S/136/61/000/006/003/003
E021/E435

Preparation of Plastic ...

Sintering regimes for tantalum

Table.

Temperature Interval °C	Rise in Temperature		Time for temperature rise	
	Moulding 5 x 5 x 120 mm	Moulding 20 x 20 x 600 mm	Moulding 5 x 5 x 120 mm	Moulding 20x20x600 mm
up to 1750	per 100	per 100	1 min	4 min
1750 - 2000	per 75	per 20	1 min	4 min
2000	-	-	hold for 15 min	hold for 60 min
2000 - 2600	per 80	per 25	1 min	4 min
2600	-	-	hold for 4 hours	hold for 4 hours

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Preparation of Plastic ...

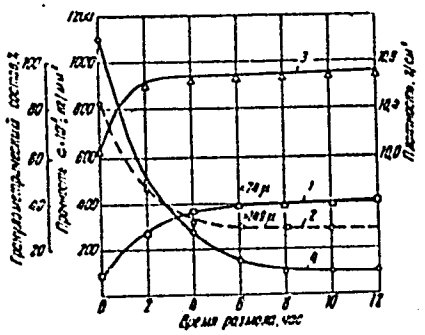

Fig.1.

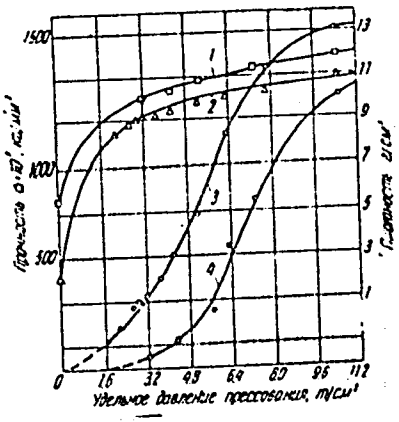

Fig.3.

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S/136/61/000/006/003/003
E021/E435

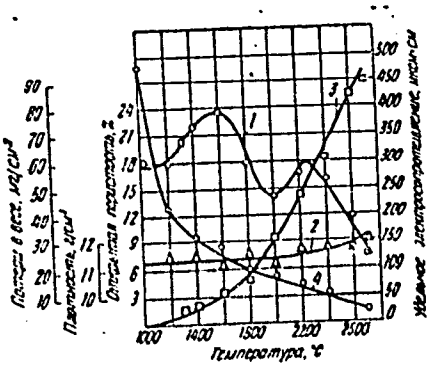

Fig.5.

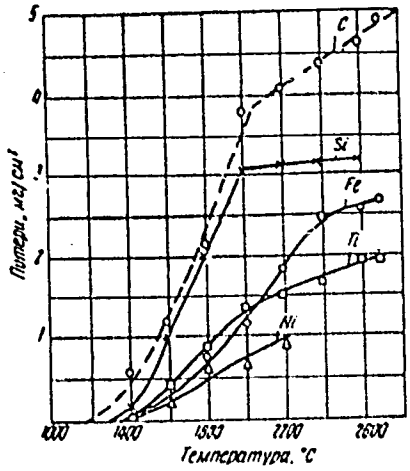

Fig.7.

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Preparation of Plastic ...

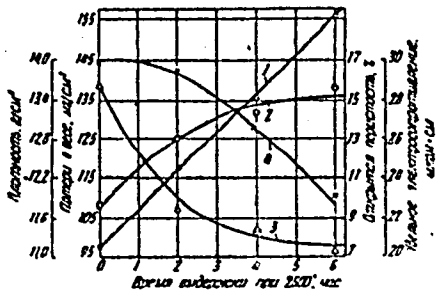

Fig.8.

S/080/61/034/001/009/020
A057/A129

18 3100

AUTHORS: Amosov, V.M., Lanis, V.A.

TITLE: Mass-Spectrometric Investigation of Gas-Evolution Processes During Sintering of Tantalum and Niobium

PERIODICAL: Zhurnal Prikladnoy Khimii, 1961, Vol. 34, No. 1, pp. 84-89

TEXT: In the present work detailed investigations into gas-evolution during vacuum refining of tantalum and niobium were made. Many physical and mechanical properties of these metals are depending on the completeness of gas removal (hydrogen, oxygen, nitrogen) during vacuum refining. Literature data concerning this problem deal generally with investigations of the solid phase, only few qualitative statements are given on compositions of gases evolved during vacuum-sintering of tantalum and niobium [W.O'Driscoll, G. Miller, Ref.10: J.Inst.Metals, 85,8,379-384 (1957), M. Mamula, J. Vacek, Ref.14: Hutnické listy, 11,11,654-660 (1956)]. Thus in the present work more precise studies were made. The experiments were carried out in a laboratory vacuum apparatus providing direct heating of tantalum and niobium-powder compacts

Mass-Spectrometric Investigation of Gas-Evolution Processes During Sintering of Tantalum and Niobium

by electrical current, and containing an arrangement for sampling the gas evolved. The apparatus was evacuated to 10^{-3} torr by a ДРН-10 (DRN-10) mercury pump. The temperature increase during the experiment was 30°C per min for tantalum and 15°C per min for niobium. Concentration of the components in the evolved gas mixture was determined by a МС-2М (MS-2M) mass-spectrometer containing a molecular filling system. Sensitivity was 0.01% and accuracy for 1% of gas component ±1%, while below 1% the accuracy decreased and could be ±30%. The used samples were 5 x 5 x 120 mm moldings. The tantalum powder contained: 97.2% Ta, 0.6% Nb, 0.4% C, 0.23% Si, 0.16% Ti and approximately 0.9% O_2, 0.2% Fe, 0.07% Ni. The obtained results, given in "temperature versus gas evolution" curves (Fig.3) show three maxima at 800-850°C, 1,900°C and 2,550°C. Up to approximately 1,800°C the gases consist of hydrogen and carbon dioxide, while evolution of hydrogen ceased almost entirely at 1,700°C. At 1,900°C the maximum total hydrogen evolution is the result of the reaction between carbides and lower oxides of tantalum and the evolving gases consist almost entirely of carbon dioxide. Above 1,800-2,000°C a

