

ACC NR: AN7003029

SOURCE CODE: UR/9012/66/000/279/0004/0004

AUTHOR: Raspevin, K.

ORG: none

TITLE: Visiting TsAGI

SOURCE: Pravda, 06Oct66, p. 4, col. 2-6

TOPIC TAGS: supersonic aerodynamics, supersonic aircraft, wind tunnel test, wind tunnel, flight simulation, spin wind tunnel

ABSTRACT: On the basis of an interview with Designer-In-Chief Vladimir Mikhaylovich Myasishchev, head of the Central Scientific Research Institute of Aerohydrodynamics im. N. Ye. Zhukovskiy (TsAGI), the author discusses the research program at TsAGI and some of the equipment being used. It is stated that TsAGI, a city of laboratories, has several wind tunnels for testing models of subsonic and supersonic aircraft made from wood, plastic, and metal. Currently under study is a wooden scale model of the YaK-40, with a wingspan of about two meters which has been tested in a low-velocity wind tunnel. The loads produced on various parts of aircraft during flight are measured with a special electrical "scale" located inside the model. According to the author, there are several high-velocity wind tunnels designed for testing models made from metal possessing enormous strength.

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ACC NR: AN7003029

screen how the aircraft controlled by him is responding. The pilot feels
the machine the same as he would feel it in the air..."/>

[ATD PRESS: 5096-F]

SUB CODE: 01 / SUBM DATE: none

Card 3/3

RASPEVIN, V.A.

Changes in the growth, development and fruiting of tomatoes under the influence of gibberellin. Vest. Mosk. un. Ser. 6: Biol., pochv. 19 no.4:37-43 J1-Ag '64. (MIRA 17:12)

1. Kafedra agrokhimii Moskovskogo universiteta.

RASPLETIN, I.I.

Specialization of cutting-tool shops. Mashinostroitel'
no.10:34-35 0 '63. (MIRA 16:12)

KUSHNIR, Yu.M.; FETISOV, D.V.; DER-SHVARTS, G.V.; POCHTAREV, B.I.; TOKAREV, P.D.;
RASPLETIN, K.K.; SPEKTOR, F.U.; GUROVA, R.P.; POSTNIKOV, Ye.B.;
OSIPOV, V.N.; PAVLOV, V.A.; POGUDINA, M.V.

Combined scanning electron microscope and X-ray microanalyzer with
magnetic electron optics. Izv. AN SSSR. Ser. fiz. 27 no.9:
1166-1172 S '63. (MIRA 16:9)
(Electron microscope) (X-ray spectroscopy)

KUSHNIR, Yu.M.; FETISOV, D.V.; DER-SHVARTS, G.V.; POCHTAREV, B.I.; TOKAREV, P.D.;
RASPLETIN, K.K.; GUROVA, R.P.; POSTNIKOV, Ye.B.

The REMP-1 scanning-type electronic microprobe instrument. Zav.lab. 30
no.12:1510-1512 '64. (MIRA 18:1)

POCHTAREV, B. I.; RASPLETIN, K.K.; FETISOV, D.V.

Device for measuring the luminescence of fluorescent screens,
Izv. AN SSSR, Ser. fiz. 25 no.4:512-514 Ap '61. (MIRA 14:4)
(Fluorescence) (Photometry)

AUTHORS: Fetisov, D. V., Spektor, F. U., Milyutin, V. I., Raspletin, K. K. SOV/48-23-6-6/28

TITLE: On the Resolving Power of Electrostatic Electronic Microscopes
(O razreshayushchey sposobnosti elektrostatischekogo elektronno-go mikroskopa)

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1959,
Vol 23, Nr 6, pp 690 - 693 (USSR)

ABSTRACT: By the influence of aberration, caused by the asymmetry of the optical system, the chromatic aberration and other factors, the theoretically attainable resolving power of electrostatic electronic microscopes, which would be limited solely by electron diffraction and spherical aberration is not attained. In the present paper the influence exercised by the asymmetry of the field of electrostatic lenses and of the entire optical system, the influence of the variation of the spherical aberration of the lenses, and the effects of the pulsation of the acceleration voltage of the instrument are investigated. Field asymmetry depends on the geometric dimensions of the individual electrodes of the lenses, and, first of all, the connection between the oval electrodes of the lenses and resolving power is investigated.

Card 1/2

On the Resolving Power of Electrostatic Electronic
Microscopes

SOV/48-23-6-6/28

Results obtained by measurements show an increase in resolution with a reduction of the oval shape of the lens electrodes. In a similar manner the influence exercised by the aberration from the axial arrangement and the results obtained are shown by four diagrams (Figs 2,3). A stigmatizer is then briefly described, which is partly able to eliminate these errors. For the investigation of the spherical aberration of an electrostatic objective, in which the focal plane of the lens is outside the range of the field, a schematical drawing is first given, after which a constant of aberration is introduced. This constant depends on the geometric dimensions of the middle electrode and its potential. Various adjustments are investigated, and the results obtained are shown by a table. The most satisfactory results were obtained when the focal plane was approached as far as possible to the lens. Finally, the influence exercised by the pulsation of the direct current was investigated at various amplitudes exercised by them upon resolving power. There are 5 figures, 1 table, and 3 references, 1 of which is Soviet.

Card 2/2

AUTHORS: Pochtarev, B. I., Raspletin, K. K., Fetisov, D. V. 8/7/68-1-10/81

TITLE: An Instrument for the Measurement of the Resolving Power and the Light Output of Fluorescing Screens (PS) (Pribor dlya izmereniya razreshayushchey sposobnosti i svetlosti fluorescitsiruyushchikh ekranov (PRS))

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, Vol 23, Nr 4, pp 462-465 (USSR)

ABSTRACT: The main characteristic feature of technical cathodoluminophores is their resolving power. This is determined by measuring the minimum distance, at which lines projected on the screen may still be visible to the eye. The knowledge of the light output is equally important when measuring the intensity of the lines. In this connection, the spectral distribution of the light intensity is of great interest. The instrument described was developed to serve for the determination of the resolving power of the light output, and of the spectral intensity distribution. It works with 5-30 kv accelerating voltage. The instrument makes it possible to investigate the resolving

Card 1/2

An Instrument for the Measurement of the Resolving
Power and the Light Output of Fluorescing Screens (P. 1)

power of a screen up to a maximum of 30 lines per cm.
The screen to be investigated is observed through a binocular
microscope by a 20-40 fold magnification. The method devised
by A. A. Lebedev is applied, by which a grating pattern is
on the screen is investigated. The light output is measured
with a photocell and is given in candles per watt.
Description follows of the mechanical construction of the
instrument, of measuring devices and source of current. The
authors thank their collaborators Yu. M. Kuz'min, V. I.
Milyutin, and Ye. S. Ratner. There are 4 figures and
1 Soviet reference.

Card 2/2

KUSHNIR, Yu.M.; FETISOV, D.V.; RASPLETIN, K.K.; POCHTAREV, B.I.; SPEKTOR, F.U.;
KABANOV, A.N.; ANISIMOV, V.F.

Scanning electron microscope, an X-ray microanalyzer. Izv. AN SSSR.
Ser.fiz. 25 no.6:695-700 Je '61. (MIRA 14:6)
(X-ray microscope)

POCHTAREV, B.I.; RASPLETIN, K.K.; FETISOV, D.V.

Apparatus for the measurement of the resolving power and
luminescence of fluorescent screens (FES). Izv. AN SSSR. Ser.
fiz. 23 no.4:462-466 '59. (MIRA 12:5)
(Luminescence--Measurement)

Raspletin, K.K.

AUTHORS:

Milyutin, V.I., Fetisov, D.V., Raspletin, K.K.,
Spektor, F.U., Pochtarev, B.I.

32-1-38/55

TITLE:

Simplified Electrostatic Electron Microscope (Uproshchennyy elektrostatiicheskiy elektronnyy mikroskop).

PERIODICAL:

Zavodskaya Laboratoriya, 1958, Vol. 24, Nr 1, pp. 92-96 (USSR)

ABSTRACT:

In this paper the model of the simplified electrostatic microscope for 45 kV (MЭМ -45) is described. The apparatus consists of two separate parts: the microscope proper with feeding device (700x500x1400 mm) and the vacuum apparatus (700x400x1150 mm). The efficiency of the apparatus amounts to 50-60 Å, while 1500 to 8000-fold electron-optical enlargement is attained in four steps by the potential modification of an intermediary lens. The field of observation has a diameter of 62 mm. The apparatus makes it possible to deal with 5 samples, one after the other, and to take 10 photographs (including stereophotographs), without hereby disturbing the vacuum. By means of this microscope it is also possible to take diffraction- and emission pictures of heated objects. In this case the cathode is replaced by the sample, and another anode

Card 1/2

Simplified Electrostatic Electron Microscope

32-1-38/55

is fitted. In the case of the diffraction picture, a number of lenses is taken out. In the vacuum plant the diffusion pump "MM-40-A" and the pre-vacuum pump "BH-461" are fitted. The same device can also be used as a vacuum atomizer, for which purpose it is fitted out with various additional devices. The feeding device of the microscope consists of: 1 rectifier for 50 kV, a device for regulating cathode heating, a voltage regulator, a control board for the microscope and the vacuum plant as well as of the additional devices. (The following additional devices are mentioned: a "Tesla" transformer, a voltage stabilizer, etc.). There are 6 figures and 1 Slavic reference.

AVAILABLE: Library of Congress

Card 2/2 1. Electrostatic microscope-Nomenclature

AUTHORS: Milyutin, V.I., Petisov, D.V., SOV/48-23-4-5/21
Raspletin, K.K., Spektor, F.U., Pochtarev, B.I.

TITLE: Small-sized Electrostatic Microscopes
(Malogabaritnyye elektrostatischeškiye mikroskopy)

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1959,
Vol 23, Nr 4, pp 454 - 458 (USSR)

ABSTRACT: First, mention is made of the electron microscopes produced industrially (EM-3, UEM-100) and the fact is pointed out that simpler and cheaper electrostatic microscopes suffice for a great part of operations. Some small-sized electrostatic microscopes have been developed. Figure 1 shows a 40 kv electrostatic table electron microscope with a 1200-5600fold magnification range and a resolving power of up to 50 Å. Next, a description is given of the instrument MESM-45, which is being considered for industrial production. The instrument consists of two units: microscope with source of current and vacuum system. The three-part electron accelerator is described, followed by the microscope slide and the lens system. Camera with fluorescence screen and plateholder and ocular tube, which features a 5fold optical magnification, are fitted

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Small-sized Electrostatic Microscopes

SOV/48-23-4-5/21

under the lens block. The vacuum system consists of the mechanical pump VN-461 and the diffusion pump MM-40-A. The diagram of the current source of the instrument is shown in figure 5. At a maximum load of 100 mA the current fluctuation amounts to 0.005%. Finally, the mechanical construction and applicability are described. There are 5 figures and 2 Soviet references.

