}O_{0,1}$	4,582
$Zr_1N_{0,956}$	2455	0,0	$Zr_1N_{0,933}$	4,577
6 Нитрид с низким содержанием азота	2505	12,0	$Zr_1N_{0,845}O_{0,03}$	4,577
6 Нитрид с низким содержанием азота	2505	12,0	$Zr_1N_{0,882}$	4,577
$Zr_1N_{0,89800,01}$	2545	13,0	$Zr_1N_{0,031}$	4,575
$Zr_1N_{0,93500,01}$	2700	7,5	$Zr_1N_{0,891}$	4,577
$Zr_1N_{0,93500,01}$	2750	10^{-1}	$Zr_1N_{0,70}O_{0,02}$	4,584
6 Нитрид с низким содержанием азота	2300	10^{-1}	$Zr_1N_{0,79}O_{0,1}$	
7 То же	2600	10^{-1}	$Zr_1N_{0,78}O_{0,06}$	

Card 5/5

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21 2500

29986
S/076/61/035/011/0[illegible]
B110/B147

AUTHORS: Zhelankin, V. I., Kutsev, V. S., and Ormont, B. F.

TITLE: Study of the equilibrium in the reduction reaction [illegible] with carbon at high temperatures. II

PERIODICAL: Zhurnal fizicheskoy khimii, v. 35, no. 11, 1961, 2608-[illegible]

TEXT: The results of a study of chemical and phase compositions, the calculation of heats and free energies of formation over a wide temperature range are given, and some equilibrium-pressure values of the reaction $HfO_2 + (x-y+2)C = HfC_xO_y + (2-y)CO + Q_p$ (1) are calculated. Four equilibrium preparations corresponding to the conditions of nonvariant equilibrium in Eq. (1) were prepared in the temperature range from 1743 to 2003°K. The method had been developed by the authors [illegible] khimii 33, 1988, 1959). C_{total}, C_{free}(graphite), Hf_{total} and [illegible] were determined. The graphite content was determined by heating 0.2 to 0.25 g of hafnium oxycarbide with a mixture consisting [illegible] liters of HNO_3 and 1 to 2 milliliters of HF for 15 minutes, [illegible]

Card 1/4

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B110/B147

Study of the equilibrium ...

off the residue which is burned in O_2 stream. CO_2 is determined by absorption with dry alkali. HfO_2 was determined by keeping the [illegible] with a mixture of chromic and sulfuric acids at 140°C for [illegible] HfO_2 was calcined and weighed, and the oxygen contained in [illegible] was determined from the difference between total oxygen and [illegible] X-ray analysis was performed after $CuKa_1$ irradiation in an PKY [illegible] chamber. The lattice constant and the composition of the [illegible] remained constant from 1743 to 2003°K and between 70 and [illegible] $HfO_2 + 2.9C \rightleftharpoons HfC_{0.95}O_{0.05} + 1.95\ CO + Q_p$ (2). Free energy [illegible] a function of temperature were calculated from the equation Δ[illegible] It was established that $\Delta S^0_{1750-2000}$ = 6[illegible] entropy units; $\Delta H_{1750-2000}$ = 132,300 cal. The specific heat was calculated from [illegible] equation: $C_v = 3C_D(\theta/T)$, where $x = \theta/T$. The Lindemann equation $\theta = 135\sqrt{T_f/MV^{2/3}}$ was used to estimate the characteristic temperature [illegible] is the melting temperature of the compound, M is the atomic (molecular) weight, and V = atomic (molecular) volume. It was found that

Card 2/4

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29986
S/076/61/035/011/009/013
B101/B147

Study of the equilibrium ...

$C_p(HfC) = 11.73 + 0.78 \cdot 10^{-3}T - 5.27 \cdot 10^5 T^{-2}$;
$C_p(CO) = 6.60 + 1.2 \cdot 10^{-3}T$ (T = 273 - 2500°K);
$C_p(HfO_2) = 17.39 + 2.08 \cdot 10^{-3}T - 3.48 \cdot 10^5 T^{-2}$ (T = 298 - 2300°K);
$C_p(graphite) = 4.10 + 1.02 \cdot 10^{-3}T - 2.10 \cdot 10^5 T^{-2}$ (T = 298 - 2300°K);
$\Delta C_p = -4.68 - 1.914 \cdot 10^{-3}T + 4.3 \cdot 10^5 T^{-2}$;
$\Delta H_T = \Delta H_o^o - 4.68T - 0.957 \cdot 10^{-3}T^2 - 4.3 \cdot 10^5 T^{-1}$. From $\Delta H_T = 132{,}000$ at T = 1875°K one obtains $\Delta H_o^o = 144{,}700$ cal and $\Delta H^o_{298.1} = 141{,}600$ cal, and from $\Delta G_T = 0$ at 2005°K, $\Delta S^o_{298.1} = 75$ entropy units. Heat of formation and entropy of $HfC_{0.95}O_{0.05}$ were calculated from (2): $Q^o_{298.1} = 73{,}700$ cal and $S^o_{298.1} = 1$ entropy unit. The entropy values agreed with those calculated by the Eastman equation. There are 1 figure, 2 tables, and 14 references: 10 Soviet and 4 non-Soviet. The three references to English-language publications read as follows: L. Brewer, Chem. Revs. 52, 1, 1953; C. H. Prescott, W. B. Hincke, J. Amer. Chem. Soc., 49, 2774, 1927; C. H. Prescott,

Card 3/4

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9

22986
S/076/61/035/011/006/015
B110/B147

Study of the equilibrium ...

J. Amer. Chem. Soc., 48, 2534, 1926.

ASSOCIATION: Fiziko-khimicheskiy institut im. L. Ya. Karpova (Physical-chemical Institute imeni L. Ya. Karpov)

SUBMITTED: August 1, 1960

Card 4/4

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9

ZHELANKIN, V.I.; KUTSEV, V.S.; ORMONT, B.F.

Conditions of the formation of hafnium carbide in the reduction of HfO_2 by carbon. Zhur. neorg. khim. 7 no.8: 1762-1764 Ag '62. (MIRA 16:6)

(Hafnium oxide) (Hafnium carbides)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9

POPOV, G.G.; PERCHIKHINA, [illegible]; [illegible]; [illegible]; TERLETSKIY, [illegible]; KAGA[illegible]; [illegible]; [illegible]V, V.S.

[illegible] of experience. Zav.[illegible] no.[illegible] 62.
(MIRA 15:5)

1. Vsesoyuznyy nauchno-issledovatelskiy institut zheleznodorozhnoye [illegible] (for Popov, Perchikhina). 2. Institut fizicheskoy khimii AN SSSR (for [illegible]). 3. Zavod "Dneprospetsstal'" (for Bogdanchenko, Terletskiy). 4. Karagandinskiy metallurgicheskiy zavod (for [illegible]). 5. Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut [illegible] promyshlennosti (for [illegible]).
(Leaving [illegible])

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9

1.5000

S/032/62/028/004/025/026
B116/B104

AUTHORS: Smagina, Ye. I., and Kutsev, V. S.