S/080/61/034/001/009/020
A057/A129

Mass-Spectrometric Investigation of Gas-Evolution Processes During Sintering of Tantalum and Niobium

noticeable evolution of nitrogen from dissociation of tantalum nitride occurs which reaches its maximum at 2,400-2,450°C. A second peak of hydrogen evolution occurs at 2,100-2,300°C (apparently in connection with dissociation of the tantalum hydride dissolved in tantalum). The experiments investigating niobium were carried out with samples containing: 91.0% Nb, 2.5% Ta, 1.1% C, 0.6% Fe, 0.3% Ni, 0.17% Ti and approximately 3.8% O_2. X-ray data indicate that Nb_2O_5, NbO_2, and NbO are present. The curve for niobium (Fig.4) shows a pattern similar to the tantalum curve, but the temperature maxima of reduction are lower (650-700°C and 1,760-1,780°C), maximum of the thermal decomposition of niobium nitride is at 2,250°C, the total amount of evolved gases is larger, the gas evolution is completed in a shorter time and at a lower temperature than in the case of tantalum. In connection with this the change in evolved gas quantity during niobium sintering at 2,300°C was investigated (Fig.5). According to the obtained results niobium sintering at 2,300°C should last at least 4 hrs in vacuum, while tantalum compacts require a higher sintering temperature. The authors draw the conclusion that

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A057/A129

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Mass-Spectrometric Investigation of Gas-Evolution Processes During Sintering of Tantalum and Niobium

no evolution of oxygen (as a result of dissociation of the oxides) was observed from the investigated metals. This corresponds to results of M. Inghram, and W. Chupka [Ref.22: J.Chem.Phys., 27,2,569-579 (1957)] and S.A. Shchukarev, G.A. Semenov, K.Ye. Frantseva [Ref.23: ZhNKh, IV,11,2638 (1959)]. There are 5 figures and 23 references: 11 Soviet-bloc and 12 non-Soviet-bloc. The references to the English-language publications read as follows: C. Tottle, J.Inst.Metals, 85,8,375-378 (1957), C. Ang, C. Wert, J.Metals, 5, 8,1032-1036 (1953), E. Engle, Trans.Am.Inst.Min.Met.Eng., 71,691 (1925), G. Miller, Materials and Methods, 45,5,131-135 (1957).

ASSOCIATION: Moskovskiy elektrolampovyy zavod (Moscow Light-Bulb Plant)

SUBMITTED: May 12, 1960

Card 4/7

AMOSOV, V.M.

Obtaining plastic tantalum from electrolytic powders.
TSvet. met. 34 no.6:65-72 Je '61. (MIRA 14:6)

1. Moskovskiy elektrolampovyy zavod.
(Tantalum--Electrometallurgy)

33164
S/136/62/000/002/001/004
E021/E135

1.1600 1521

AUTHOR: Amosov, V.M.

TITLE: Study of the process of sintering of electrolytic niobium powder

PERIODICAL: Tsvetnyye metally, no.2, 1962, 60-65

TEXT: Results are given of study of the processes occurring in the vacuum sintering of metallic noibium powders with higher impurity levels than normal. Table 1 gives the composition (in %) and the particle size distribution (in μ). The powder was pressed at 4.3 t/cm^2 into specimens 5 x 5 x 120 mm and sintered in a laboratory furnace. The temperature was increased at the rate of 15 °C/min and the furnace was maintained at a given temperature for ten minutes; during the sintering operation impurities are also removed at the same time. A sharp fall in electrical resistance was observed at the beginning of sintering up to a temperature of 1600 °C indicating the removal of adsorbed gases. The loss in weight in this interval is insignificant. Up to 1400-1450 °C there is practically no change in density. However, increasing the temperature from 1000 to 1450 °C results in a change from open to

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Study of the process of sintering... S/136/62/000/002/001/004
E021/E135

with a definite ratio of carbon, silicon and titanium with oxygen. The final sintering temperature must be 2300 °C to obtain full refining. After 4 - 5 hours at 2300 °C, the processes of sintering and refining are complete.
There are 6 tables and 8 references: 4 Soviet-bloc and 4 non Soviet-bloc. The English language references read as follows:
Ref.1: W. O'Driscoll, .G. Miller.J.Inst. of Metals, v.85, 8, 379 (1957).
Ref.2: L. Williams, J. Inst. of Metals, v.85, 8, 385 (1957).
Ref.5: W. Klopp, C. Sims, R. Jaffe.
Technology of Columbium (Niobium) 1958, 106.

Card 3/8 5

KONSTANTINOV, V.I.; AMOSOV, V.M.

Production of electrolytic tantalum, niobium, and their alloys.
[Svet.met. 35 no.8:72-76 Ag '62. (MIRA 15:8)
(Tantalum--Electrometallurgy)
(Niobium--Electrometallurgy)

AMOSOV, V.M.

Production of plastic niobium from electrolytic powders. Izv. vys. ucheb. zav.; tsvet. met. 5 no.4:122-131 '62. (MIRA 16:5)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii, kafedra khimii i tekhnologii redkikh i rasseyannykh elementov.
(Niobium--Electrometallurgy)

L 12707-63 EWP(q)/EWT(m)/BDS AFFTC JD/JG
ACCESSION NR: AP3000303 S/0020/63/150/001/0105/0108

55
54

AUTHOR: Plyushchev, V. Ye.; Amosov, V. M.; Varfolomeyev, M. B.