Card 2/2

22176

S/048/61/025/004/025/048
B102/B212

24,3300
24,3500

AUTHORS: Pochtarev, B. I., Raspletin, K. K., and Fetisov, D. V.

TITLE: A device for measuring the luminescence parameters of fluorescent screens

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, v. 25, no. 4, 1961, 512-514

TEXT: This paper has been presented at the 9th Conference on Luminescence (Crystal Phosphors) which took place in Kiyev from June 20 to 25, 1960. It offers a brief description of the device ПРС (PRS) developed by the authors for the investigation of the main characteristics of cathodoluminophores and fluorescent screens. The latest model of the PRS device is a universal electron-optical apparatus using a system of electrostatic lenses. The device makes it possible to investigate the resolution, the light yield, the composition of the luminescence spectrum, and the purity of the surface if exposed to an electron beam. The maximum resolution of the device is found at 700 lines/mm, the beam voltage can be varied from 0-30 kv and the beam current from $2 \cdot 10^{-8}$ - $2 \cdot 10^{-6}$ a. The excitation current may be in-
Card 1/3

22176

S/048/61/025/004/025/048
B102/B212

A device for ...

creased up to $1 \cdot 10^{-5}$ a. The spot diameter on the screen (luminophore) is constant and measures 20 mm. The operating pressure in the chamber is $(1-3) \cdot 10^{-4}$ mm Hg. 8-30 screens or 20 cuvettes with luminophore powder may be placed into the measuring chamber. The light yield of yellow-green or blue screens (luminophores) is measured with selenium and antimony-caesium photocells, respectively. The principle, design, and measuring operations of this device have been described earlier by the authors (Izv. AN SSSR, Ser. fiz. 23, No. 4, 462, 466 (1959)). Here, the measurement of the spectral composition of radiations is briefly described. This measurement is very easy to do in transmitted and also reflected radiation since the luminescence spectrum is nearly independent to obtain spectral curves, and a spectrograph or a monochromator is utilized. Fig. 2 shows the revolving optical system which is used to measure luminescence spectra. The authors thank Yu. M. Kushnir and M. A. Meyerov for advice, assistance, and interest. There are 2 figures and 1 Soviet-bloc reference.

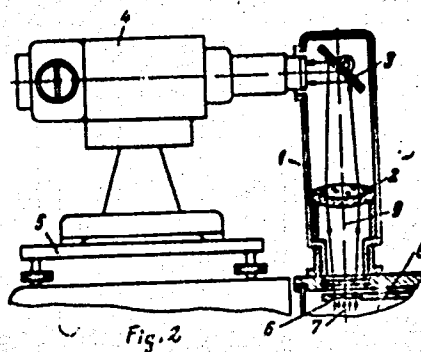
Card 2/3

22176

S/048/61/025/004/025/048
B102/B212

A device for ...

- Legend to Fig. 2: 1) Tube; 2) lens;
3) mirror; 4) spectrometer;
5) support; 6) screen;
7) electron beam; 8) camera;
9) light path.



Card 3/3

S/048/63/027/003/020/025
B106/B238

AUTHORS: Kushnir, Yu. M., Fetisov, D. V., Raspletin, K. K.,
Pochtarev, B. I., Spektor, F. U., Gurova, R. P., Tokarev,
I. D., Osipov, V. N., and Pavlov, V. A.

TITLE: A modified raster microscope - local X-ray microanalyzer
and its use

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya fizicheskaya, v. 27,
no. 3, 1963, 415-419

TEXT: A modified scanning electron microscope - local X-ray microanalyzer
is described briefly, and a few data are on its use in investigating
metals, minerals and semiconductors presented. The crystal X-ray
spectrometer of the apparatus makes it possible to analyze the radiation
of elements from magnesium to uranium. The dead time of the counter tube
does not permit of obtaining qualitative X-ray patterns when the
scanning velocities are high. The authors therefore developed a system of
slow scanning which provides a scanning field with a 1 : 1 format and a
resolution of 200 - 300 lines at 1 frame/min. The area of the scanning
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A modified raster microscope - local ...

S/048/63/027/003/020/025
B106/B238

field on the object amounts to 0.04 to 0.25 mm². Under these conditions, the dead time of the counter tube imposes practically no limit on the resolution of the characteristic X-rays patterns. A block of slow sweeps serves for observing the images visually, and is provided with a moving film camera with a large afterglow. A second moving film camera, synchronized with the first, records the images photographically; it focuses the spot sharply and has a high accelerating voltage. The characteristic X-ray pattern were also recorded using an NaI-crystal scintillation counter which worked satisfactorily at wavelengths below 1.5 Å. The sharpness and contrast of the images obtained due to the secondary electrons were increased by a special device for correcting the frequency characteristics of the video amplifier block. This was done by filtering out signals between 25 and 150 cps and those near to 5 Mcs. The improvements of the basic elements of the X-ray microanalyzer made it possible to obtain characteristic X-rays patterns for the first time, and to undertake comparative studies of a few objects on the basis of the microphotographs. Besides making it possible to obtain reflected characteristic electron beam and X-ray patterns for macroscopic surfaces, the instrument also permits the visualization of p - n transitions in

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S/04E/63/027/003/020/025

A modified raster microscope - local ... B106/B238

semiconductors. The band width of the barrier layer depends on the applied voltage and can easily be determined. The authors are now working to develop a raster microscope - local X-ray analyzer as an industrial model; this will feature magnetic optics, thus making it possible to achieve high resolution and a much higher current density in the electron probe. There are 5 figures.

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KUSHNIR, Yu.M.; FETISOV, D.V.; RASPLETIN, K.K.; POCHTAREV, B.I.;
SPEKTOR, F.U.; GUROVA, R.P.; TOKAREV, P.D.; OSIPOV, V.N.;
PAVLOV, V.A.

Improving the scanning electron microscope -- X-ray local
microanalyzer; some of its applications. Izv.AN SSSR.Ser.fiz.
27 no.3:415-419 Mr '63. (MIRA 16:2)
(X-ray spectroscopy)

MILYUTIN, V.I.; FETISOV, D.V.; RASPLETIN, K.K.; SPEKTOR, P.U.;
POCHTAREV, B.I.

Small electrostatic microscopes. Izv. AN SSSR. Ser. fiz. 23
no.4:454-458 '59. (MIRA 12:5)
(Electron microscope)

RASPOLIC, Anton, inz.

Silting of storage basins. Elektroprivreda 17 no. 2:
97--100 F '64.

RASPOLIC, Anton (Dravograd)

Selection of hydraulic turbines. Pogon 3 no.3/4:33-43 Mr-Ap
'62.

L 34095-65 EWT(1) GW

ACCESSION NR: AP5007644

S/0154/64/000/006/0093/0098

AUTHOR: Raspolozhenskiy, N. A. (Engineer)

13
B

TITLE: Aerial spectrometer for studying the spectral brightness of landscape features

SOURCE: IVUZ. Geodeziya i aerofotos"yemka, no. 6, 1964, 93-98

TOPIC TAGS: aerial photointerpretation, photogrammetric instrument, spectrometer, soil photointerpretation, vegetation photointerpretation, aerial spectrometer

ABSTRACT: The Laboratory of Aerial Methods of Moscow State University has designed and built an experimental model of an aerial photoelectrical interference spectrometer, the LIS-2 (see Fig. 1 of the Enclosure), which is completely powered by the aircraft's circuit. The dispersion and scanning system formerly used has been replaced by a disk on which a set of 16-mm, narrow-band, interference filters are arranged in a circle. The disk rotates at about 20 rpm. As the filters pass through the light beam, they separate out a narrow spectral segment in the 400-900-m μ part of the spectrum. The number of filters used may be as

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ACCESSION NR: AP5007644

many as 43, with any frequency for any part of the spectrum. The field of view of the spectrometer is about 1/50 of the flight altitude. The spectrograms have a range of wavelengths from 400 to 900 μ , can be observed visually or photographed almost instantaneously on the cathode ray tube as a series of pulses adjusted to the absolute wavelength scale, and they unroll at the rate of one per 1/20 sec. The FEU-22 photomultiplier used in the spectrometer was designed for use in spectro-photometers operating in the visible and near-infrared part of the spectrum. The range of spectral sensitivity is 370—1000 m μ , and its maximum sensitivity is 750 m μ \pm 100. The spectrometer has been used simultaneously with aerial photographs taken on 35-mm black-and-white and color films to study the spectral reflection of soils and vegetation in agricultural regions. Experience with this equipment demonstrated that during the spring and summer seasons, up to 70% of the agricultural features in a given region can be detected visually on SN-23 color film having a difference in contrast of AD chrome $>$ 0.10. Orig. art. has: 3 figures.