TITLE: Device for tests at high temperatures and pressures

PERIODICAL: Zavodskaya laboratoriya, v. 28, no. 4, 1962, 511

TEXT: A device (Fig.) combining a vacuum furnace for 2000-2600°C with a calorimetric bomb is described. The material to be tested is placed in an ampul or in the form of a rod onto tungsten support 3. The upper part of the tube is contacted with the electrode over the molybdenum sleeve 10. The end of the tungsten or molybdenum heater 11 is pressed to sleeve 10 by clamp 12. The lower part of the tube is pressed to 10 by 12 in a similar manner. The ends of these sleeves 10 are milled, and contacted with the molybdenum bars 14 which are connected with the arc 5. The heater 11 is screened from the molybdenum-sheet tube 13, and fixed by a wire to arc 5. When reactions with carbon are investigated, a graphite heater is screwed onto the outside thread of the electrode. The furnace is filled with gas from a balloon. For cooling, the furnace is lowered into a thermostat with water cooling. At 2000°C, 7 kw is consumed for

Card 1/2

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9

graphite heaters, and 4 kw for tungsten or molybdenum heaters. Working is performed at 1-50 atm excess pressure. There is 1 figure.

ASSOCIATION: Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut redkometallicheskoy promyshlennosti (State Design and Planning Scientific Research Institute of the Rare Metals Industry)

Fig. Diagram of the device. (1) Casing, (2) cover, (3) cap screw, (4) electrode, (5) arc, (6) quartz glass, (7) nut, (8) material to be tested, (9) support, (10) molybdenum cups, (11) Mo or W heater, (12) Mo clamps, (13) screen, (14) Mo bars, (15) rubber packing, (16) mounting of feeder bars, (17) sleeve, (18) screw coupling, (19) water.

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9

KUTSEV, V.S.

Methods for calculating the activity of carbon in austenite.
Zhur. fiz. khim. 36 no.4:849-853 Ap '62. (MIRA 15:6)

1. Nauchno-issledovatel'skiy i proyektnyy institut redkometallicheskoy promyshlennosti.

(Carbon) (Austenite)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9

ACCESSION NR: AP4005255 S/0192/63/004/006/0865/0867

AUTHOR: Zhelankin, V. I.; Kutsev, V. S.

TITLE: Composition and structure of hafnium carbide

SOURCE: Zhurnal strukturnoy khimii, v. 4, no. 6, 1963, 865-867

TOPIC TAGS: high temperature material, refractory carbide, hafnium carbide, hafnium carbide composition, lattice constant, homogeneity limits, refractory, hafnium carbide structure

ABSTRACT: In connection with the considerable interest in hafnium carbide as the most refractory binary compound, the homogeneity range and the lattice parameter a of HfC_x preparations were determined. Preparations of varied composition were synthesized from 99.5% Hf metal and spectroscopically pure graphite at 1800—2100C in vacuum or from 99.8% hafnium dioxide and graphite under conditions of bivariant equilibrium at 2100C. The powdered starting materials were compacted, then sintered. Chemical analysis and x-ray powder patterns established that hafnium carbide forms an oxygen-free homogeneous phase in the

Card 1/3

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9

ACCESSION NR: AP4005255

$HfC_{0.58}$—$HfC_{0.99}$ composition range. The plot a versus x, shown in Fig. 1 of the Enclosure, shows a positive deviation from the Vegard law. The value of a for stoichiometric HfC was found to be 4.629 kx, regardless of the starting materials used. Comparison of the present data with earlier data (V. I. Zhelankin, V. S. Kutsev, B. F. Ormont. Zh. fiz. khimii, 33, 9, 1988 (1959)) (point 3 in Fig. 1) showed that the values of a for both oxygen-free $HfC_{0.95}$ and $HfC_{0.95}O_{0.05}$ were nearly identical. The lower value from the literature suggests the effect of the Zr impurity in the starting Hf and of O and N from the atmosphere. Orig. art. has: 1 figure and 1 table.

ASSOCIATION: Vsesoyuzny*y nauchno-issledovatel'skiy institut khimicheskikh reaktivov i osobo chisty*kh veshchestv (All-Union Scientific Research Institute of Chemical Reagents and Extrapure Substances)

SUBMITTED: 12May62 DATE ACQ: 20Jan64 ENCL: 01

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

Card 2/3

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9

KUZSEV, V.S.; SMAGINA, Ye.I.; MORZHEYEDOVA, R.N.

Sm_2O_3 form B. Zhur.neorg.khim. 8 no.5:1049-1052 My '63. (MIRA 16:5)

1. Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut rëdkometallicheskoy promyshlennosti "Giredmet".
(Samarium oxide)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9

L 17105-63 EWA(k)/EWT(1)/BDS AFFTC/ASD WW

ACCESSION NR: AP3004239 S/0032/63/029/007/0826/0826

56
54

AUTHORS: Kutsev, V. S.; Smagina, Ye. I.; Morzheyedova, R. N.

TITLE: A method for making X-ray pictures of air-labile substances

SOURCE: Zavodskaya laboratoriya, v. 29, no. 7, 1963, 826

TOPIC TAGS: air-labile substance, grinding in argon, neodymium carbide

ABSTRACT: A device (see enclosure) was constructed to permit the grinding of small quantities of air-labile substances in an atmosphere of argon, followed by sifting and packing into a cellophane capillary container (intended for x-ray analysis). It consisted of a glass cylinder 18mm in diameter with two intersecting tubes; one (protected by a wire screen) is drawn into a capillary to which is attached a cellophane capillary 0.4 mm in diameter. Into the lower end of the glass cylinder a small steel cylinder which serves as a mortar is tightly inserted. A similar longer steel cylinder is inserted into the upper end of the glass cylinder in such a way as to permit grinding movements. The space between the two steel cylinders thus represents a small chamber where the

Card 1/3

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9

L 17105-63

ACCESSION NR: AP3004239

2

sample can be ground while argon is being passed through. After the grinding is completed, the comminuted sample is sifted through the wire screen into the capillary cellophane tube, the latter sealed with nitrocellulose glue, then subjected to X-ray analysis. In this way the parameters of neodymium carbide were determined. Orig. art. has: 1 picture.

ASSOCIATION: Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut redkometallicheskoy promyshlennosti (State Scientific Research and Project Institute of Rare-Metals Industry)

SUBMITTED: 00 DATE ACQ: 02Aug63 ENCL: 01

SUB CODE: SD NO REF SOV: 000 OTHER: 002

Card 2/3

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9

SMAGINA, Ye.I. (Moskva); KUTSEV, V.S. (Moskva)

Density and degree of disorder in some solid phases of varying composition. Zhur.fiz.khim. 37 no.8:1813-1817 Ag '63. (MIRA 16:9)

1. Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut redkometallicheskoy promyshlennosti.
(Zirconium nitrides) (Crystallography)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9

ACCESSION NR: AP4033396 S/0076/64/038/003/0562/0564

AUTHORS: Zhelankin, V.I. (Moscow); Kutsev, V.S. (Moscow)

TITLE: Heat of formation of hafnium carbide as a function of composition

SOURCE: Zhurnal fizicheskoy khimii, v. 38, no. 3, 1964, 562-564

TOPIC TAGS: hafnium carbide, heat of formation, heat of combustion, calorimetry, thermochemistry