TITLE: The synthesis and several properties of lower crystallohydrates of yttrium, lanthanum and lanthanoid perrhenates

27

SOURCE: AN SSSR. Doklady, v. 150, no. 1, 1963, 105-108

TOPIC TAGS: yttrium, lanthanum, lanthanoid perrhenate, lower crystallohydrate

ABSTRACT: The existence of anhydrous perrhenates has not been previously established. This article reports a method of preparation of anhydrous perrhenates of the rare earth elements by dehydration of their lower crystallohydrates. The obtained perrhenates of yttrium, lanthanum and lanthanoids are soluble in water in considerable proportions and thus the described synthesis can utilize the starting materials more effectively with a product yield of 95%. The synthesized perrhenates contain a minimum amount of water of crystallization. The rare earth perrhenates obtained at 75-80C are non-hygroscopic, fine crystals which readily dissolve in water, alcohol and acetone, and are stable between the temperature interval of 200-550C. Orig. art. has: 1 figure and 1 table.

ASSOCIATION: Moskovskiy institut tonkoy khimicheskoy tekhnologii im. M. V.

Card 1/2/

ACCESSION NR: AP4029533 S/0149/64/000/002/0114/0122

AUTHOR: Amosov, V. M.

TITLE: On the thermochemistry of tantalum and niobium oxyhalides

SOURCE: IVUC. Tsvetnaya metallurgiya, no. 2, 1964, 114-122

TOPIC TAGS: thermochemistry, tantalum, niobium, oxyhalide, heat of formation, entropy

ABSTRACT: There is an insignificant amount of literature on the heats of formation and the entropies of simple oxyhalides of tantalum and niobium. The author estimated the heats of formation for various pentavalent halide and oxyhalide compounds. The results were plotted in graphs. These values lead to the values of heat formation for some tantalum, niobium, and vanadium oxyhalides. The entropy value was also calculated for certain oxyhalides. The author drew the conclusion that the estimate of the basic thermochemical characteristics of pentavalent and niobium oxyhalides have the probable values of: ΔH_{298} (kcal/mole) and S_{298} (entropy unit) = 347 and 25.7 for $TaOF_3$; 282 and 23.2 for TaO_2F; 232 and 26.1 for $TaOCl_3$; 250 and 23.4 for TaO_2Cl; 340 and 24.5 for $NbOF_3$; 266 and 20.7 for NbO_2F; 220 and 25.3 for $NbOCl_3$;

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ACCESSION NR: AP4029533

235 and 21.2 for NbO_2Cl, respectively. The estimated values of the heat of formation of tantalum and niobium oxybromides and oxyiodides are: 204 for $TaOBr_3$; 173 for $TaOI_3$; 191 for $NbOBr_3$; and 159 for $NbOI_3$ (kcal/mole) respectively. Orig. art. has: 4 tables and 7 figures.

ASSOCIATION: Moskovskiy institut tonkoy khimicheskoy tekhnologii (Moscow Institute of Thin Chemical Technology)

SUBMITTED: 17Aug62 DATE ACQ: 30Apr64 ENCL: 00

SUB CODE: ML NO REF SOV: 011 OTHER: 008

Card 2/2

ACCESSION NR: AP4042022 S/0020/64/157/001/0131/0134

AUTHORS: Plyushchev, V. Ye.; Amosov, V. M.

TITLE: High temperature synthesis and some properties of neutral tungstates of yttrium, lanthanum, and lanthanoids

SOURCE: AN SSSR. Doklady*, v. 157, no. 1, 1964, 131-134

TOPIC TAGS: yttrium, lanthanum, lanthanum compound, tungstate, synthesis property

ABSTRACT: The kinetics and condition for formation of neutral tungstates of some rare earth elements synthesized at high temperatures, for which neither the high-temperature synthesis nor the properties have been hitherto described in the literature. The initial composition and the procedure are briefly described. Most of the investigations were aimed at establishing the optimum conditions for the synthesis of these compounds. The properties of the result-

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ACCESSION NR: AP4042022

ant substances are tabulated. Two types of structures, with different x-ray patterns, have been found, with transition from one structure to the other being characterized by a change in some properties of these compounds. A chemical phase analysis has shown that the neutral tungstate of rare earth elements do not decompose up to the melting point. Orig. art. has: 1 figure and 1 table.

ASSOCIATION: Moskovskiy institut tonkoy khimicheskoy tekhnologii im. M. V. Lomonosova (Moscow Institute of Fine Chemical Technology)

SUBMITTED: 17Feb64 ENCL: 03

SUB CODE: GC NR REF SOV: 001 OTHER: 014

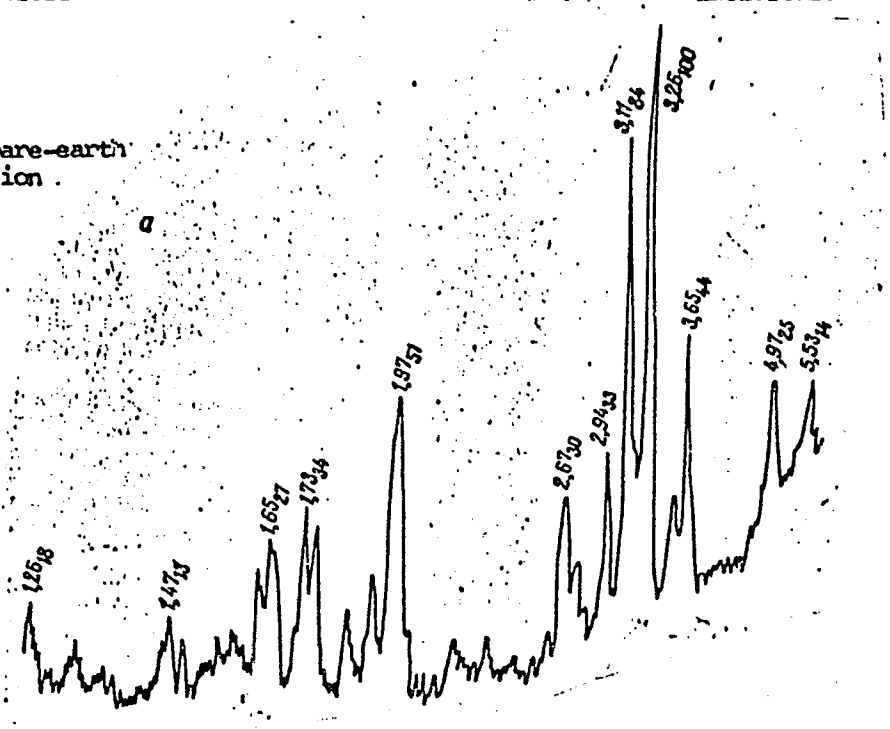
APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000101310009-6"