[ER]

ASSOCIATION: Laboratoriya aerometodov MGU (Laboratory of Aerial Methods, Moscow State University)

Card 2A4

L 34095-65

ACCESSION NR: AP5007644

SUBMITTED: 04Aug64

ENCLOSURE: 01

SUB CODE: 00, ES

NO REF SOV: 004

OTHER: 000

ATD PRESS: 3209

Card 3/4

L 34095-65

ACCESSION NR: AP5007644

ENCLOSURE: 01

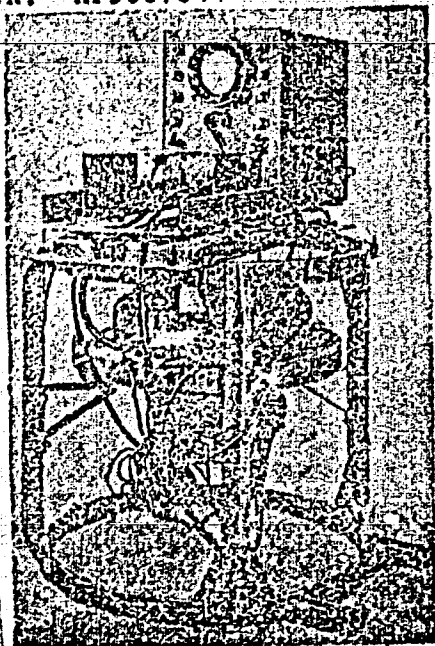


Fig. 1 LIS-2 spectrometer

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ACC NR: AP6036402

SOURCE CODE: UR/0154/66/000/004/0101/0104

AUTHOR: Raspolozhenskiy, N. A. (Engineer)

ORG: Laboratory of Methods of Aerial Photography, MGU (Laboratoriya aerofotometodov MGU)

TITLE: The computer evaluation of conditions for aerial photography on the basis of the spectral brightness of the landscape

SOURCE: IVUZ. Geodeziya i aerofotos"yemka, no. 4, 1966, 101-104

TOPIC TAGS: aerial photography, color photography, photographic film

ABSTRACT: A wide selection of photographic materials available for photographing in any specified narrow band of the spectrum is discussed. Data on reflectivity of different bands of light from different landscapes were fed into the *Promin'* computer. Because of the small memory capacity of this computer, the job had to be completed in two stages of expansions in terms of the Chebyshev polynomials. After corrections were introduced for possible errors, the computer read the recommended light band for the given landscape. In the case of color photography, the computations had to be carried out separately for each color-sensitive layer. Orig. art. has: 11 formulas.

SUB CODE: 14/ SUBM DATE: 27Apr65/ ORIG REF: 004

UDC: 528. 7 + 681. 14. 142

Card 1/1

AID P - 5387

Subject : USSR/Engineering
Card 1/1 Pub. 103 - 17/28
Author : Rasponin, A. F.
Title : Modernization of suspension arm in horizontal milling machines
Periodical : Stan. i instr., 9, 32, S 1956
Abstract : The Ural Heavy Machinery Plant im. Ordzhonikidze (Uralmashzavod) uses an improved mandrel in horizontal milling machines. This device increases the efficiency of the machines, according to the author. One drawing.
Institution : As above
Submitted : No date

RASPONIN, A.F.

Improving the supports of horizontal milling machines. Stan.1
instr. 27 no.9:32 S '56. (MLBA 9:11)
(Milling machines)

YEVDOKIMOV, I.I.; ALEKSEYEV, V.D.; ASHIKHMIN, A.K.; BAYEV, N.V.; BEGLAR'YAN, P.A.; BYCHKOV, I.A.; VESLOVA, Ye.T.; VYZHEKHOVSKAYA, M.F.; GURTSKIY, S.A.; DEMIDOV, I.M.; YESIPOV, Ye.P.; ZHUKOV, V.D.; ZELINSKIY, M.G.; ZOL'NIKOV, F.T.; ZOLOTOVA, L.I.; KIVIN, A.N.; KOMARNITSKIY, Yu.A.; KONSTANTINOV, A.N.; KUL'CHITSKAYA, A.K.; MAKSIMENKO, I.I.; MELENT'YEV, A.A.; MOROZOV, I.G.; MURZINOV, M.I.; OZEMBLOVSKIY, Ch.S.; OSTRYAKOV, K.I.; PANINA, A.A.; PAVLOVSKIY, V.V.; PERMINOV, A.S.; PERSHIN, B.F.; PRONIN, S.F.; PSHENNYI, A.I.; POKROVSKIY, M.I.; RASPONOMAREV, Ye.A.; SEMIN, I.N.; SKLYAROV, Yu.N.; TIBABSHEV, A.I.; FARBEROV, Ya.D.; FEDOROV, G.P.; SHUL'GIN, Ya.S.; YAKIMOV, I.A.; VERINA, G.P., tekhn.red.

[Labor feats of railway workers; stories about the innovators]
Trudovye podvigi zheleznodorozhnikov; rasskazy o novatorakh. Moskva,
Gos.transp.zhel-dor.izd-vo, 1959. 267 p. (MIRA 12:9)
(Railroads) (Socialist competition)

14(6)

SOV/112-59-1-454

Translation from: Referativnyy zhurnal. Elektrotehnika, 1959, Nr 1, p 61 (USSR)

AUTHOR: Raspopin, G. A.

TITLE: Allowing for the Virtual-Viscosity Variation in Calculating Rough-Surface Channel Beds

PERIODICAL: Izv. Sibirsk. otd. AS USSR, 1958, Nr 1, pp 108-116

ABSTRACT: Bibliographic entry.

Card 1/1

RASPOPIN, G.A.

Allowing for changes in virtual viscosity when making calculations
for channels of increased roughness. Izv. Sib. otd. AN SSSR no.1:
108-116 '58. (MIRA 11:8)

1. Novosibirskiy inzhenerno-stroitel'nyy institut im. V.V. Kuybysheva.
(Hydrodynamics)

NICHKOV, I.F.; RASPOPIN, S.P.; TSARENKO, A.F.

Uranium displacement by zinc from chloride melts. Atom. energ. 15
no.4:336-337 O '63. (MIRA 16:10)

S/137/62/000/011/007/045
A052/A101

AUTHORS: Nichkov, I. F., Raspopin, S. P., Devyatkin, V. I.

TITLE: Cathode deposition of Zr from molten U-containing haloids

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 11, 1962, 15, abstract 11G105 ("Tr. Ural'skogo politekhn. in-ta", no. 121, 1962, 18 - 23)

TEXT: Cathode polarization of Mo-cathode in molten haloids containing U and Zr was studied. The experiments were carried out in hard glass electrolyzers at 600 - 700°C with catholyte and anolyte separated by an asbestos diaphragm. It was found that at an electrolysis with low D_c (0.1 a/cm²) Zr was deposited first. Catholyte was a molten equimolar mixture of Na and K chlorides or a eutectic mixture KCl-LiCl to which a certain amount of UF₄ and K₂ZrF₆ was added. There are 12 references. ✓

G. Svodtseva

[Abstracter's note: Complete translation]

Card 1/1

NICEKOV, I.F.; RASPOPIN, S.P.; BAZHKOV, Yu.V.

Polarization of a liquid bismuth cathode in chloride melts. Zhur.
prikl.khim. 34 no.7:1533-1536 J1 '61. (MIRA 14:7)
(Bismuth) (Polarization (Electricity)) (Chlorides)

S/020/61/141/005/011/018
B103/B110

AUTHORS: Nichkov, I. F., Ryzhik, O. A., and Raspopin, S. P.

TITLE: Interaction of bismuth chloride and chlorides of the alkali metals

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 141, no. 5, 1961, 1113-1116

TEXT: The nature of the interaction of BiCl_3 with KCl and NaCl was determined between 700 and 850°C. The equilibrium potentials of metallic bismuth were measured for this purpose in electrolytes of different BiCl_3 contents in quartz test tube (Fig.). Electrolytically purified Bi was added after complete fusion of the equimolar chloride mixture. BiCl_3 was produced in the electrolyte by anodic dissolution of a part of the Bi contained in the crucible. A molybdenum electrode was placed in the electrolyte contained in the quartz test tube such that the crucible served as diaphragm separating anolyte and catholyte. The test tube was evacuated and filled with purified helium. The Bi potentials were measured related to the chlorine reference electrode by a highly resistant ППТБ-1 (PPTV-1) potentiometer, a galvanometer having a sensitivity of

Card 1/5

S/020/61/141/005/011/018
B103/B110

Interaction of bismuth chloride ...

10^{-9} a per scale division was used as null detector. The melt was heated by an autotransformer and its temperature was kept constant by the two measuring instruments. A decrease of the emf-values between the Bi and the Cl electrode was found with decreasing temperature; these values were measured at different temperatures in melts containing 1.13 (1), 3.05 (2), and 12.06 (3) % by weight of Bi. The points experimentally found fall satisfactorily on the straight lines satisfying the following empirical

equations: $E_1 = 1.446 - 2.95 \cdot 10^{-4} T$ v; $E_2 = 1.412 - 2.90 \cdot 10^{-4} T$ v;

$E_3 = 1.378 - 3.00 \cdot 10^{-4} T$ v. The measured values included besides the

electrochemical potential difference desired the thermo-emf between molybdenum and carbon conductors with reversed sign. Its temperature dependence is: $E_T = 0.008 - 0.17 \cdot 10^{-4} T$ v. If the thermo-emf between the

graphite bar of the Cl electrode and the Mo conductor to Bi is considered, the Bi equilibrium potentials related to the Cl reference electrode are identical. It is concluded from the values measured that the equilibrium potential of metallic Bi related to the Cl reference electrode is expressed by the thermodynamic Nernst equation. This means that the liquid Bi electrode is reversible as to the Bi^{3+} ions in chloride melts. These

S/O20/61/141/005/011/015
B103/B110

Interaction of bismuth chloride ...

behave as ideal solutions in the BiCl_3 concentration range investigated.

On the assumption that this ideal behavior continues in the entire BiCl_3 concentration range up to pure melted BiCl_3 , the emf of the cell

$\text{Bi}|\text{BiCl}_3(\text{melt})|\text{Cl}_2, \text{C}$ should be $E_e = 1.338 - 3.376 \cdot 10^{-4} T$ v, calculated on the basis of the authors' experimental data. The temperature dependence of the emf of such a cell is (calculated on the basis of Ref. 9, see below):

$E_T = 1.254 - 5.750 \cdot 10^{-4} T$ v. The difference $E_e - E_T = 0.084 - 2.374 \cdot 10^{-4} T$ v

is mainly due to the fact that the melts cease to be ideal solutions at high BiCl_3 concentrations. This means that changes in concentration are

accompanied by a regrouping of the Bi ions; the nature of this regrouping is determined by $E_e - E_T$. It corresponds to the change of the isobaric

potential on transition from pure melted BiCl_3 to its dilute solutions which behave as ideal solutions: $\Delta Z_{\text{mix}} = -3F(E_e - E_T) = (-5811 - 16.42T) \text{ cal/mole}$

It is evident that the mixing of the salts entails an interaction in which heat ($\Delta H_{\text{mix}} = 5.81 \text{ kcal}$) is evolved and the entropy ($\Delta S = 16.42 \text{ cal/deg}\cdot\text{mole}$)

Card 3/5

Interaction of bismuth chloride ...