ABSTRACT: In this work Hf metal, HfO_2 and graphite were ground and screened through a 250 - 300 mesh sieve, then they were thoroughly mixed and pressed under 150 atm pressure. Synthesis of preparations was done in a resistance wound furnace with a carbon heater in a 10^{-3} mm vacuum at 2100°. All of the obtained preparations were subjected to chemical and x-ray analysis. For determination of the heat of combustion of hafnium carbide use was made of an isothermal bomb calorimeter, 100 cm^3 capacity. The heat capacity of the calorimeter was 1041.5 ± 1.5 cal/deg, determined from the combustion of standard benzoic acid (Q = 6320 cal/g). Burning 0.7 g of hafnium

Card 1/2

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9

ACCESSION NR: AP4033396

carbide powder increased the temperature of the calorimeter liquid by 1.10. To insure better combustion it was conducted in a HfO_2 lined quartz furnace. The powder was placed in a thin layer on cotton fabric and was lighted by means of an iron wire. The combustion product was loose. When the oxygen pressure was 15 - 20 atm combustion proceeded smoothly. The combustion products were subjected to chemical analysis for unburned carbon. Completion of burning was conducted in an oxygen stream at 1000. The combustion products were controlled for content of CO_2 with barium hydroxide and also by volume measurement. X-ray analysis indicated only HfO_2 lines. The heat of combustion of the HfC of stoichiometric composition is 305.9 kcal/mole. When the composition is changed from $HfO_{0.67}$ to HfC the heat of combustion changes by 28 kcal/mole and the heat of formation by 2.5 kcal/mole. Orig. art. has: 1 table

ASSOCIATION: Institut reaktivov i osobo chistykh veshchestv (Institute of Reagents and Ultrapure Substances)

SUBMITTED: 15Nov62 ENCL: 00

SUB CODE: IC NR REF SOV: 005 OTHER: 005

Card 2/2

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9

KUTSEV, Yu.S.

A case of core melting. Sov.geol. 3 no.10:144-145 O'60. (MIRA 13:10)

1. Berezovskaya geologorazvedochnaya partiya.
(Kazakhstan--Boring)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9

KUTSEV, [illegible].

Some aspects of the petrogenetic role of the ratio F_2O_3:FeO in igneous rocks. Izv. AN SSSR. Ser. geol. 29 no.11:63-67 N '64. (MIRA 17:12)

1. Institut geologii rudnykh mestorozhdeniy, petrografii, mineralogii i geokhimii AN SSSR, Moskva.

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9

KUTSEVA, L. N.

KUTSEVA, L. N. - "Catalytic Decomposition of Isopropyl Alcohol Over Zinc Oxide." Sub 10 Apr 52, Inst of Physical Chemistry, Acad Sci USSR. (Dissertation for the Degree of Candidate in Chemical Sciences).

SO: Vechernaya Moskva January-December 1952

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9

KUTSEVA, L. .

Chemical Abstracts
May 25, 1954
General and Physical
Chemistry

Factors that determine the dehydrogenating and dehydrative properties of zinc oxide. The effect of the method of preparation on the catalytic decomposition of isopropyl alcohol. G. M. Zhabrova, L. N. Kutseva, and S. Z. Rogin-kii. *Doklady Akad. Nauk S.S.S.R.* 92, 569-72 (1953).—A difference in the method of prepn. of ZnO can produce a considerable difference in its catalytic activity with iso-PrOH. ZnO prepd. by pyrolytic method (from hydroxide, oxalate, carbonate, or nitrate) shows approx. the same activation energy of decompn. of iso-PrOH: 24,000-26,000 cal./mole; the specimens prepd. by direct oxidation of Zn vapor, however, give activation energy 48,000 cal./mole. The sp. surface values of the specimens differ: The prepn. from $Zn(NO_3)_2$ has 1.6 sq. m./g., that from $Zn(OH)_2$ 19.6; that from Zn metal 15.46; that from $ZnCO_3$ 10.4; that from ZnC_2O_4 14.2. At 206° the most active specimen is that derived from the oxalate, whereas that from metallic Zn is least active. At 306° the differences are less pronounced, at 400° they are all nearly alike and at 4[illegible]° the specimen from Zn is 2.3 times as active as the oxalate-derived one. G. M. Kosolapoff

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9

Kotsova, L. N.

USSR

Factors that determine the dehydration and dehydrogenation properties of zinc oxide. The effect of adding acids, bases, and salts on the catalytic decomposition of isopropyl alcohol. G. M. Zhabrova, L. N. Kotsova, and S. Z. Roginskii. Doklady Akad. Nauk S.S.S.R. 94, 73-6(1954); cf. C.A. 48, 5927d.—The effect was det'd of adding P_2SO_4, H_3PO_4, H_3BO_3, NaOH, $NaHSO_4$, Na_2SO_4, $MgSO_4$, $Al_2(SO_4)_3$, $ZnSO_4$, or $CuSO_4$ on the catalytic activity of a ZnO contact in the decompn. of iso-PrOH. The addn. of acids increases the dehydrating action, whereas alkalies decrease it. The effect of salts on the dehydrating action depends on their acid-base properties. The sulfates have the greatest pos. effect. The effect of $NaHSO_4$ has a pos. effect on the dehydration reaction, but a neg. effect on the dehydrogenation reaction. Pure ZnO is primarily a dehydrogenation catalyst but the addn. of compds. can affect its characteristics so that it will act as a dehydration catalyst.

J. Raytar Leach

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9

KHYYMR, N.P.; KUTSEVA, L.N.

Study of chemical adsorption on solid solutions of nickel protoxide. Dokl. AN SSSR 117 no.2:259-262 N '57. (MIRA 11:3)

1. Institut fizicheskoy khimii Akademii nauk SSSR. Predstavleno akademikom P.A. Rebinderom.
(Gases--Adsorption) (Nickel oxides) (Adsorption)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9

KUTSEVA, L.N.; KEYYER, N.P.

Chemical adsorption of gases on nickelous oxide and its solid solutions. Probl. kin. i kat. 10:82-86 '60. (MIRA 14:5)

1. Institut fizicheskoy khimii AN SSSR.
(Nickel oxide) (Adsorption)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9

KUTSEVA, L.N.

Effect of superstoichiometric oxygen on the catalytic, adsorptive, and electrical properties of nickelous oxide. Dokl.AN SSSR 138 no.2: 409-411 My '61. (MIRA 14:5)

1. Institut fizicheskoy khimii Akademii nauk SSSR. Predstavleno akademikom P.A.Rebinderom.

(Oxygen) (Nickel oxide)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9

KUTSEVA, L.N.; MANGOLIS, L.Ya.

Oxidation of propylene to acrolein on vanadium and molybdenum catalysts. Zhur. ob. khim. 32 no.1:102-107 Ja '62. (MIRA 15:2)
(Propene) (Acrolein)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9

ROGINSKIY, S.Z.; BERLIN, A.A.; KUTSEVA, L.N.; ASEYEVA, R.M.; CHERKASHINA, L.G.; SHERLE, A.I.; MATVEYEVA, N.G.