ACCESSION NR: AP4042022

ENCLOSURE: 01

X-ray patterns of rare-earth tungstates (ionization method)

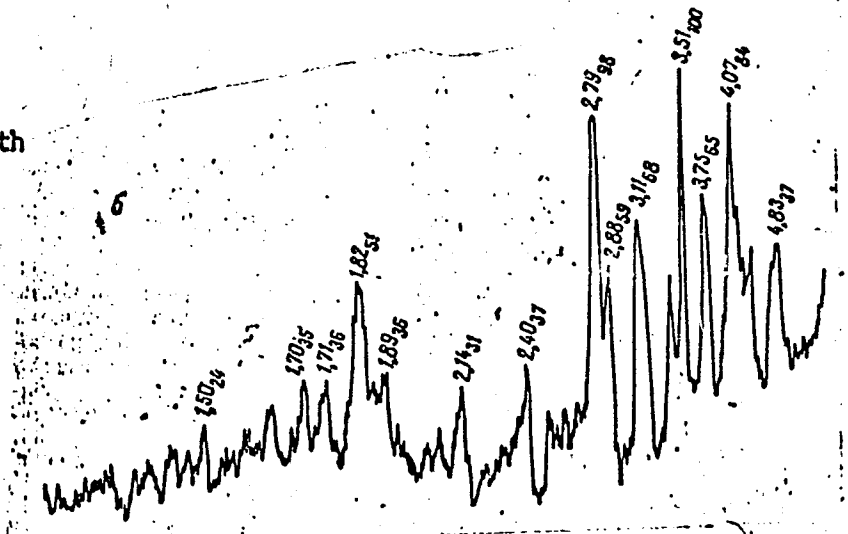
a - from La to Ho



Card 3/5

X-ray patterns of rare earth tungstates

b - from Er to Lu and Y



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ACCESSION NR: AP4042022

ENCLOSURE: 03

Composition and some properties of neutral tungstates of yttrium, lanthanum, and the lanthanoids

1 Соединение	2 Найденное молярное отношение $Me_2O_3 : WO_3$	3 Содержание основного вещества, % (фазовый химический анализ)	4 Плотность, г/см³	5 Темпер. плавления, °С	6 Цвет
$La_2O_3 \cdot 3WO_3$	1:3,09	99,43—99,47	6,506	1140	Белый 7
$Ce_2O_3 \cdot 3WO_3$	1:3,02	99,70—99,84	6,773	1100	Зеленовато-желтый 8
$Pr_2O_3 \cdot 3WO_3$	1:2,55	99,85—99,87	6,983	1140	Салатный 9
$Nd_2O_3 \cdot 3WO_3$	1:3,01	99,65—99,72	7,065	1250	Бледно-сиреневый 10
$Sm_2O_3 \cdot 3WO_3$	1:2,92	99,40—99,64	7,229	1220	Бледно-желтый 11
$Eu_2O_3 \cdot 3WO_3$	1:3,05	99,70—99,79	7,357	1260	Бледно-розовый, почти бесцветный 12
$Gd_2O_3 \cdot 3WO_3$	1,2,99	99,13—99,28	7,475	1290	Белый
$Tb_2O_3 \cdot 3WO_3$	1:2,97	99,55—99,63	7,624	1360	Белый
$Dy_2O_3 \cdot 3WO_3$	1:2,93	98,00—98,50	7,680	1410	Бледно-зелёный, почти бесцветный 13
$Ho_2O_3 \cdot 3WO_3$	1:3,06	99,00—99,20	7,948	1460	Бледно-желтый
$Er_2O_3 \cdot 3WO_3$	1:3,02	99,22—99,30	5,178	1500	Розовый 14
$Tu_2O_3 \cdot 3WO_3$	1:3,08	99,02—99,10	5,225	1520	Бледно-зеленый, почти бесцветный
$Yb_2O_3 \cdot 3WO_3$	1:2,98	99,80—99,90	5,323	1540	Белый
$Lu_2O_3 \cdot 3WO_3$	1:3,03	99,10—99,30	5,340	1580	Белый
$Y_2O_3 \cdot 3WO_3$	1:2,97	99,73—99,81	4,407	1470	Белый

1 - compound
2 - molar ratio
3 - main subst, % content
4 - density g/cm³
5 - melt. temp.
6 - color
7 - white
8 - greenish-yellow
9 - lettuce color
10 - pale lilac
11 - pale yellow
12 - pale pink, almost colorless
13 - pale green, almost colorless
14 - pink

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L 61071-65 EPF(n)-2/EWP(k)/EWP(z)/EWT(m)/EWP(b)/T/EWA(d)/EWP(e)/EWP(w)/EWP(t)
PI-4/Pu-4 IJP(c) JD/JG
ACCESSION NR: AP5018269 UR/0226/65/000/007/0019/0024

AUTHOR: Amosov, V. M.; Bobkova, N. N.; Dianov, V. V.

TITLE: The dependence of the technological properties of tantalum and niobium on the physicochemical characteristics of the initial powders

SOURCE: Poroshkovaya metallurgiya, no. 7, 1965, 19-24

TOPIC TAGS: powder metallurgy, tantalum powder, niobium powder, tantalum powder size, tantalum powder purity, niobium powder purity, niobium powder size, metal powder pressing

ABSTRACT: A study is made of the purity and plasticity of Ta and Nb as a function of the grain size and chemical composition of the initial powders. The authors utilized as raw materials the electrolytic powders of varying grain size and purity which were preliminarily fluxed following a previously published procedure (V. M. Amosov, Tsvetnyye metally, no. 6, 65, 1961; Izv. VUZov, "Tsvetnaya metallurgiya," no. 4, 122, 1962). The results cover 1) the degree of pressing during compacting of sintered moldings as a function of the average particle size of the starting powder; 2) the tensile strength of sintered moldings as a function of the particle size; 3) the degree of pressing

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ACCESSION NR: AP5018269

during compacting and the tensile strength as a function of the purity of the initial powders; and 4) the elongation of sintered Nb moldings as a function of the purity of the initial powders. Orig. art. has: 5 figures and 1 table.