S/O20/61/141/005/C:1/018
B103/B110

increases. Thus, it is proved that the bonds between the Bi^{3+} ions and the chloride anions become stronger and that complex groups of the anion type are formed. The short-range order of the ions in the melt is altered by the Bi^{3+} ions. The remaining Bi^{3+} ions bind the Cl ions stronger than this is done by the ions of the alkali metals. Probably for this reason, Bi is found in dilute solutions mainly in the form of anion complexes of the $\text{BiCl}_n^{(n-3)-}$, where $n > 3$. With regard to the change of the isobaric potential, known in itself (Ref. 9, see below), it is stated that this value can equally be calculated from ΔZ_{mix} by extrapolation to the temperature 298°K , whereby the latent heat (2.6 kcal/mole) and the melting entropy (5.2 cal/deg·mole) have to be considered. $\Delta Z\text{BiCl}_4$ was found to be

-6.56 kcal/mole. It is concluded that Bi is contained in form of anion complex groups in the melts mentioned: BiCl_4^- . There are 3 figures and 11 references: 8 Soviet and 3 non-Soviet. The three references to English language publications read as follows: Ref. 9: W. Hamer, M. Maltberg, B. Rubin, J. Electrochem. Soc. 103, 8 (1956); Ref. 10: Noies, Holl, Vitti, J. Am. Chem. Soc., 22, 2526 (1917); V. Latimer, Okislitel'noye sostoyaniye
Card 4/5

Interaction of bismuth chloride ...

S/020/61/141/005/011/018
B103/B110

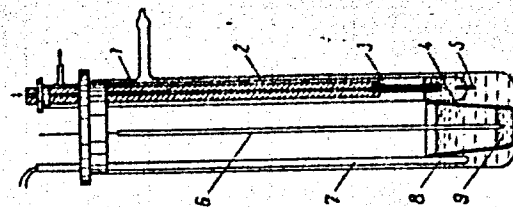
elementov i ikh potentsialy v vodnykh rastvorakh (Oxidative state of elements and their potentials in aqueous solutions), IL, 1954.

ASSOCIATION: Ural'skiy politekhnicheskiy institut im. S. M. Kirova (Ural Polytechnic Institute imeni S. M. Kirov)

PRESENTED: July 14, 1961, by V. I. Spitsyn, Academician

SUBMITTED: July 10, 1961

Fig.



Card 5/5

NICHKOV, I.F.; RASPOPIN, S.P.

Electromotive force of thermocouples consisting of nickel graphite,
tungsten, and molybdenum at the temperatures from 400 to 1100° C.
Trudy Ural.politekh.inst.no.121:104-105 '62.

(MIRA 16:5)

(Thermocouples)

(Electromotive force)

40825

S/631/61/000/002/007/013

1003/1203

21.4100

AUTHORS: Raspopin, S. P., Nichkov, I. F., and Smirnov, M. V

TITLE: The electrolysis of fused chlorides of alkali metals with anodes made of a pressed mixture of uranium dioxide and carbon

SOURCE: Akademiya nauk SSSR. Ural'skiy filial. Institut elektrokhemii. Trudy, no. 2, 1961, Elektrokhemiya rasplavlennykh solevykh i tverdykh elektrolitov. 85-90

TEXT: Similar investigation had been carried out by other Soviet investigators using the same electrodes or ones made of pressed pure uranium dioxide. The electrolytic dissolution of the above anodes in an equimolar fused mixture of sodium and potassium chlorides was carried out at 680°C and current densities up to 1 amp/cm². The current efficiency at a current density of 0.5 amp/cm² is almost 100 %, but decreases with decreasing current densities. This is apparently due to the formation of an insoluble uranium oxychloride rather than of quadrivalent ions, as was believed earlier. The chief product of the anodic dissolution of uranium in the fused salt is UCl₄. The amount of uranium dissolved varies from 0.025/g/amp.hr at $i_a = 0.0015$ amp/cm² to 2.4 g/a.hr at $i_a = 1$ amp/cm². The amount of slime in the electrolyte increases with the carbon content of the anode and with current density. The preparation of electrodes is discussed in detail. There are 5 tables.

Card 1/1

DUBININ, V.A.; NICHKOV, I.F.; RASPOPIN, S.P.

Anodic dissolution of zinc in alkali metal chloride melts.

Izv. vys. ucheb. zav.; tsvet. met. 8 no.4:58-61 '65.

(MIRA 18:9)

1. Fiziko-tekhnicheskii fakul'tet Ural'skogo politekhnicheskogo instituta.

40826

21.4100

S/631/61/000/002/008/013
1003/1203

AUTHORS: Nichkov, I. F., Raspopin, S. P., and Smirnov, M. V.

TITLE: The polarization of carbon-dioxide uranium anodes in melts of alkali metals chlorides

SOURCE: Akademiya nauk SSSR. Ural'skiy filial. Institut elektrokhimii. Trudy, no. 2, 1961. Elektro-khimiya rasplavlennykh solevykh i tverdykh elektrolitov. 91-95

TEXT: This work was undertaken to determine the highest current density at which UOCl_2 forms and to find the products of the anodic dissolution of carbon dioxide uranium anodes at higher current densities. The polarization of these anodes in an equimolar mixture of fused sodium and potassium chlorides at current densities from 10^{-4} to 10 a/cm^2 was investigated at 700 and 800°C. The electrolytic processes change with increasing current density in the following order: 1) formation of UOCl_2 ; 2) dissolution of uranium oxychloride and uranium dioxide or their chlorination, resulting in the passage of U^{4+} ions into the solution; 3) dissolution of uranium dioxide and the passage of UO_2^{2+} ions into the solution without the participation of carbon, and finally; 4) the evolution of gaseous chlorine. There is 1 figure.

Card 1/1

S/149/61/000/002/006/017
A006/A001

AUTHORS: Nishkov, I.F., Dmitriyev, V.Ye., Raspopin, S.P.

TITLE: Anodic Dissolving of Bismuth Alloys With Thorium and Lead in Molten Chloric Salts

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Tsvetnaya metallurgiya, 1961, No. 2, pp. 81 - 87

TEXT: To complete information on the anodic behavior of pure lead and bismuth in molten chlorides of alkali metals, needed for a correct analysis of data on the anodic behavior of Bi-Th-Pb alloys, the authors present results from investigations on the anodic polarization of bismuth, lead and bismuth, alloyed with thorium and lead. The electrolyte was prepared using pure LiCl, NaCl, KCl. The equimolar NaCl-KCl mixture and the eutectic KCl-LiCl mixture were blast cleaned after melting with dry hydrogen chloride and subsequently degassed in a vacuum. The melts obtained were cooled, analyzed as to their bismuth content, and used to prepare electrolytes with the necessary BiCl₃ content. Purification of bismuth metal was carried out by chlorination under an electrolyte layer for 2 hours with dry hydrogen chloride. To eliminate electro-negative impurities the metal was sub-
Card 1/8

S/149/61/000/002/006/017
A006/A001

Anodic Dissolving of Bismuth Alloys With Thorium and Lead in Molten Chloride Salts

jected to anodic dissolving for 3 hours at a current density of 0.05 amp/cm^2 . To obtain bismuth alloy with thorium the grit of these metals was pressed into small bars which were alloyed in an alundum crucible in pure argon atmosphere at $1,300^\circ\text{C}$. This method was used to obtain bismuth alloys with 2.5 weight % thorium and ternary alloys on bismuth base containing 2.5% Th + 1.0% Pb and 2.5 % Th + 5.0% Pb. Polarization of anodes was measured in a closed refractory glass cell (Fig. 1). The cell was placed in a protective container in a furnace with an automatic thermostat maintaining a constant temperature of $700 \pm 5^\circ\text{C}$. The alloy investigated was placed in one of the branches of the cell after melting of the electrolyte. A molybdenum wire protected by a porcelain tube was employed as power connection. A bismuth cathode was placed in another branch of the cell. The anode potential was measured in relation to the comparison lead electrode at the moment of polarization current break, with the aid of a loop oscillograph. The vibrator indices were recorded on a photographic film. The readings were taken with a MIP -12 (MIR-12) microscope. The results of measurement given in a series of graphs, show that a considerable difference exists between the anode potentials when dissolving bismuth and lead, and also thorium contained in the alloy. The different electro-

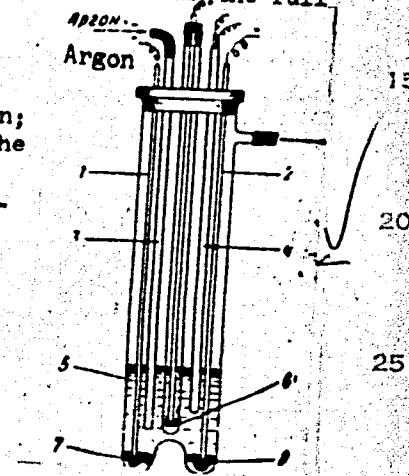
Card 2/8

S/149/61/000/002/006/017
A006/A001

Anodic Dissolving of Bismuth Alloys With Thorium and Lead in Molten Chloride Salts
chemical behavior of Th, Pb and Bi during the process of anodic dissolving in molten chloric salts can be used for the selective separation of Th and Pb from alloys with bismuth. A table shows the time of electrolysis required for the full elimination of lead and thorium from the alloys.

Figure 1:

Schematic drawing of the cell; 1 - cathode power connection; 2 - anode power connection; 3 - tube for blowing through the electrolyte; 4 - thermocouple; 5 - electrolyte; 6 - comparison lead electrode; 7 - bismuth cathode; 8 - anode investigated.



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S/149/51/000/002/006/017
A006/A001

Anodic Dissolving of Bismuth Alloys With Thorium and Lead in Molten Chloric Salts

Figure 3:K

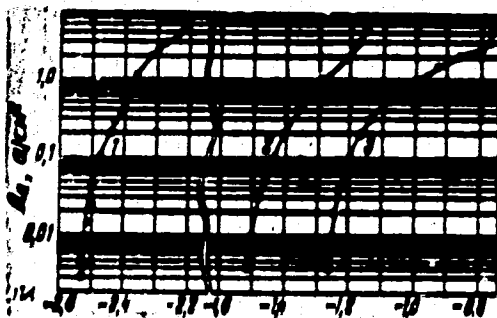
Polarisation of a lead anode. Composition of electrolyte; 1 - KCl-NaCl; 2 - KCl-LiCl; 3 - KCl-LiCl + 1 weight % PbCl₂; 4 - KCl-LiCl + 10 weight % PbCl₂.