Catalytic properties of organic polymers with a system of conjugated bonds. Formation of hydroperoxides by the oxidation of alkyl aromatic hydrocarbons and cyclohexane. Dokl. AN SSSR 148 no.1:118-121 Ja '63. (MIRA 16:2)

1. Institut khimicheskoy fiziki AN SSSR. 2. Chlen-korrespondent AN SSSR (for Roginskiy).
(Hydrocarbons) (Hydroperoxides)
(Conjugation (Chemistry))

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9

KUTSEVA, L.S.

Vitamins B_1, B_2, and PP in bread from different kinds of flour. Y. N. Bukin, L. Ya. Auerman, Z. I. Zaltseva, L. S. Kutseva, V. P. Pashovkin, and V. V. Shcherbatenko (A. N. Bakh Inst. Biochem. and All-Union Sci. Research Inst. Bread-Baking Ind., Moscow). *Voprosy Pitaniya* 12, No. 4, 29-34(1953).—Of the vitamins naturally occurring in the flour, bread retains for rye flour and wheat flour, resp., B_1 70 and 80-85%, B_2 88 and 64-79%, PP 95-100 and 95-100%. The retention of vitamins B_1 and B_2 by wheat bread varies with the grade of the flour. Of added vitamins, rye bread retains ⅔ of B_1, B_2, and PP; wheat bread retains B_1 75-80, B_2 50-61, and PP 50-95%. Part of the vitamin B_1 in the flour is firmly combined with protein, and may escape estn. Fermentation of the dough frees the vitamin B_1, and thus seemingly high figures are obtained for bread, masking the deterioration. Rye and wheat contain 3 mg./kg. of vitamin B_1, instead of the previously reported 1 mg./kg. For an adult engaged in light labor it is necessary to enrich all sorts of bread with vitamin B_1, rye bread with vitamin PP, and some kinds of wheat bread with vitamins B_1 and PP.

A. Mirkin

(1)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9

USSR

Preservability and content of vitamins B_1, B_2, and PP in bread from various grades of flour. L. Ya. Auerman, V. N. Bukin, Z. I. Zaitseva, L. H. Kutseva, V. F. Peshevkin, and V. V. Shcherbatenko (A. N. Bakh Inst. Biochem., Acad. Sci. U.S.S.R., Moscow). *Biokhim. Zerna, Akad. Nauk S.S.S.R., Sbornik 2*, 193-201(1954).—The natural content of vitamin B_1 in the flour is retained to 70% in the bread made from rye windfall flour, 80% for wheat windfall flour, and 80-8% for wheat flour of 1st and 2nd grades. Natural vitamin B_2 is preserved in the bread to the extent of 85, 78, and 64-0%, resp. Vitamin PP is almost completely preserved (95-100%). The vitamins added to the flour artificially show lesser preservability when baked into bread: 66% in rye for all 3 vitamins, while in wheat it is 75-80% for vitamin B_1, 80-0% for vitamin PP, and 50-64% for vitamin B_2. O. M. Kosolapoff

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9

BUKIN, V.N., professor; KUTSEVA, L.S.; ZAYTSEVA, Z.I.

Natural sources of vitamin B_{12}. Vit.res. i ikh isp. no.2:286-297 '54. (MLRA 8:10)

1. Institut biokhimii im. A.N.Bakha Akademii nauk SSSR.
(Vitamins-B)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9

USSR

Micro- and macromethods for the determination of vitamin B_{12}. V. V. Bukin, I. Ya. Ar[illegible] and I. [illegible] Ka[illegible] (A. N. Bakh Inst. Biochem., Acad. Sci. U.S.S.R., Moscow). *Biokhimiya* 19, 713-20(1954).—A microbiol. and two chem. methods are described for the det. of vitamin B_{12} (I). In the first, a strain of *Escherichia coli* dependent in the production of I is used as the indicator organism. Test tubes are made into tubes contg. a special synthetic liquid nutrient, incubated for 24 hrs., centrifuged, washed twice by resuspension and centrifugation in 0.9% NaCl, and a final standard suspension is made. To each of a series of tubes are added 1.5 ml. of the synthetic liquid culture medium and 5 ml. of varying dilns. of a standard concn. of I as the control set, and to another series of tubes are added 5 ml. of varying concns. of the exptl. material. Other steps of the procedure are described. The first chem. method consists of the following steps: mix 100 g. of minced liver and 300 ml. H_2O, autoclave, and filter; mix 300 ml. of filtrate and 6 g. (2%) charcoal and filter; elute twice with 16 times the vol. of 65% alc.; conc. 192 ml. of eluate to 19.2 ml.; transfer 19.2 ml. of the concentrate into a mixt. of phenol and $CHCl_3$ and wash with $CHCl_3$-satd. H_2O, to 16 ml. of phenol-$CHCl_3$ mixt. add 7 times the vol. of $CHCl_3$; transfer 96 ml. of the phenol-$CHCl_3$ mixt. contg. the I into H_2O; wash 10 ml. of the H_2O soln. with ether and conc.; use 4-5 ml. per det. The product should be of rose color characteristic of I. Det. absorption in the spectrophotometric region of 548 mμ. Use the formula: γ of I = $EV \times 10^4/64$, where E is the observed absorption coeff., V the final vol. of the H_2O soln. in ml., 64 the absorption coeff. for 1% soln. of I at 548 mμ, 10^4 the conversion coeff. of I from 1% to γ per ml. Det'ns. can be made on samples having 54-78 γ of I. The second chem. method, designed for special purposes, is a short cut of the first having the same initial 4 steps. B. S. Levine

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9

PUSHKINSKAYA, O.I.; KUTSEVA, L.S.

Microbiological method for the determination of nicotinic acid(vitamin PP). Vit. res. i ikh isp. no.3:133-144 '55. (MLRA 9:4)

([illegible])

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9

PUSHKINSKAYA, O.I.; KUTSEVA, L.S.

Microbiological method for the determination of folic acid. Vit. res. i ikh isp. no.3:166-174 '55. (MLRA 9:4)

(STREPTOCOCCUS FAECALIS) (FOLIC ACID)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9

KUTSEVA, L. S.

"A Microbiological Method for the Determination of Vitamin B_{12}," by L. S. Kutseva, Vitaminnye Resursy i ikh Ispo'-zovaniye. 3. (Vitamin Resources and Their Use), Moscow, Publishing House of the Academy of Sciences USSR, 1955, pp 175 — 181 (from Referativnyy Zhurnal -- Khimiya, Biologicheskaya Khimiya, No 14, 25 Jul 56, p 30, Abstract No 13374)

"A microbiological method is described for the determination of vitamin B_{12} with the strain Bacterium coli on a glucose-mineral medium containing 1 gamma/ ml KCN. The duration of the determination is 24 hours. The sensitivity of the method is .05 milligamma/ml of vitamin B_{12}. The intensity of growth is determined by the increase of turbidity in the medium containing vitamin B12 and this is measured in a phtoelectric colorimeter.

"The extraction of the sample, ground with a batch of KCN, is carried out in an autoclave for 10 minutes. In certain cases simultaneous control determination is necessary, in the extract in which vitamin B_{12} was destroyed by heating with alkali."

Sum 1219

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9

KUTSEVA, L. S.