ASSOCIATION: Moskovskiy elektrolampovyy zavod (Moscow Electric Bulb Factory)

SUBMITTED: 15Jun64 ENCL: 00 SUB CODE: MM

NO REF SOV: 005 OTHER: 001

Card 2/2

L 1848-66 EPA(s)-2/EWT(m)/EPF(n)-2/EWP(t)/EWP(z)/EWP(b) IJP(c) JD/WW/JW/HW/JG

ACCESSION NR: AP5013071 UR/0149/65/000/001/0110/0120

AUTHOR: Arkosov, V. M.

TITLE: Mechanism of the processes of electrowinning of tantalum from oxyfluoride melts

SOURCE: IVUZ. Tsvetnaya metallurgiya, no. 1, 1965, 110-120

TOPIC TAGS: tantalum, electrolytic deposition, thermodynamic calculation, tantalum compound

ABSTRACT: On the basis of a thermodynamic analysis of the system K - Ta - O - F - -Cl, the author discusses the problem of composition of melts based on K_2TaF_7, KF, KCl, and Ta_2O_5, which are used in the electrowinning of tantalum metal powders. It is shown that the dissolution of tantalum pentoxide in the electrolyte melt should occur as a result of its chemical reaction with complex tantalum fluorides of the composition $K_3TaCl_mF_n$ (K_3TaF_8 or K_3TaClF_7) and potassium fluoride. Depending upon the composition of the initial electrolyte, the products of the chemical reaction may be $Ta_2O_5 \cdot 2K_2TaF_7$ and complex oxyfluorides of the composition $K_xTaO_yF_z$ (e. g., K_3TaOF_6 and $K_2TaO_2F_3$). According to thermochemical calculations,

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L 1848-65

ACCESSION NR: AP5013071

3

in the presence of sufficient amounts of potassium fluoride, the compound $Ta_2O_5 \cdot 2K_2TaF_7$ should decompose to form oxyfluorides of the composition $K_xTaO_yF_z$. Equations are derived for the temperature dependence of the decomposition potentials of a series of reactions involving simple and complex halogen and oxyhalogen compounds of tantalum. Possible schemes of the overall processes occuring during the electrowinning of tantalum from oxyfluoride melts are proposed. Orig. art. has: 1 figure, 2 tables.

ASSOCIATION: Kafedra khimii i tekhnologii redkikh i rasseyannykh elementov, Moskovskiy institut tonkoy khimicheskoy tekhnologii (Department of Chemistry and Technology of Rare and Trace Elements, Moscow Institute of Fine Chemical Technology)

44,55

SUBMITTED: 04Dec62 ENCL: 00 SUB CODE: MM

NO REF SOV: 016 OTHER: 012

Card 2/2

L 1556-66 EWT(m)/EWP(t)/EWP(b) IJP(c) JD/JG

ACCESSION NR: AP5022268 UR/0363/65/001/007/1155/1161
546.65'786

AUTHOR: Plyushchev, V. Ye.; Amosov, V. M.

TITLE: Synthesis and properties of neutral tungstates of lanthanum, cerium, praseodymium, and neodymium

SOURCE: AN SSSR. Izvestiya. Neorganicheskiye materialy, v. 1, no. 7, 1965, 1155-1161

TOPIC TAGS: lanthanum compound, cerium compound, neodymium compound, praseodymium compound, tungstate

ABSTRACT: The conditions of formation of tungstates of La, Ce, Pr, and Nd were studied in the course of their high-temperature synthesis. The extent of reaction between powders of the oxide M_2O_3 and WO_3 (1:3) was followed by determining the amount of unreacted WO_3 by quantitative chemical phase analysis. The reaction was also studied by differential thermal and x-ray phase analysis. A close investigation of the kinetics of formation of $M_2O_3 \cdot 3WO_3$, studied on the mixtures $La_2O_3 + 3WO_3$ and $Nd_2O_3 + 3WO_3$ in order to determine the optimum conditions for synthesizing these compounds, confirmed the results of the thermographic and x-ray phase analyses. The rate of the reaction between M_2O_3 and WO_3 is thought

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L 1556-66

ACCESSION NR: AP5022268

to be determined by the diffusion of the initial oxides through the layer of the reaction product; additional grinding of the sinter accelerates the reaction rate, and at 900C the reactions proceed practically to completion in a relatively short time (12 hr). The tungstates formed are anisotropic, nonhydroscopic, finely crystalline, and insoluble in water, alcohol, or acetone. They are attacked by acids and alkalis. All four tungstates are isostructural and have a monoclinic lattice; their lattice constants and densities are tabulated. Orig. art. has: 3 figures and 3 tables.

ASSOCIATION: Moskovskiy institut tonkoy khimicheskoy tekhnologii im. M. V. Lomonosova (Moscow Institute of Fine Chemical Technology)

SUBMITTED: 23Feb65 ENCL: 00 SUB CODE: IC, SS

NO REF SOV: 006 OTHER: 026

Card 2/2

AMOSOV, V.M.; TRUNOV, V.K.; KOVBA, L.M.

X-ray diffraction study of some lanthanide tungstates. Vest. Mosk. un. Ser. 2:Khim. 20 no.4:23-25 Jl-Ag '65.
(MIRA 18:10)

1. Kafedra neorganicheskoy khimii Moskovskogo gosudarstvennogo universiteta i Moskovskiy elektrolampovyy zavod.

L 42883-66 EWP(e)/EWT(m)/T/EWP(t)/ETI/EWP(k) IJP(c) JD/JG

ACC NR: AP6022892 SOURCE CODE: UR/0078/66/011/004/0732/0737

AUTHOR: Plyushchev, V. Ye.; Amosov, V. M.