Card 5/6

Figure 4:K

Polarisation of anodes in KCl-NaCl electrolyte; 1 - thorium anode at 720°C; 2 - lead anode at 700°C; 3 - bismuth anode at 700°C.



S/149/51/000/002/006/017
A006/A001

An. 1e Dissolving of Bismuth Alloys With Thorium and Lead in Molten Chloride Salts

Figure 5, *

Anode polarisation of Bi+2.5 weight % Th alloy in KCl-NaCl (1) and KCl-LiCl (2) melts.

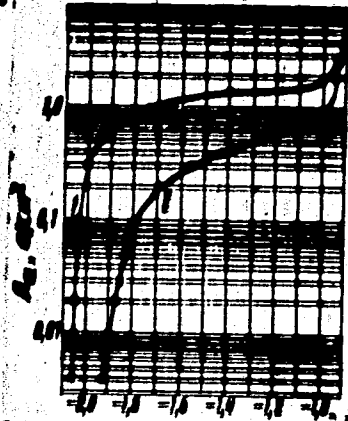
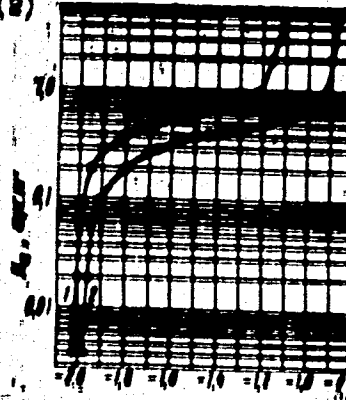


Figure 6, *

Anode polarisation of Bi+2.5 weight % Th+5 weight % Pb alloys in KCl-NaCl electrolyte (1) and of Bi+2.5 weight % Th + 1 weight % Pb alloy in KCl-LiCl electrolyte (2)



Card 6/6 * Potential in relation to chlorine electrode

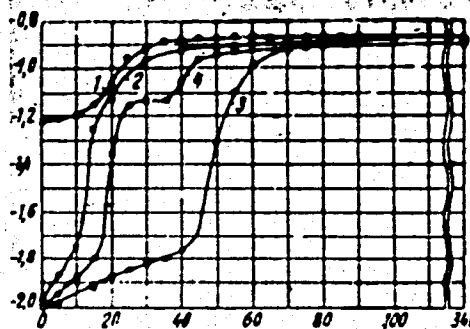
S/149/61/000/002/006/017
A006/A001

Anodic Dissolving of Bismuth Alloys With Thorium and Lead in Molten Chlorine Salts

Figure 7:

Anode polarization in KCl-LiCl electrolyte of alloys: 1 - Bi+5 weight % Pb at $i = 0.2 \text{ amp/cm}^2$; 2 - Bi+2.5 weight % Th at $i = 0.1 \text{ amp/cm}^2$; 3 - Bi+2.5 weight % Th at $i = 0.04 \text{ amp/cm}^2$; 4 - Bi+2.5 weight % Th + 1.0 weight % Pb at $i = 0.04 \text{ amp/cm}^2$.

Anode potential in relation to chlorine electrode



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S/149/61/000/002/006/017
A006/A001

Anodic Dissolving of Bismuth Alloys With Thorium and Lead in Molten Chlorine Salts

Table: Time required for the dissolving of alloy components

| Сплав Alloy | | | | Количество электричества, необходимого для раста- вления, а-ч | | Сила тока, а | Время, необходи- мое для раство- рения, мин. | |
|------------------------------------|------------|-------|-------|---|-------|--------------|--|----|
| Состав Composition | Weight, g | | | Pb | Th | | Pb | Th |
| | общ. total | Pb | Th | | | | | |
| Bi + 5 sec. % Pb | 3.7 | 0.185 | — | 0.048 | — | 0.10 | 29 | — |
| Bi + 2.5 sec. % Th | 4.0 | — | 0.100 | — | — | 0.05 | — | 28 |
| Bi + 2.5 sec. % Th | 7.7 | — | 0.192 | — | 0.023 | 0.05 | — | 53 |
| Bi + 1.0 sec. % Pb + 2.5 sec. % Th | 4.0 | 0.040 | 0.100 | 0.010 | 0.023 | 0.05 | 13 | 28 |

- a) Amount of current required for dissolving, amp/hr
- b) Current intensity, amp
- c) Time required for dissolving, min.

There are 7 figures, 1 table and 15 references: 14 Soviet and 1 non-Soviet.

ASSOCIATION: Ural'skiy politekhnicheskii institut (Ural Polytechnic Institute)

SUBMITTED: June 6, 1960

Card 8/8

5. 4700
5. 2200(A)

67945

~~5(4)~~
AUTHORS:

Smirnov, M. V., Nichkov, I. F.,
Raspopin, S. P., Perfil'yev, M. V.

S/020/60/130/03/027/065
B004/E011

TITLE:

Investigation of the Thermodynamics of the Reaction
 $UO_2(s) + \frac{1}{2}C(Gr) + Cl_2(g) = UOCl_2(s) + \frac{1}{2}CO_2(g)$ by Means of the
Method of Electromotive Forces

PERIODICAL:

Doklady Akademii nauk SSSR, 1960, Vol 130, Nr 3, pp 561-564
(USSR)

ABSTRACT:

It had been stated in earlier papers (Refs 1-3) that electrodes pressed from metal oxides and carbon are reversible with respect to the corresponding cation in chloride melts. This allows their utilization for investigating the thermodynamic processes and some reactions by measuring the emf. The authors had found in reference 1 that $ThOCl_2$ in melts of chlorides or chlorides and fluorides are practically insoluble. They accepted this for $UOCl_2$ as well and investigated the reaction between uranium dioxide carbon electrodes and melts of alkali chlorides containing UCl_4 . By measuring the temperature de-

Card 1/4

67945

Investigation of the Thermodynamics of the

S/020/60/130/03/027/065

Reaction $\text{UO}_2(\text{s}) + \frac{1}{2}\text{C}(\text{gr}) + \text{Cl}_2(\text{g}) =$

B004/B011

 $\text{UOCl}_2(\text{s}) + \frac{1}{2}\text{CO}_2(\text{g})$ by Means of the Method of Electromotive Forces

pendence of the emf in elements of type $\text{UO}_2 + \text{C} + \text{UOCl}_2 \mid$
 melt $\text{NaCl} + \text{KCl} + \text{UCl}_4 \mid \text{Cl}_2, \text{C}$, the change ΔZ of the isobaric
 potential of the reaction mentioned in the title was determined.
 The production of the uranium dioxide and carbon electrodes
 pressed with 4000 kp/cm^2 is described. The molar ratio
 $\text{UO}_2 : \text{C}$ was varied between 1:1.6 and 1:200. The electrolyte
 was either a eutectic mixture of $\text{LiCl} + \text{KCl}$ or an equimolar
 mixture of $\text{NaCl} + \text{KCl}$. The UCl_4 dissolved in this melt was
 purified by a repeated distillation in vacuum. A lead standard
 electrode was used. The electrolytic cell (Fig 1) was situated
 in a metal block which was heated by an automatically con-
 trolled electrical resistor furnace. The emf ξ between the di-
 oxide-C electrode and the lead electrode was measured until a
 constant equilibrium value appeared. This depended solely on
 the temperature, at which the experiment was made; however, it

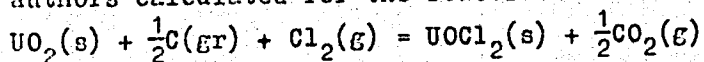
Card 2/4

67945

Investigation of the Thermodynamics of the

S/020/60/130/03/027/065
B004/B011Reaction $\text{UO}_2(\text{s}) + \frac{1}{2}\text{C}(\text{gr}) + \text{Cl}_2(\text{g}) =$ $\text{UOCl}_2(\text{s}) + \frac{1}{2}\text{CO}_2(\text{g})$ by Means of the Method of Electromotive Forces

occurred the earlier, the higher the temperature and the UCl_4 content in the melt (Fig 2). With high UCl_4 content in the melt, the electrode is destroyed. The appearance of the equilibrium potential corresponds to the reaction $\text{UO}_2(\text{s}) + \text{UCl}_4(\text{melt}) \rightleftharpoons 2\text{UOCl}_2(\text{s})$. Experimental data are on the straight line $\mathcal{E} = (0.713 + 4.6 \cdot 10^{-4}T)v$ (Fig 3). Herefrom, the authors calculated for the reaction



$\Delta Z = (-32900 - 2.2T)$ cal/mol UOCl_2 , and the heat effect

$\Delta H = -32.9$ kcal/mol UOCl_2 as well as the entropy

$\Delta S = 2.2$ cal/degree.mol UOCl_2 . The formation heat and the

entropy of the UOCl_2 were calculated on the strength of the

thermodynamic data offered in reference 9: $\Delta H_{\text{UOCl}_2}^{\circ} =$

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$= -255.9$ kcal/mol, $S_{\text{UOCl}_2}^{\circ} = 49.2$ cal/degree.mol . The ✓

67945

Investigation of the Thermodynamics of the
Reaction $UO_2(s) + \frac{1}{2}C(gr) + Cl_2(g) =$
 $UOCl_2(s) + \frac{1}{2}CO_2(g)$ by Means of the Method of Electromotive Forces

S/020/60/130/03/027/065
B004/B011

value for the formation heat is in good agreement with the data of reference 7, whereas entropy differs considerably. This could be explained by a different structure of the $UOCl_2$ forming under the authors' experimental conditions. There are 3 figures and 9 Soviet references.

ASSOCIATION: Institut elektrokhemii Ural'skogo filiala Akademii nauk SSSR
(Institute of Electrochemistry of the Ural Branch of the
Academy of Sciences, USSR)

PRESENTED: September 19, 1959 by V. I. Spitsyn, Academician

SUBMITTED: September 18, 1959

Card 4/4

NICHKOV, I.F.; RASPOPIN, S.P.; GOLUBEV, V.I.

Anodic solution of tantalum in chloride melts. *Izv. vys. ucheb.
zav.; tsvet. met.* 5 no.4:132-136 '62. (MIRA 16:5)

1. Ural'skiy politekhnicheskiy institut.
(Tantalum—Electrometallurgy)

NICHKOV, I.F.; RASPOPIN, S.P.; TSARENKO, A.F.