Chemistry and biochemistry of vitamin B_{12}. V. N. Bukin, L. Ya. Areshkina, and L. S. Kutseva. *Uspekhi Sovremennoi Biol.* 40, 219-88(1955).—A review of the present status of the structure, phys. and chem. properties of vitamin B_{12} and of its derivs. and analogs, methods of detn., sources of the vitamin, its relation to intrinsic factor, and numerous biochem. roles ascribed to the vitamin. The uncertain status of the exact biochem. function of vitamin B_{12} is pointed out. J. A. Stegel

MD

(3)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9

20-4-37/60

AUTHORS Kutseva, L.S. and Bukin, V.N.

TITLE Sea Algae and Sapropels as Sources of Vitamin B_{12}. (Morskiye vodorosli i sapropeli kak istochniki vitamina B_{12}.)

PERIODICAL Doklady Akademii nauk SSSR, 1957, Vol. 115, Nr 4, pp. 765-767 (USSR)

ABSTRACT Earlier papers reported on data obtained by the authors with regard to the vitamin B_{12} content in various natural sources, among others in the fermentation products of Actinomycetes and several bacteria. Based on several publications, especially by Japanese researchers, the authors carried out examinations of several algae of the Barents Sea and the Black Sea. Tab. 1 records the vitamin B_{12} content in 11 types of algae of the two seas. From that may be seen that the algae of the Black Sea are considerably richer in vitamin B_{12} than those of the Barents Sea. It is difficult to conclude from the given data whether only differences in the composition of the types are of importance here or whether living conditions also distort the picture. In connection with the fact that

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9

20-4-37/60

Sea Algae and Sapropels as Sources of Vitamin. B_{12}.

nowadays the independent activity of synthesis of the vitamin B_{12} by the algae is denied and its accumulation is sought to be explained by the activity of epiphytic bacteria, it is interesting that the highest vitamin content is found to occur in the algae (Callithamnion and Enteromorpha) which inhabit the most polluted places. Since the microorganisms are the ultimate source of vitamin B_{12} and since traces of it were found in the bottom, in the mud of stagnant waters as well as in deposits of sea mud and in suspended particles in marked quantities (detritus and plankton), the authors examined the sapropels, i.d. claylike organic deposits of the lakes. Thus from the Piyawochnoye, region of Kalinin, where in spite of 10-12 years conservation considerable quantities of vitamin B_{12} could be determined. It was used for the determination of E. coli. Then freshly gathered sapropel samples from the lakes Zhuvintas ("Distrophe") and Disna as well as Budryu (Lithuania) were investigated for their content of the true vitamin (cyanogen cobalt-amine). Tab. 2 here shows a very

CARD 2/3

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9

20-4-37/60

Sea Algae and Sapropels as Sources of Vitamin. B_{12}.

high content of vitamin B_{12} whose level considerably surpasses published data. Since E.coli also responds to pseudovitamins which are of no value for the use of animals, a chromatographic analysis on paper was made. By this no pseudovitamin could be determined. This was still more convincingly confirmed by the use of the specific microorganism Ochromonas malhamensis for this purpose (tab. 3). Thus the sapropels can be considered a very rich new source of the true vitamin B_{12}. This is of great practical and scientific interest and invites more thorough investigations.
There are 1 figures, 2 tables and 3 Slavic references.

ASSOCIATION: Institute for Biochemistry AN USSR imeni A.N. Bakh. (Institut biokhimii imeni A.N. Bakha Akademii nauk SSSR)

PRESENTED: By A.I. Oparin, Academician, May 13, 1957

SUBMITTED: May 9, 1957.

AVAILABLE: Library of Congress.

CARD 3/3

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9

KUTSOVA, L. S., SKOROBOGATOVA, E. P., and [illegible], L. YA. (USSR)

"The Participation of Vitamin B_1 in the Protein Metabolism of Escherichia coli 113-3."

Report presented at the 5th International Biochemistry Congress, Moscow, 10-16 Aug 1961

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9

ARESHKINA, L.Ya.; KUTSEVA, L.S.; SKONOBOGATOVA, Ye.P.; ZHUKOVA, I.G.

Participation of vitamin B_{12} in the protein metabolism of Escherichia coli. Vit. res. i ikh. isp. no.5:19-31 '61. (MIRA 15:1)

1. Institut biokhimii im. A.N.Bakha AN SSSR, Moskva.
(CYANOCOBALAMINE) (PROTEIN METABOLISM)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9

KUTSEVA, L.S.

Microbiological methods of vitamin B_{12} determination. Vit. res. i ikh isp. no.5:133-144 '61. (MIRA 15:1)

1. Institut biokhimii im. A.N.Bakha AN SSSR, Moskva.
(CYANCOBALAMINE) (BIOLOGICAL ASSAY)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9

ANDREYEVA, N. A.; KUTSEVA, L. S.; ARESHKINA, L. Ya.

Participation of folic acid and vitamin B_{12} in purine synthesis by the cells of Escherichia coli 113-3. Dokl. AN SSSR 141 no.1: 223-226 N '61. (MIRA 14:11)

1. Institut biokhimii im. A. N. Bakha AN SSSR. Predstavleno Akademikom A. I. Oparinym.

(FOLIC ACID)
(CYANOCOBALAMINE)
(PURINES)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9

ARESHKINA, L.Ya.; CHANAN SINGKH; KUTSEVA, L.S.; SKOROBOGATOVA, Ye.P.

Isolation of the coenzyme of vitamin B_{12}. Dokl. AN SSSR 146 no.1:207-209 S '62. (MIRA 15:9)

1. Institut biokhimii im. A.N. Bakha AN SSSR. Predstavleno akademikom A.I. Oparinym.
(CYANOCOBALAMIN) (COENZYMES)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9

KUTSEVA, L. S., BUKIN, V.N., ARESHKINA, L.YE., ANDREYEVA, N.A.,

"Combined Effect of Folic Acid and Vitamin B12 in Purine Synthesis"

Report to be presented at Medical Society of J. E. PURKYNE, Czech. Vitaminological Cong., Prague Czech., 3-6 Jun 6[illegible]

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9

ARESHKINA, L.Ya.; ANDREYEVA, N.A.; KUTSEVA, L.S.; BUKIN, V.N.

Joint participation of vitamin B_{12} and folic acid in purine synthesis. Dokl. AN SSSR 148 no.3:704-707 Ja '63. (MIRA 16:2)

1. Institut biokhimii im. A.N. Bakha AN SSSR. Predstavleno akademikom A.I. Oparinym.
(CYANOCOBALAMIN) (FOLIC ACID) (PURINES)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9

ARESHKINA, L.Ya.; KUTSEVA, L.S.; SKOROBOGATOVA, Ye.P.

Cobamide coenzymes. Usp.biol.khim. 5:262-274 '63. (MIRA 17:3)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9

KUTSEVA, L.S.; ARESHKINA, L.Ya.; ANDREYEVA, N.A.; SKOROBOGATOVA, Ye.P.

Folic acid activating enzyme system resistant to aminopterin and containing vitamin B_{12}. Biokhimiia 29 no.5:969-974 Jl-Ag '64. (MIRA 18:11)

1. Institut biokhimii imeni Bakha AN SSSR, Moskva

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9

APESHKINA, L.Ya.; BEKER, M.Ye.; BUKIN, V.N.; KARKLIN'SH, R.Ya. [Karklins, R.]; KLYUYEVA, N.M.; KUTSEVA, L.S.; LIYEPIN'SH, G.Z. [Liepins, G.]