ORG: none

TITLE: Synthesis and properties of neutral yttrium tungstate

SOURCE: Zhurnal neorganicheskoy khimii, v. 11, no. 4, 1966, 732-737

TOPIC TAGS: tungstate, yttrium compound

ABSTRACT: Yttrium tungstate, $Y_2O_3 \cdot 3WO_3$, was synthesized by sintering the powdered oxides at 600-1000°C. The extent of the reaction (amount of reacted WO_3) was checked by chemical quantitative phase analysis. The reaction between Y_2O_3 and WO_3 was also studied by differential-thermal (Kurnakov pyrometer) and x-ray phase analyses. The rate of this reaction was found to be determined by the diffusion of the initial oxides through the layer of the reaction products. The reaction begins only after the temperature of polymorphic transformation of WO_3 is reached at 750°C, and practically reaches completion at 900°C. Yttrium tungstate is an anisotropic, finely crystalline, colorless substance insoluble in water, alcohol, and acetone. Its density is 4.407 ± 0.005 g/cm^3, and its melting point, 1470 ± 20°C. It does not decompose at least up to the melting point, and does not show any transformations. The interplanar distances and x-ray line intensities of yttrium tungstate are given. The action of acids and

Card 1/2 UDC: 546.786'643-31

L 42883-66
ACC NR: AP6022892

alkalis on this compound was determined. Orig. art. has: 5 figures and 2 tables.

SUB CODE: 07/ SUBM DATE: 30Jan65/ ORIG REF: 003/ OTH REF: 008

Card 2/2

ACC NR: AP6029322 SOURCE CODE: UR/0363/66/002/008/1460/1466

AUTHOR: Plyushchev, V. Ye.; Amosov, V. M.

ORG: Moscow Institute of Precision Chemical Technology im. M. V. Lomonosov (Moskovskiy institut tonkoy khimicheskoy tekhnologii)

TITLE: Synthesis and properties of the tungstates of erbium, thulium, ytterbium, and lutetium

SOURCE: AN SSSR. Izvestiya. Neorganicheskiye materialy, v. 2, no. 8, 1966, 1460-1466

TOPIC TAGS: lutetium, thulium, ytterbium, erbium, tungstate, phase composition, solid mechanical property

ABSTRACT: Kinetics of the interaction of W, Er, Tm, Yb, and Lu oxides was studied in 500°-1050°C range. The structure of the tungstates of the general formula $M_2O_3 \cdot 3WO_3$ (where M is Er, Tm, Yb, or Lu) was determined by x ray technique and melting points, densities, and degrees of decomposition in various acidic and basic media (1 and 10 normal) were determined. The object of the work was to fill the gap in the pertinent literature. The various tungstate samples were prepared by grinding mixtures of M_2O_3 with WO_3 in 1:3 molar ratio followed by 15-480 minute fusion in 500°-1000°C range. The thermograms showed thermal effects at 540° and 778°C for $Er_2O_3+3WO_3$, 528° and 640°C for $Tm_2O_3+3WO_3$, 536° and 655°C for $Yb_2O_3+3WO_3$, and 508° and 655°C for $Lu_2O_3+3WO_3$. For Er,

Card 1/2 UDC: 546.65'786

ACC NR: AP6029822

Tm, Yb, and Lu tungstates, the respective melting temperatures (°C) and densities (g/cm^3) were found to be: 1500° and 5.18, 1520° and 5.23, 1540° and 5.32, and 1580° and 5.34. At room temperature all tungstates were found to be stable when treated with diluted acids or bases but at 80°-120°C their decomposition was almost complete in 2 hrs. Orig. art. has: 4 figures and 2 tables.

SUB CODE: 07/ SUBM DATE: 29Jun65/ ORIG REF: 003/ OTH REF: 007

Card 2/2

ACC NR: AT7004416 (A) SOURCE CODE: UR/0000/66/000/000/0083/0085

AUTHOR: Osipov, V. G.; Drobysheva, Ye. K.; Ushakov, Ye. V.; Amosov, V. M.; Zelentsova, N. M.; Borisov, A. G.

ORG: none

TITLE: Methods of tensile and torsion tests of thin rods at elevated temperatures

SOURCE: AN SSSR. Institut metallurgii. Napryazhennoye sostoyaniye i plastichnost' pri deformirovanii metallov (Stress condition and plasticity during metal deformation). Moscow, Izd-vo Nauka, 1966, 83-85

TOPIC TAGS: metal test, ~~all-purpose~~ metal testing machine, tensile test, torsion test, torsion stress, temperature test/ R-5 ~~all-purpose~~ metal testing machine

ABSTRACT: Tests of this kind require a vacuum or a protective atmosphere, which involves considerable technical difficulties. However, in cases where complete prevention of oxidation of the specimen is not required an airtight working chamber does not have to be constructed. Furthermore, the need to use scarce high-temperature materials for the clamps can be obviated if during the tests only the middle portion of the specimen is heated and the deformation is measured over a segment for which the temperature gradient is within permissible limits. On the basis of these considerations the following method of high-temperature tensile tests was developed: an argon-atmosphere electrical resistance furnace (Fig. 1) is attached between the clamps of

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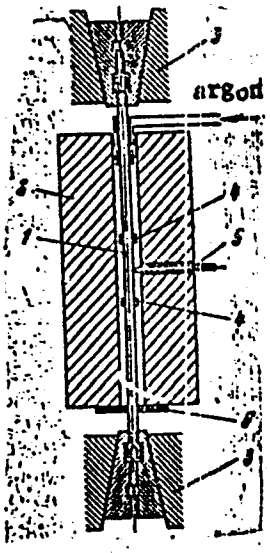

an R-5 all-purpose testing machine. Mounted in the central part of the specimen at a distance of 40 mm from each other are two bushings serving to identify the working length of the specimen and facilitate measurements of the degree of deformation. A specimen measuring 3 or 6 mm in diameter and 250 mm in length is inserted in the furnace so that its both ends protrude 50 mm each from the furnace. Tensile tests of such specimens at up to 1300°C demonstrated that, despite the absence of an air-tight chamber, there is virtually no oxidation. However, the formation of a neck, which complicates the evaluation of test results, is a major shortcoming of tensile tests. From this standpoint, torsion is superior to stretching, since it assures a more uniform lengthwise distribution of deformations in the specimen, which is particularly important to the tests of metals in a state of low plasticity. Accordingly, the following method