State of zinc in fused chlorides. *Izv. vys. ucheb. zap.; tsvet. met.*
5 no.5:89-92 '62. (MIRA 15:10₀)

1. Ural'skiy politekhnicheskiy institut. (Fused salts)
(Zinc--Electric properties)

NICHKOV, I.P.; RASPOPIN, S.P.; TSAKENKO, A.F.

State of zinc in fused chlorides. Izv. vys. ucheb. zav.; tsvet. met.
5 no.5:89-92 '62. (MIRA 15:10)

1. Ural'skiy politekhnicheskiy institut.
(Zinc—Electric properties) (Fused salts)

S/081/63/000/003/003/036
B144/B186

AUTHORS: Nichkov, I. F., Raspopin, S. P., Devyatkin, V. I.

TITLE: Cathodic deposition of zirconium from molten halide salts containing uranium

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 3, 1963, 86, abstract 3B600 (Tr. Ural'skogo politekhn. in-ta, in coll. 121, 1962, 18-23)

TEXT: The cathodic process was studied in the electrolysis of an equimolar KCl - LiCl mixture containing up to 8% by weight of $ZrCl_4$. The tests were conducted at 600 - 700°C in electrolytic cells of refractory glass, using an Mo cathode. The potential φ of the cathode was measured with respect to the Pb reference electrode, the catholyte and the anolyte being separated by an asbestos membrane. With current densities

$i \leq 10^{-2} \text{ a/cm}^2$, no significant polarization is observed, but with higher i densities a polarization becomes evident which increases with decreasing Zr content in the electrolyte and has concentration character. With φ

Card 1/2

Cathodic deposition of zirconium ... S/081/63/000/003/003/036
B144/B186

at 3.2 - 3.3 v, the alkali metal is deposited on the cathode. In the electrolysis of $KCl - LiCl - UF_4 - K_2ZrF_6$ melts, first of all Zr is deposited, and then U. [Abstracter's note: Complete translation.]

Card 2/2

NICHKOV, I.F.; RASPOPIN, S.P.; KAZANTSEV, G.N.; ILIENOV, V.A.

Equipment for the automatic measurement of electrode polarization during the electrolysis of fused halides. Izv. vys. ucheb. zav.; tsvet. met. 7 no.6:136-139 '64. (MIRA 18:3)

1. Ural'skiy politekhnicheskiy institut.

KREYDENKOV, G.P.; RASPOVIN, V.A.

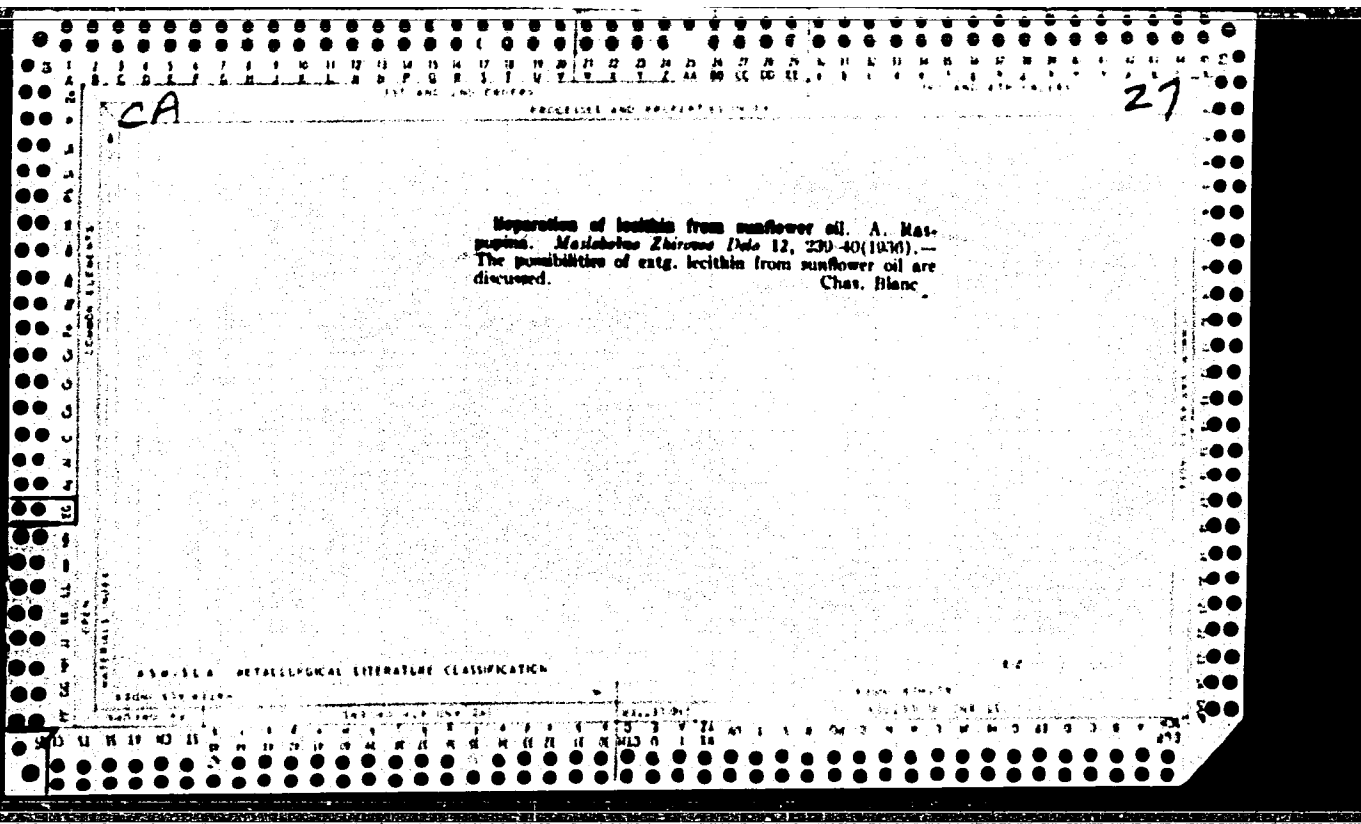
Paleogene of the northern slopes of the Gissar Range. Dokl. AN USSR 152
no. 2:355-358 S '64. (MIRA 17:10)

1. Yuzhno-Tadzhikskaya geologorazvedochnaya ekspeditsiya. Predstavleno
akademikom A.I. Yanshinym.

DECTYAREV, V.S.; RASPOPIN, V.T.; DENISOV, S.I.; FIGAREV, A.D.; TSEYDLER, A.A.

Ways of improving the smelting of nonferrous metal ores. TSvet.
met. 36 no.6:21-29 Je '63. (MIRA 16:7)

(Nonferrous metals--Metallurgy)



RASPONOMAREVA, V. A., Cand Med Sc¹ -- (diss) "Permeability of
Blood Capillaries in Patients with Hypertonic Disease." Alma-Ata,
1957. 17 pp (Kazakh State Med Inst, Chkalov State Med Inst),
300 copies (KL, 51-57, 94)

RASPNOMAREVA, V. A.

USSR/Pharmacology. Toxicology. Narcotic Drugs.

U-1

Abs Jour : Ref Zhur-Biol., No 7, 1958, 32793.

Author : Rasponomareva V. A.

Inst : Not given.

Title : Effect of Bromine and Luminal on the Permeability of the Blood-Carrying Capillaries in Patients Suffering from Hypertonia.

Orig Pub : Tr. Chkalovskove med. in-ta, 1956, vyp. 5, 390-396

Abstract : Small doses of luminal (0.015 g 3 times a day) and bromides administered to patients with hypertonia reduced the permeability of the capillaries to normal. Large doses of luminal (0.15g 3 times a day) and medinal without bromides (0.59 3 times a day) raised the permeability of the blood-carrying capillaries, but in combination with bromides lowered it. In patients with a rapidly progressing

Card 1/2

RASPONOMAREVA, V. A.

USSR/Human and Animal Physiology - Blood Circulation.
Vessels.

T-6

Abs Jour : Ref Zhur - Biol., No 10, 1958, 46080

Author : Rasponomareva, V.A.

Inst : Chkalov Institute of Medicine.

Title : The Permeability of Blood Capillaries in Patients with Hypertonic Diseases.

Orig Pub : Tr. Chkalovskogo med. in-ta, 1956, vyp. 5, 382-389

Abstract : Capillary permeability (CP) was studied in 16 healthy persons and in 103 patients with hypertonic diseases (HD), who were mostly under 50 years of age, with the Lendis method. The greatest CP disturbances were observed in malignant HD cases. If HD progressed slowly, highest degree of CP was noted for the patients of the IIB stage (it was $1\frac{1}{2}$ times higher than for patients of the

Card 1/2

- 58 -

AYMUKHAMEDOVA, Mariya (Gul'sum) Buranovna; RUKAVISHNIKOVA,
Yelizaveta Prokhorovna; BAKASOVA, Z., otv. red.;
RASPONOMAREVA, V.I., red.

[Chemical control of the processes of production of
glutamic acid, betaine, and their derivatives by the ion
exchange method] Khimicheskii kontrol' protsessov poluche-
niia glutaminovoi kisloty, betaina i ikh proizvodnykh io-
noobmennym metodom. Frunze, Izd-vo AN Kirg.SSR, 1963. 57 p.
(MIRA 17:4)

RASPOPIN, G. A., Cand Tech Sci -- (diss) "Systems of Streams in
Channels Having Natural Roughness and Methods for Their Calculation,"
Novosibirsk, 1960, 17 pp, 250 copies (Novosibirsk Construction Engineering
Institute im V. V. Kuybyshev) (KL, 49/60, 127)

RASPOPOV, L.N.; PIROGOV, O.N.; CHIRKOV, N.M.; LISITSYN, D.M.

Mechanical properties of -polyolefins. Part 1: Dependence of the mechanical properties of polypropylene on its molecular weight and fractional composition. Vysokom. soed. 5 no.12:1761-1764 D '63. (MIRA 17:1)

1. Institut khimicheskoy fiziki AN SSSR.

18.3100

TTT
SOV/149-60-1-19/27

AUTHORS: Michkov, I. P., Volkovich, A. V., Raspopin, S. P.