Microbiological synthesis of L-lysine. Prikl. biokhim. i mikrobiol. 1 no.4:396-403 Jl-Ag '65. (MIRA 18:11)

1. Institut biokhimii imeni A.N.Bakha AN SSSR, Institut mikrobiologii imeni A.Kirkhensteyna AN Latviyskoy SSR i Rizhskiy zavod biokhimicheskikh preparatov.

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9

KONOVALOV, G.S.; IVANOVA, A.A.; KOLESNIKOVA, T.KH.; KUTSEVA, F.F.

Formation of some mineral waters in the region of the central Caucasus. Gidrokhim.mat. 34:107-113 '61. (MIRA 15:2)

1. Gidrokhimicheskiy institut AN SSSR, Novocherkassk.
(Dauti Valley--Mineral waters)
(Makhar Valley--Mineral waters)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9

KONOVALOV, G.S.; KUTSEVA, P.P.; KOLESNIKOVA, T.Kh.; IVANOVA, A.A.

Change in the chemical composition of natural water under the influence of sorption processes. Gidrokhim.mat. 36:117-124 '64. (MIRA 18:11)

1. Gidrokhimicheskiy institut, Novocherkassk. Submitted December 15, 1961.

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9

KUTSEVA, V.G. (Simferopol').

Visiting nurse E.I.Lemchuk. Med.sestra no.7:28-29 Jl '53. (MLRA 6:7)
(Nurses and nursing) (Lemchuk, Elena Ivanovna)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9

KUTSEVALOV, B. (Riga)

Universal-relative characteristics and geometric spaces of currents of the asynchronous clutch with massive ferromagnetic armature. Vestis Latv ak no.11:55-61 '59. (EEAI 9:11)

1. Akademiya nauk Latviyskoy SSR, Institut energetiki i elektrotekhniki.

(Electromagnetic clutches)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9

KUTSEVALOV, I.; KREYNIN, G.

Computing fulfillment of norms. Sots. trud no.7:133-135 Jl '57. (MLRA 10:8)

1. Normirovshchik Tashkentskogo remontno-mekhanicheskogo zavoda (for Kutsevalov). 2. Zamestitel' nachal'nika proizvodstvenno-planovogo otdela Chernovitskogo tresta "Ukrglavkhleb" (for Kreynin).
(Production standards)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9

KUTSEVALOV, N.Ya., inzhener.

Adjusting the coal-handling machine made by the Bleichert Company. Energetik 4 no.4:24-27 Ap '56. (MLRA 9:7)
(Coal-handling machinery)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9

AUTHOR: Kutsevalov, A.Ya., engineer

TITLE: Checking Automatic Synchronizers (Proverka avtomaticheskikh sinkhronizatorov)

PERIODICAL: Energetik, 1958, Nr 9, pp 34-35 (USSR)

ABSTRACT: The author describes the apparatus which can be constructed to carry out preliminary testing of automatic synchronizers. By an arrangement of transformers and rheostat, fed from 220 v mains, the apparatus can reproduce the grid and generator voltages and also the beat voltage. The method of testing is given. After preliminary testing the synchronizer need be run for only a comparatively short time without load for full testing. There is 1 circuit diagram

1. Synchronizers--Test methods 2. Electrical equipment--Design

Card 1/1

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9

KUTSEVALOV, T.

AID P - 3117

Subject : USSR/Aeronautics

Card 1/1 Pub. 58 - 3/24

Author : Kutsevalov, T., Lt. Gen. of Aviation, Hero of the Soviet Union, Deputy Chairman of the Central Committee of the DOSAAF for Aviation

Title : For large-scale development of gliding sport

Periodical : Kryl. rod., 10, 3-5, O 1955

Abstract : The author reviews the achievements in sport aviation of the USSR and states that one of its branches, gliding sport, is retarded. He describes the advantages of large-scale training in gliding and cites its possibilities. He outlines the present organization of gliding and glider building, and suggests changes which would make a large scale development of gliding sport in the USSR possible. He mentions several gliders and gives their general characteristics. Photos and names.

Institution : DOSAAF

Submitted : No date

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9

KUTSEVALOV, T

AID P - 5511

Subject : USSR/Propaganda

Card 1/1 Pub. 58 - 2/17

Author : Kutsevalov, T., Lt. Gen. of Aviation, Hero of the Soviet Union, Vice-Chairman in Charge of the Central Committee on Aviation, DOSAAF, USSR.

Title : The activity of the DOSAAF organizations in the domain of aviation sports must be intensified.

Periodical : Kryl. rod., 2, 3-5, F 1957

Abstract : A review of the shortcomings in the training of sportsmen in various DOSAAF organizations. The necessity of improving the equipment of the aeroclubs and the primary DOSAAF organizations with adequate training facilities is stressed, and different means of stimulating the withering popular interest in aviation sports are suggested. 3 photos.

Institution : None

Submitted : No date

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9

KUTSEVALOV, T.F., glavnyy rukovoditel' letney programmy, geroy Sovetskogo Soyuza, general-leytenant aviatsii; STARICHEVSKIY, S.I., rukovoditel' aviatsionno-sportivnykh grupp; OSHURKOV, L.Ya., rukovoditel' aviatsionno-sportivnykh grupp.

[Program of the Soviet Air Force Day] Programma Aviatsionnogo Prazdnika v Chest' Dnia Vozdushnogo Flota SSSR. [Tushino, Izd-vo DOSAAF, 1958] 14 p. (MIRA 11:8)

(Russia—Air Force)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9

KUTSEVALOV, T.

85-58-5-4/38

AUTHOR: Kutsevalov, T., Deputy Chairman, DOSAAF Central Committee for Aviation, Hero of the Soviet Union, Lieutenant General of Aviation

TITLE: DOSAAF Convention Decisions Include A Program for the Development of Aviation Sports (Resheniya s"yezda DOSAAF -- programma razvitiya aviatsionnogo sporta)

PERIODICAL: Kryl'ya rodiny, 1958, Nr 5, pp 2-4 (USSR)

ABSTRACT: The author reviews the decisions of the 4th All-Union DOSAAF Convention which stressed the importance of arranging more frequent competitions in aviation sports. The aim is to double the number of participants in competitions in quasi-military types of sports in the next 4 years and to raise their standards to the level of the highest world records. The most active aeroclubs include the Sverdlovsk aeroclub, under the supervision of S. Makovskiy, Hero of the Soviet Union; the Omsk aeroclub, managed by N. Mel'nikov, the Leningrad, L'vov and Riga aviation sports clubs, and the Kaunas and Maykop glider stations. Ernest Aristov of Sverdlovsk, winner of the inter-oblast parachute competition and sportsman 1st rank, is shown

Card 1/3

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85-58-5-4/38

DOSAAF Convention Decisions (Cont.)