Fig. 1. Schematic of tensile test:

1 - specimen; 2 - furnace; 3 - clamp; 4 - bushing; 5 - thermocouple; 6 - washer

of high-temperature torsion tests was developed: specimen 1 is placed in furnace 2 (Fig. 2) and its ends are held tight in clamps 3. Mounted in the central portion of the specimen, at a distance of 40 mm from each other, are two bushings 4 clamping the ends of two high-temperature steel plates 5 whose opposite ends protruding for 20 mm outside the furnace display arrows 6. The angle of twist over the 40 mm length is determined according to the difference in the angles of rotation of the arrows and reckoned from fixed disks 7.

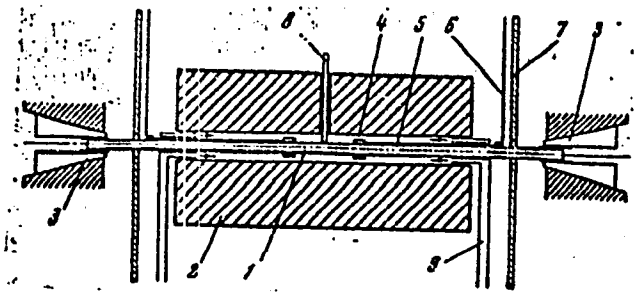

Fig. 2. Schematic of torsion test

These methods in principle admit the possibility of performing tensile and torsion tests at temperatures as high as desired, since the clamps are outside the furnace. The material of bushings 4 and plates 5 may be selected according to test temperature. Orig. art. has: 4 figures.

SUB CODE: 13, [illegible] 11/ SUBM DATE: 27Sep66/ ORIG REF: 003/ OTH REF: 001

Card 3/3

ACC NR: AT7004421 (A) SOURCE CODE: UR/0000/66/000/000/0122/0130

AUTHOR: Osipov, V. G.; Drobysheva, Ye. K.; Amosov, V. M.; Ushakov, Ye. V.; Zelentsova, N. M.; Borisov, A. G.

ORG: none

TITLE: Investigation of the plasticity of VA tungsten during the initial stages of its thermomechanical treatment

SOURCE: AN SSSR. Institut metallurgii. Napryazhennoye sostoyaniye i plastichnost' pri deformirovanii metallov (Stress condition and plasticity during metal deformation). Moscow, Izd-vo Nauka, 1966, 122-130

TOPIC TAGS: tungsten, metal powder, plasticity, hot forging, filament wound construction/ / VA tungsten powder

ABSTRACT: The processing of VA tungsten-powder rods involves the occurrence of small transverse surface cracks which may lead to the formation of defects during the drawing and spiralization of these rods into electric-bulb filaments. To uncover and eliminate the causes of this phenomenon tungsten bars measuring 10.5x10.5 mm in cross-sectional area as well as rods with diameters of 3, 5.6 and 10 mm, rotary-forged by different regimes (at 1300, 1450 and 1600°C) with different degrees of reduction of area (7.0 to 36.0%), were subjected to various mechanical tests. The effect of ther-

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ACC NR: AT7004421

momechanical pressworking on the plasticity of tungsten is best revealed by test methods for which the shear stresses are equal or close to normal stresses (i.e. the torsion test). Flattening tests of rods of 10 mm diameter (performed on a crank press) showed that the rods forged at 1300°C with considerable reduction of area display the greatest plasticity over a broad range of temperatures, while bending tests showed that rods forged at 1600°C with normal reduction of area also display satisfactory plasticity. Torsion tests of rods with diameters of 5.6 and 3 mm revealed a decrease in plasticity with increase in test temperature and in reduction of area. The test findings indicate that there exists no direct relationship between the number of surface cracks on the rods and the plasticity and strength properties of the metal. The plasticity of this metal is largely determined by its stressed state and hence the plasticity tests must insofar as possible simulate a stressed state corresponding to a given forging regime. Orig. art. has: 10 fig. and 5 tables.

SUB CODE: 13, 11/ SUBM DATE: 27Sep66/ ORIG REF: 004

2/2
Card

L 58984-65 EWT(l)/EWT(m)/EPF(n)-2/EWG(m)/EPA(w)-2/T Pz-6 IJP(c) DS/AT

ACCESSION NR: AP5019013 UR/0286/65/000/012/0038/0038
621.385.032.213.1

AUTHOR: Amosov, V. M. 21 B

TITLE: A directly-heated thermionic cathode. Class 21, No. 171926

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 12, 1965, 38

TOPIC TAGS: thermionic emission, thermionic cathode, filament cathode

ABSTRACT: This Author's Certificate introduces a directly-heated thermionic cathode based on refractory metal and rare earth oxides. The ductility of the filament is improved and the level and stability of emission are increased by making the cathode from an alloy of tantalum and niobium (87-95%) with admixtures of tungsten (2-10%) and yttrium oxide or lanthanum oxide (3-9%).

ASSOCIATION: none

SUBMITTED: 17Feb64 ENCL: 00 SUB CODE: EC

NO REF SOV: 000 OTHER: 000

Card 1/1

23966
S/113/60/000/004/005/007
D249/D301

181210

AUTHORS: Amosov, V.N. and Potanin, S.L.