TITLE: Zirconium Deposition on Liquid Zinc Cathode

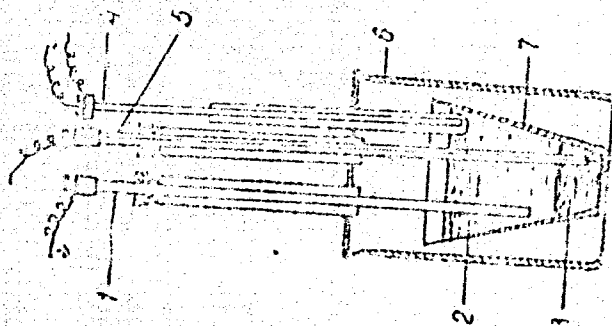
PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Tsvetnaya metallurgiya, 1960, Nr 1, pp 128-132 (USSR)

ABSTRACT: The purpose of this work was to verify an existing opinion that deposition of metals with mp much above that of the fused electrolyte is possible and can produce good results. Potassium fluoro-zirconate (20-30%), KCl, and NaCl constituted the electrolyte. Molten zinc in a proportion 30:70 to electrolyte was used as cathode. It was assumed that a 100% Zr yield with reference to current consumed would be equivalent to 4% Zr content in Zn. Temperature was kept at 720°. The electrolyzer is shown in Fig. 1.

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Zirconium Deposition on Liquid Zinc Cathode

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Caption on Card 3/8

Zirconium Deposition on Liquid Zinc Cathode

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SOV/149-60-1-19/27

Table A. Results of experimental electrolysis. (1) Electric current, a; (2) cathode current density, a/cm²; (3) duration of electrolysis, hr; (4) current quantity a/hr; (5) yield with reference to current, %; (6) Zr content in alloy, %. (A) In closed electrolyzers without stirring; (B) in closed electrolyzers with stirring (60 rpm); (C) in open electrolyzers with stirring (60 rpm).

| (1) | (2) | (3) | (4) | (5) | (6) |
|------|------|------|------|------|------|
| A | | | | | |
| 0.55 | 0.11 | 2.68 | 1.47 | 30.6 | 1.26 |
| 1.37 | 0.23 | 1.07 | 1.47 | 39.6 | 1.63 |
| 2.71 | 0.57 | 0.54 | 1.40 | 47.5 | 1.98 |
| 4.20 | 0.87 | 0.35 | 1.17 | 35.6 | 1.18 |

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Zirconium Deposition on Liquid Zinc Cathode

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SOV/149-60-1-19/27

Polarization of liquid cathode was measured by means of a reference lead cathode and a loop oscillograph. The data are given in Fig. 2.

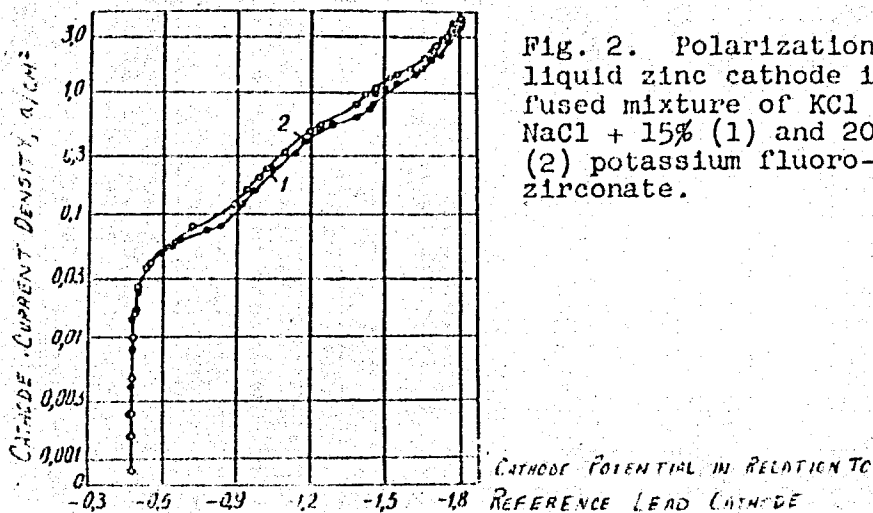


Fig. 2. Polarization of liquid zinc cathode in a fused mixture of KCl and NaCl + 15% (1) and 20% (2) potassium fluoro-zirconate.

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Zirconium Deposition on Liquid Zinc Cathode

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At low current densities a discharge of Zn ions takes place. With increasing current densities Zr deposition in the form of intermetallic compound begins. An accumulation of Zr in the upper layers of the cathode causes considerable polarization. A further increase in current density causes a discharge of Zr^{4+} ions into metallic zirconium. Phase analysis of Zn-Zr alloys. Microphotography of slides disclosed two phases: Zn, hardness 44.9 kg/mm^2 , and light-colored grains, hardness 229.4 kg/mm^2 (considerably higher than that of Zr), which are of an intermetallic compound $ZrZn_{12}$. This was confirmed by radiograms. In their conclusions the authors recommend the following optimal conditions for electrolytic separation of zirconium: temperature 700° , cathode current density 0.6 a/cm^2 with continuous stirring, permitting a 90% current yield for extraction into an alloy. There are 3 figures; 1 table; and 29 references, 26 Soviet,

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Zirconium Deposition on Liquid Zinc Cathode

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2 German, 1 U.K. The U.K. reference is: British
Patent 660 908, 1951 (S.A. 46, 7444 v).

ASSOCIATION: Ural Polytechnic Institute Ural'skiy politekhnicheskiy
institut)

SUBMITTED: June 11, 1959

Card 8/8

NICHKOV, I.F.; SKIBA, O.V.; RASPOVIN, S.P.

Electrolytic dissolving of zirconium oxide-carbon anodes in
chloride melts. Izv. vys. ucheb. zav.; tsvet. met. 3 no. 3:115-
119 '60. (MIRA 14:3)

1. Ural'skiy politekhnicheskiy institut.
(Zirconium Electrometallurgy)
(Chemistry, Metallurgic)

S/080/60/033/009/015 021
A003/A001

AUTHORS: Nichkov, I.F., Raspopin, S.P., Bazhkov, Yu.V.

TITLE: The Interaction of Uranium-Containing Melts of Halide Salts With Bismuth

PERIODICAL: Zhurnal prikladnoy khimii, 1960, Vol. 33, No. 9, pp. 2136-2139

TEXT: ¹ The interaction of bismuth metal with uranium-containing melts of potassium, sodium, lithium and calcium chlorides was investigated. In the experiments recrystallized dehydrated chemically pure salts were used. The experiments were carried out in atmospheres of air and purified argon to ascertain the effect of moisture and oxygen. A sharp decrease of the uranium concentration to a certain very low level was observed in the melt in all cases. The difference of experiments conducted with the air and the argon atmosphere was not considerable. The final concentration did not depend on the initial concentration. The interaction of bismuth with uranium-containing binary systems was studied on 2-g batches of a mixture containing 25 weight % of uranium tetrachloride. The total amount of uranium passed from the melt into a crystalline precipitate of black color on the bismuth surface. The chemical analysis of the

Card 1/2

8/080/60/033/009/015/021
A003/A001

The Interaction of Uranium-Containing Melts of Halide Salts With Bismuth

precipitate has shown that it contains (weight %): uranium 41.6-77.3, bismuth 2.5-8.5, alkali metal 2-16. Roentgen-phase analysis pointed to the formation of a compound. In the case of the interaction of $KCl-UCl_4$ with bismuth probably the compounds $xKCl \cdot yBiCl_3 \cdot zUCl_3$ were obtained. The data of the analyses make it probable that the following reaction takes place: $3U^{4+} + Bi \rightarrow 3U^{3+} + Bi^{3+}$. There are 3 figures, 1 table and 18 references: 15 Soviet, 3 English.

SUBMITTED: March 14, 1960

Card 2/2

NICHKOV, I.F.; DMITRIYEV, V. Ye.; RASPOPIN, S.P.

Anode solution of bismuth alloys with thorium and lead in
fused chlorides. Izv. vys. ucheb. zav.; tsvet. met. 4
no.2:81-87 '61. (MIRA 14:6)

1. Ural'skiy politekhnicheskiy institut.
(Bismuth alloys—Electrometallurgy)

NICHKOV, I.F.; RYZHIK, O.A.; RASPOPIN, S.P.

Reaction of bismuth chloride with alkali metal chlorides.
Dokl. AN SSSR 141 no.5:1113-1116 D '61. (MIRA 14:12)

1. Ural'skiy politekhnicheskiy institut im. S.M. Kirova.
Predstavleno akademikom V.I. Spitsynym.
(Bismuth chloride) (Alkali metal chlorides)

38683

3/149/62/000/003/005/011
A006/A101

AUTHORS: Nichkov, I. F., Ryzhik, O. A., Raspopin, S. P.

TITLE: The effect of thorium on electrode potentials of bismuth in alkali-metal chloride melts

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Tsvetnaya metallurgiya, no. 3, 1962, 113 - 116

TEXT: To investigate the effect of the cation of a strong complex-forming salt upon bismuth behavior in alkali metal chloride melts, equilibrium potentials of bismuth were measured in such melts, containing thorium and bismuth, at various temperatures (950 - 1,100 K). An equimolar mixture of potassium and sodium chlorides with 3.1 weight percent ThCl_4 and 1.7 weight percent BiCl_3 was used as an electrolyte. After melting the mixture was refined by electrolysis. The emf of the cell were measured every 25 - 30 minutes for 6 - 8.5 hours. The electrolyte temperature was maintained within 700 - 850 \pm 5 $^\circ\text{C}$. After the experiment the thorium and bismuth content of the electrolyte were analyzed. For comparison, the temperature dependence of a bismuth electrode without ThCl_4 , determined pre-

Card 1/2

The effect of...

S/149/62/000/003/005/011
A006/A101

viously, is given. It appears that bismuth potentials in a KCl-NaCl-ThCl₄-BiCl₃ melt are by about 80 mv more positive than corresponding values in the same melts without thorium tetrachloride. The introduction of a strong complex-forming agent, such as thorium, affects the interaction of Bi³⁺ and Cl⁻ ions, which becomes weaker. The $\text{BiCl}_2^+ + 2\text{Cl}^- \rightleftharpoons \text{BiCl}_4^-$ equilibrium is shifted to the left. Consequently the Bi potential in such melts becomes more positive. There is 1 figure. ✓

ASSOCIATION: Ural'skiy politekhnicheskiy institut (Ural Polytechnic Institute)

SUBMITTED: December 20, 1961

Card 2/2

S/149/62/000/004/001/003
A006/A101

AUTHORS: Nichkov, I. F., Raspopin, S. P., Golubev, V. I.