in a photograph. In 1957, the Kursk, Bryansk, and 3rd Moscow aero-
clubs established good records in parachute sports, chiefly because
of their staffs of public instructors, which include D. Diordichuk,
shop superintendant of the Vil'nusskiy elektromekhanicheskiy zavod
(Vil'nyus Electro-mechanical Plant) G. Rastorguyeva, MAI student
and Komsomol member; N. Lavrinenko (Stalinabad) scientific worker;
and V. Kosov, Komsomol member, instrument worker of the USSR Central
Aeroclub. All DOSAAF organizations will participate in the All-
Union Komsomol Spartacus games held in honor of the 40th anniversary
of the VLKSM. Pilots, parachutists, helicopter and glider pilots,
and model-airplane builders will participate in the competitions.
The author states that the Yak-11, Yak-12, Yak-18 and An-2 sports
planes are the main types used for training, but he urges the
addition of a sports jet training plane at aeroclubs. He welcomes
the initiative of a young designer who produced a new model of a
twin-seater sports and acrobatics jet trainer. The well-known
designer O.K. Antonov is also at work on a new sports acrobatics
plane, and his Pchelka plane, now already in use at small fields,

Card 2/3

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9

85-58-5-4/38

DOSAAF Convention Decisions (Cont.)

will serve as a companion to the An-2. Serial production of the Pioneer and all-metal Primorets gliders was begun in 1957; both are now in use at all aviation training stations, though not in adquate quantities. The output of the MAK-15 glider continues; several Lastochka and Mukha gliders were purchased in Poland. The all-metal A-11 and A-13 single-seater gliders and the A-12 and A-14 two-seater gliders will soon go into production. Both are gliders for advanced flying (acrobatics). The BRO-12 glider, designed by B. Oshkinis (Kaunas), has gone into serial production. M. Simonov (Kazan') designed the KAI-11 and KAI-12 gliders; P. Karvelis (Kaunas), glider pilot, and sportsman Yu. Abramov (USSR TsAK) designed gliders for primary training, approved by the technical committee. In 1958, many aeroclubs will receive Mi-1 helicopters for use in training. There are 3 photographs.

ASSOCIATION: TsK DOSAAF po aviatsii (DOSAAF Central Committee for Aviation)

AVAILABLE: Library of Congress

Card 3/3 1. Aviation - USSR
2. Parachute jumping

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9

KUTSEVALOV, T., geroy Sovetskogo Soyuza, general-leytenant aviatsii.

Mighty wings of our land. Voen. znan. 34 no.7:2-3 Jl '58. (MIRA 11:9)

1.Zamestitel' predsedatelya TSentral'nogo Komiteta Vsesoyuznogo dobrovol'nogo obshchestva sodeystviya armii, aviatsii i flotu SSSR.
(Aeronautics) (Military education)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9

L 1694-66 EWT(1)/EPA(s)-2

ACCESSION NR: AP5017171 UR/0197/65/000/006/0079/0086

AUTHOR: Vitolin'sh, Ya.; Glukhov, V.; Kutsevalov, V.; Obushev, G.

TITLE: Investigation of a compound-wound contactless synchronous motor

SOURCE: AN LatSSR. Izvestiya, no. 6, 1965, 79-86

TOPIC TAGS: electric motor, synchronous motor, contactless motor /SO51-6 motor

ABSTRACT: The results of an experimental investigation of a SO51-6, 3-kw, 1000-rpm compound-wound contactless synchronous motor are reported. Special attention was paid to the motor overload capacity and stability of operation under varied supply-voltage conditions. These findings are offered: (1) The motor control system maintains $\cos\varphi = 1$ within $\pm 3\%$ in the entire load range up to the out-of-step point; (2) When the supply-voltage decreases (increases), the motor draws leading (lagging) current, thus tending to assist in maintaining the normal supply voltage; (3) The motor exhibited stable operation at 81, 71, and 62% of the rated supply voltage with 100, 75, and 50% full load, respectively. Orig. art. has: 5 figures and 1 formulas.

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ACCESSION NR: AP5017171

ASSOCIATION: Institut energetiki AN LatSSR (Institute of Power Engineering, AN LatSSR)

SUBMITTED: 03May65 ENCL: 00 SUB CODE: EE

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9

KUTSEVALOV, V.

GENERAL

PERIODICALS: VESTIS, No. 5, 1958

KUTSEVALOV, V. Method of calculation of the starting characteristics of synchronous electric motors with definite solid poles. In Russian. p. 121

Monthly list of East Eurupean Accessions (EEAI) LC, Vol. 8, No. 2, February 1959, Unclass.

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9"

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8(0) SOV/112-59-4-7001

Translation from: Referativnyy zhurnal. Elektrotekhnika, 1959, Nr 4, p 82 (USSR)

AUTHOR: Kutsevalov, V. M.

TITLE: Allowance for Variation in Magnetic Leakage of Field Poles of a Synchronous Machine Under Load

PERIODICAL: Tr. in-ta energ. i elektrotekhn. AS Latviyskaya SSR, 1958, Nr 6, pp 175-182

ABSTRACT: Synchronous machine characteristics determined on the basis of its no-load characteristic can be inaccurate because they do not allow for the field-pole leakage flux variation with the load. An allowance for the variation in field-pole leakage in calculating the field magnetizing force can be made relatively simply if the effect of the pole-tip magnetizing force on the leakage flux is known. Such an allowance for the leakage-flux variation with the load, for a specified field magnetizing force, is possible only when a trial method is used. The calculations can be simplified if a family of curves is plotted that

Card 1/2

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SOV/112-59-4-7001

Allowance for Variation in Magnetic Leakage of Field Poles of a Synchronous . . . .

represents the effect of the pole-tip magnetizing force F_{NS} on the armature flux, for various total field magnetizing forces F. To plot such a curve for a specified F, the magnetizing force F_{NS} should be set, the field-pole leakage flux should be found, the magnetizing force $F - F_{NS}$ in the field poles should be determined, the full field-pole flux should be found from the field magnetic characteristic, and, finally, the armature flux can be found as the difference between the total field-pole flux and the leakage flux. With the above family of curves, both field magnetizing force and the characteristics with that force specified can be found in a simple way. Here, the armature no-load characteristic will be used instead of the entire-machine no-load characteristic.

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9

KUTSEVALOV, V.

GENERAL

PERIODICALS: VESTIS, NO. 8, 1958

KUTSEVALOV, V. Mechanical characteristics of an asynchronous motor with a massive rotor. In Russian. p. 119.

Monthly list of East European Accessions (EEAI) LC, VOL. 8, No. 2
February 1959, Unclass.

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9

KUTSEVALOV, V. M., Candidate Tech Sci (diss) -- "Asynchronous and synchronous machines with massive rotors". Baku, 1959. 15 pp (Min Higher Educ USSR, Azerb Order of Labor Red Banner Industrial Inst im M. Azizbekov), 150 copies (KL, No 24, 1959, 138)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9

[illegible]DOV, V.

Generalization of equations of relative [illegible] machine. In Russian. p. 27

[illegible] No. 3, [illegible]

Monthly List of East European Accessions. ([illegible]) [illegible], [illegible], no. [illegible], Feb. [illegible] Uncl

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9

KUTSEVALOV, V.M., kand.tekhn.nauk

Relative characteristics of asynchronous machines.
Elektrichestvo no.6:47-50 Je '60. (MIRA 13:7)

1. Institut energetiki i elektrotekhniki AN Latviyskoy SSR.
(Electric machinery)

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9

KUTSEVALOV, V.(Riga)

The degree of critical sliding of an asynchronous electric motor with massive ferromagnetic rotor. Vestis Latv ak no.6:51-56 '60.