TITLE: Anodic dissolving of tantalum in chloride melts

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Tsvetnaya metallurgiya, no. 4,
1962, 132 - 136

TEXT: To replace methods of mechanically removing tantalum coatings by the electrolytical method, anodic dissolving of tantalum in KCl-LiCl melts was investigated at 400 - 700°C (Fig. 1). Corrosion of tantalum metal was determined in the melts, to analyze the results of anodic dissolving. Anodic polarization of tantalum metal was experimentally investigated, to evaluate the sequence of anodic dissolving processes. Results: Tantalum corrosion in the melts investigated is low and increases with elevated temperatures. It changes slightly when fluorides are added to the melt. Highest current efficiency is obtained in a chloride bath with a current density below 0.5 amp/cm². At an increase of anode current density from 0.03 to 1.0 amp/cm² the portion of tantalum ions of higher valence passing into the electrolyte, increases. As a result the anodic current efficiency drops. Results of measuring the anodic potentials show that with a higher anodic current density

Card 1/1

Anodic dissolving of tantalum in chloride melts

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A006/A101

the anodic potential is shifted toward more positive values (figure 2). The addition of alkali metal fluorides to the electrolyte shifts the anode potential to the negative side and stabilizes tantalum dissolving, accompanied by the appearance of ions of higher valence. Polarization curves are shifted to the negative side at increasing temperatures due to the presence of Nb in tantalum metal. There are 2 tables and 3 figures.

ASSOCIATION: Ural'skiy politekhnicheskiy institut (Ural Polytechnic Institute)

SUBMITTED: January 17, 1962



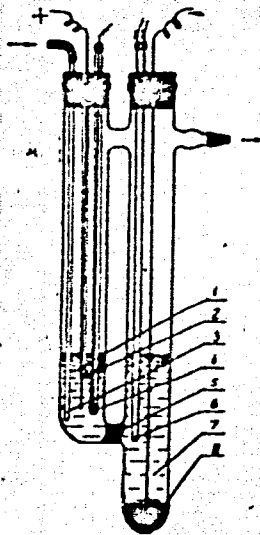
Card 2/4

Anodic dissolving of tantalum in chloride melts

S/149/62/000/004/001/003
A006/A101

Figure 1: Electrolyzer

Legend: 1 - anolyte; 2 - tantalum anode, protected by a porcelain tube; 3 - tube for blowing the electrolyte with dry hydrogen chloride; 4 - lead comparison electrode; 5 - asbestos diaphragm; 6 - thermocouple; 7 - catholyte; 8 - bismuth cathode.

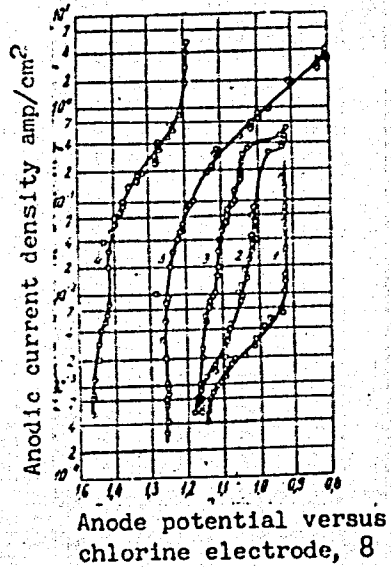


Card 3/4

Anodic dissolving of tantalum in chloride melts

S/129/62/000/004/001/003
AG06/A101

Figure 2: Dependence of the tantalum anode potential upon current density in a KCl-LiCl melt at 1 - 400°C; 2 - 600°C; 3 - 700°C; 4 - 500°C with addition of 5 weight % LiF to the electrolyte; 5 - at 400°C for a columbium anode in a KCl-LiCl melt.



Card 4/4

L 38928-66 EWT(m)/EWP(t)/ETI LJP(c) JD/AG

ACC NR: AP6017654

(N)

SCURCE CODE: UR/0136/66/000/001/0065/0067

AUTHOR: Nichkov, I. F.; Raspopin, S. P.; Babikov, L. G.

53
B

ORG: none

TITLE: Electrodeposition of beryllium from chloride-fluoride melts

SOURCE: Tsvetnyye metally, no. 1, 1966, 65-67

TOPIC TAGS: electrodeposition, beryllium, beryllium compound, fluoride, oxyfluoride

ABSTRACT: Experiments involving dissolution of beryllium oxide in chloride-fluoride melts were carried out in open quartz test tubes at 700-850°C. The amount of dissolved oxide was found to increase with the sodium fluoride concentration; apparently, the oxide reacts with the fluoride ion to form complex oxyfluoride groups. In alkali metal chlorides and sodium fluoride, BeO dissolves in amounts up to 0.5% by weight. Beryllium was electrodeposited from melts containing NaF, BeO, and BeF₂ in various proportions, and beryllium metal was obtained in all cases. Low current efficiencies are attributed to the deposition of the alkali metal at the cathode. The most suitable melt for the electrolysis is one containing an admixture of beryllium oxyfluoride. In such electrolytes, the cathodic current efficiency reached 40% for a relatively high initial current density. The effect of the oxide BeO introduced into the melt on the anodic process was determined. A study of the electrode potentials and

Card 1/2

UDC: 669.725.054.72

L 38928-66

ACC NR: AP6017654

polarization curves indicates that BeO actually dissolves in the melt, thus changing the ionic composition of the electrolyte. Since this solubility is slight, the discharge of chloride ions is achieved in a relatively short time. Orig. art. has: 2 figures and 1 table.

SUB CODE: 07,11/ SUBM DATE: none/ ORIG REF: 004/ OTH REF: 001

Card 2/2

L 3 4849-66 EWT(m)/EWP(t)/ETI LJP(c) ES/JD/WW/JW/JG
ACC NR: AP6017605 (A) SOURCE CODE: UR/0364/66/002/002/0160/0166

57
B

AUTHOR: Lebedev, V. A.; Nichkov, I. F.; Raspopin, S. P.

ORG: Ural Polytechnical Institute imeni S. M. Kirov, Sverdlovsk (Ural'skiy politekhnicheskiy institut)

TITLE: Thermodynamics of molten solutions in the uranium-bismuth system

SOURCE: Elektrokimiya, v. 2, no. 2, 1966, 160-166

TOPIC TAGS: uranium alloy, bismuth alloy, nonferrous liquid metal, galvanic cell, thermodynamic characteristic, solution kinetics, solubility

ABSTRACT: The thermodynamic properties of molten uranium-bismuth solutions are studied by measuring the electromotive force in special galvanic cells with uranium concentrations ranging from 0.0002 to values close to the maximum solubility at temperatures of 498-788°. The composition of the galvanic cells used in the experiments was $U_{sol} | molten\ electrolyte + 5\% UCl_3 | U-Bi_{liq}$. A eutectic mixture of potassium and lithium chlorides was used as the electrolyte up to 698°, and an equimolar mixture of sodium and potassium chlorides was used at higher temperatures. The experiments were done in a helium atmosphere at temperatures held constant within ±1°. It is shown that solutions of uranium in bismuth conform to Henry's law practically up to the limit of solu-

Card 1/2

UDC: 541.13:536.7

L 34849-66

ACC NR: AP6017605

bility for uranium throughout the entire temperature range studied. The effect of temperature on the coefficient of activity for uranium in the alloy with respect to solid uranium is given by the equation $\ln \gamma_0 = 7107 - 3995/T^\circ K$. The thermodynamic characteristics for the formation of liquid alloys from supercooled liquid uranium and liquid bismuth are calculated. It is found that liquid alloys of uranium with bismuth are characterized by extremely strong interaction between the components which decrease somewhat as the temperature is raised. Orig. art. has: 3 figures, 4 tables, 1 formula.

SUB CODE: 11,20/ SUBM DATE: 26May65/ ORIG REF: 005/ OTH REF: .005

Card 2/2 *W*

L 06532-67 EWT(m)/EWP(t)/ETI IJP(c) JD/WW/JG

ACC NR: AF7000474

SOURCE CODE: UR/0089/66/020/004/0346/0346

41
40
B

LEBEDEV, V. A., NICHKOV, N. F., RASPOFIN, S. P. and BUKREYEV, YU. F.

"Determination of Uranium Solubility in Bismuth by the EMF Method"

Moscow, Atomnaya Energiya, Vol 20, No 4, 1966, p 346

Abstract: Results are presented of the study of the solubility of uranium in bismuth in the 400-800°C range by the EMF method. The results obtained are in excellent agreement with those obtained by the high temperature filtration method. The liquidus line can be represented approximately by two straight lines whose equations have the form:

$$\lg C_U(\text{wt } \%) = 2.480 - \frac{2160}{T, \text{ }^\circ\text{K}} \quad (400-480^\circ\text{C});$$

$$\lg C_U(\text{wt } \%) = 3.354 - \frac{2810}{T, \text{ }^\circ\text{K}} \quad (480-800^\circ\text{C}).$$

The break and increased slope of the liquidus line are observed at 480°C. The deviation from experimental values of solubility does not exceed 3%.

Card 1/2

UDC: 541.135

L 06532-67

L 702 1184

ACC NR: AP7000474

The use of different alkaline metal chloride melts as well as their mixtures, as electrolytes permitted the authors to estimate the effect of alkaline metals on solubility. These metals enter the uranium-bismuth alloy from the melt of the salts, forming stable compounds with bismuth. Potassium and sodium increase the solubility of uranium in bismuth. Thus, when the K content in the alloy is 0.054 at. %, an increase of 10% is observed in the uranium solubility. When the K content is increased to 0.5 at. %, solubility is increased by 42%. Approximately the same increase in solubility was observed when 0.11 at. % K and 0.20 at. % Na were present in the alloy.

[JPRS: 37,111]

ORG: none

TOPIC TAGS: solubility, molten metal, uranium alloy, bismuth alloy

SUB CODE: 11, 07 / SUBM DATE: 29Jul65 / OTH REF: 002

Card 2/2. *egh*

RASPOPINA, K.M.

Maternal mortality from cardiovascular diseases. Vop. okh. mat.
i det. 7 no.5:87-90 My '62. (MIRA 15:6)

1. Iz Sverdlovskogo nauchno-issledovatel'skogo instituta
okhrany materinstva i mladenchestva (dir. - kand.med.nauk
R.A. Malysheva, nauchnyy rukovoditel' - doktor meditsinskikh
nauk V.M. Lotis).

(MOTHERS--MORTALITY)
(CARDIOVASCULAR SYSTEM--DISEASES)