(EEAI 10:9)

1. Akademiya nauk Latviyskoy SSR, Institut energetiki i elektrotekhniki.

(Electric motors, Induction) (Magnetism)

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9

S/193/60/000/007/007/012
A005/A001

AUTHORS: Apsit, V. V., Kutseyalov, V. M.

TITLE: Synchronous Electromotors ДМК-1 (DMK-1) and ДМК-2 (DMK-2) Without Contacts

PERIODICAL: Byulleten' tekhniko-ekonomicheskoy informatsii, 1960, No. 7, pp.31-33

TEXT: The efficiency increase in low-voltage distribution networks can be attained by replacing asynchronous electromotors by synchronous ones. - The Institut energetiki i elektrotekhniki Akademii Nauk Latviyskoy SSR (Institute of Power- and Electric Engineering of the Academy of Sciences Latviyskaya SSR) designed two types DMK-1 and DMK-2 of synchronous electromotors without contacts, differing in the main from the common synchronous motors with salient poles by the absence of a revolving exciting winding and, consequently, of collecting rings and brushes. The figure shows the longitudinal cross section of the DMK-1-motor. In contrast to the common stator of synchronous or asynchronous motor, stator 1 has bedplate 2, which is a part of the magnetic circuit, and is made therefore of cast steel or rolled iron. The rotor has two pole systems 3, set on the shaft, each of which represents a cylindric steel casting with three claw-shaped pole overhangs

Card 1/4

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S/193/60/000/007/007/012
A005/A001

Synchronous Electromotors ДМК-1 (DMK-1) and ДМУ-2 (DMK-2) Without Contacts

of a special shape ensuring sufficiently high motor properties both under synchronous and asynchronous (starting) conditions. The pole systems are mounted on the rotor shaft in such a manner that the poles of one system are in the interpole gaps of the other system. Due to the different polarity of the pole systems, the normal alternation of the polarity is obtained in the rotor periphery. The bearing brackets 4 are also produced of cast steel and have ring-like tongues embracing the cylindric parts of the rotor pole systems with a small gap of 0.5 mm; on their external surface, exciter coils 6 of simple ring shape are placed which are supplied from a semi-conductor rectifier. Therefore, the magnetic flux in the DMK-1 motor is excited from the stationary coils on the bearing brackets, and the rotor has no windings and contact rings. The asynchronous start of the motor is brought about by eddy-currents, induced in the solid pole ends by the revolving magnetic flux caused by the three-phase alternating current in the stator winding. - The DMK-2-motor is a second modification of higher performance and differs from the DMK-1-motor by lesser sizes and the design of the components. The most substantial structural peculiarity of the DMK-2-motor is the steplike shape of the rotor cylinders and the ringlike tongues of the brackets, which

Card 2/4

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S/193/60/000/007/007/012
A005/A001

Synchronous Electromotors ДМК-1 (DMK-1) and ДМК-2 (DMK-2) Without Contacts

decreased the weight of the steel parts, the copper weight of the exciting windings and the power supply.

Technical characteristics of the motors:

	DMK-1	DMK-2
Continuous power at power factor equal to 1, in kw	10	7.5
number of revolutions in rpm	1,000	1,500
voltage in v	380/220	
frequency in cps	50	
efficiency in %	85	82
starting current (in fractions of the nominal current)	2.50	2.00
starting moment (in fractions of the nominal moment)	1.50	1.10
initial moment at slip S = 0.05	0.30	0.24
maximum moment under synchronous conditions	2.0	1.7
weight in kg	320	160

The copper windings of the exciting coils can be replaced by aluminum windings without deteriorating their characteristics.

Card 3/4

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Synchronous Electromotors ДМК-1 (DMK-1) and ДМК-2 (DMK-2) Without Contacts

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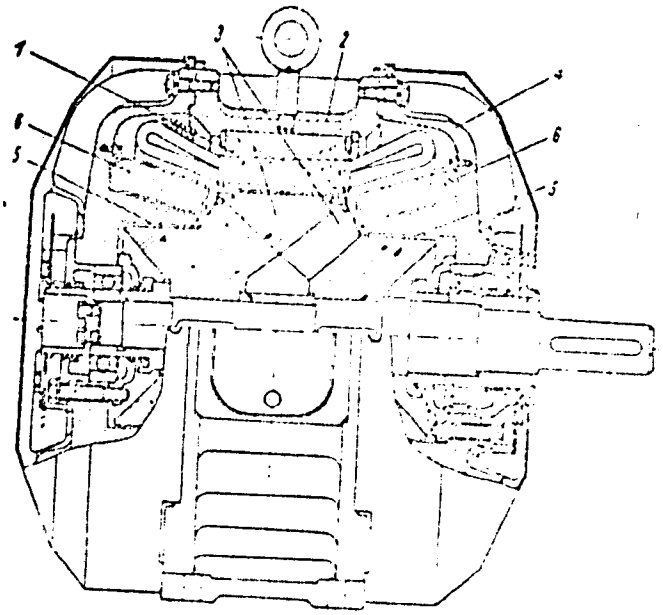
A005/A001

Figure:
Longitudinal cross section of the synchronous electromotor DMK-1 without contacts.



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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9

KUTSEVALOV, V.M., kand.tekhn.nauk

Method of calculating the characterics of an asynchronous machine with a solid rotor. Elektrichestvo no.9:63-67 S '60.
(MIRA 13:10)

1. Institut energetiki i elektrotekhniki AN Latviyskoy SSR.
(Electric motors, Induction)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9

KUTSEVALOV, V. (Riga)

Current-locus diagrams of an asynchronous machine with solid rotor.
Vestis Latv ak no.12:51-56 '60. (EEAI 10:9)

1. Akademiya nauk Latviyskoy SSR, Institut energetiki i elektrotekhniki.

(Electric motors, Induction)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9

KUTSEVALOV, V.M., kand.tekhn.nauk (Riga)

Exact equivalent circuit and current hodograph of an asynchronous machine with a solid rotor. Elektrichestvo no.12:50-54 D '61. (MIRA 14:12)

(Electric machinery) (Equivalent circuits)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9

KUTSEVALOV, Vitaliy Mikhaylovich; ASPIT, V.V [Aspits, A.], kand. tekhn. nauk, retsenzent; VENGRANOVICH, A., red.; PILADZE, Ye. [Piladze, E.], tekhn. red.

[An asynchronous machine with a solid rotor]Asinkhronnaia mashina s massivnym rotorom. Riga, Izd-vo Akad. nauk Latviiskoi SSR, 1962. 184 p. (MIRA 15:10)
(Electric motors, Induction)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927920012-9

KUTSEVALOV, V.M., kand.tekhn.nauk

Some comparisons of the characteristics and properties of asynchronous machines having massive and normal rotors. Elektrichestvo no.9:27-33 S '62. (MIRA 15:9)

1. Institut energetiki Akademii nauk Latviyskoy SSR.
(Electric machinery)

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