TITLE: High-silicon aluminum alloy for pistons of ЯМЗ(YamZ) engines

PERIODICAL: Avtomobil'naya promyshlennost', no. 4, 1960, 33-35

TEXT: Modern engines, developing 5000-6000 r.p.m., require components (such as pistons) made of materials possessing good heat conductivity and low specific gravity. The alloys АЛ-1(AL-1), АЛ-12(AL-12), АЛ-10 (AL-10) which are commonly used for manufacturing pistons, have a large coefficient of linear expansion which necessitates a greater clearance between the piston and the cylinder wall. These materials are, therefore not particularly suitable for high-speed engines. Following the trend of foreign countries where the hypereutectic aluminum-silicon alloys, containing 18-20% Si and having a small coefficient of expansion, are successfully used for the above purpose, the Yaroslavkiy motornyy zavod (Yaroslavl' Motor Plant) has investigated a number of alloys having the

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High-silikon aluminum...

following chemical compositions: 1.4-1.8% Cu; 0.4-0.8% Mg; 0.6-0.8 Mn; 13-22% Si; 0.7% Fe; 0.2% Ti; 0.2% Zn; 1.4-1.6% Ni; 0.5-1.2% Co. The mechanical properties of these alloys are given in tabulated form. It is shown that increasing the Si-contents in the alloy affects its durability. Thus, an increase from 13.5 to 22% decreases the tensile strength from 17 to 12 kg/mm^2, that is, by 30%. Simultaneously, the alloy hardness was increased from 80 to 90 HB. Research has disclosed that in all cases the alloy remains brittle, as its elongation amounts to only 40-70% and does not, practically, depend on the Si-content. The heat resistance was tested by pressing a ball 5 mm in diameter, under load during 50 min., at high temperatures. Depending on the test temperature, the load continuously changed from 62.5 kg at 300 and 400 °C to 125 kg at 200 °C. It became apparent that at 200-300 °C a certain increase of the alloy heat resistance takes place; it was particularly noticeable when the contents of Si lay between 13-18%. At 400° the heat-resisting property does not depend much on the Si-content. Investigation of resistance to wear was carried out on the Amsler machine. As lubrication, kerosene was used. Tests were made at a sliding speed of 0.3-0.4 m/sec. For this purpose a piece of magnesium iron in the form of a block having a hardness of

High-silikon aluminum...

RB 94-102 was prepared [Abstractor's note: RB 94-102 is used for making compression rings in YaMZ engines]. This block underwent lateral displacements on a roller made of a high-silicon aluminum alloy. The pressure used was 20 kg/cm^2. When testing, the specific load amounted to 65 kg/cm^2. Each test lasted 5 hours, which corresponded approximately to 60,000 revolutions of the crankshaft. When the silicon content was raised from 13 to 18%, it lead to a considerable increase in wear-resistance (3-4 times). The coefficient of linear expansion was determined on a differential photographic dilatometer Shevenar at 20-200°C. When manufacturing pistons for four-cycle YaMZ engines the alloy KS-280 was selected having the following chemical composition: 20-22% Si; 1.4-1.8% Cu; 0.4-0.8 Mg; 1.3-1.7% Ni; 0.5-1.2% Co; 0.6-0.8% Mn. The melting of the alloy was performed under a layer of universal flux in a graphite crucible with a 150 kg capacity. The metal was superheated to 840-850°C and refined by adding aluminum chloride. The slag was then removed and the alloy modified by introducing copper phosphide to the amount of 0.5% of the charge weight. Satisfactory results were attained when the pistons were cast in molds with metal cores under reinforced cooling. The weight of a mold with gates was 6.5 kg;

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the weight of the gate system - 2.5 kg. The castings were stabilized by heat treatment at 375 ± 10°C for 10 hours in an electric furnace. The following mechanical properties of the alloy were attained: Tensile strength of separately cast samples - 14-16 kg/mm^2; tensile strength of samples taken from the piston bottoms - 12-14 kg/mm^2; hardness HB - 85-106 kg/mm^2; elongation - 30-50%. Pistons made of high-silicon alloy successfully passed the stand tests. Inspection of these pistons disclosed that after 1,970 working hours no fins, burnt cracks or other metal defects were found.

ASSOCIATION: Yaroslavskiy motornyy zavod (Yaroslavl' motor plant)

AMOSOV, V.N.; POMERANTS, D.M.; GONCHAROV, Ya.P.

Selecting protective atmoshperes for the prevention of decarburization in annealing perlitic malleable cast iron. Avt.prom. no.12: 28 D '60. (MIRA 13:12)

1. Yaroslavskiy motornyy zavod.
(Cast iron--Heat treatment)
(Protective atmospheres)

AMOSOV, V.N.; GRUZDOV, P.Ya.; DMITRIYEV, P.S.; YELISEYEV, M.M.; KIRILLOV, M.I.; SKOTNIKOV, V.V.; YEVSEYEV, A.S.

High-strength cast iron containing sulfur and prospects for its use in the automobile industry. Avt. prom. no. 1:34-37 Ja '61. (MIRA 14:4)

1. Yaroslavskiy motornyy zavod, i Nauchno-issledovatel'skiy tekhnologicheskiy institut avtomobil'noy promyshlennosti.
(Cast iron) (Automobiles--Materials)

AMOSOV, V.N.; POTANIN, S.L.; SKOTNIKOV, V.V., kand.tekhn.nauk

Using hypereutectic alloyed Silumin for the pistons of four-stroke diesel engines. Avt.prom. 31 no.7:37-39 Jl '65. (MIRA 18:8)

1. Yaroslavskiy motornyy zavod.

ANFOV, V. P., VOLOVOVA, O. S., IVANOVA, N. A.

"Epidemiological characteristics of dysentery in rural localities."

report submitted at the 13th All-Union Congress of Hygienists, Epidemiologists and Infectionists, 1959.

S/126/62/014/004/012/017
E193/E363

AUTHORS: Zakharova, M.I. and Amosov, Ye.M.

TITLE: A study of the transformation of the β-phase in the copper-beryllium system

PERIODICAL: Fizika metallov i metallovedeniye, v. 14, no. 4, 1962, 559 - 563

TEXT: The object of the present investigation was to study solid-state transformations in the 9.34% beryllium-copper alloy by X-ray and metallographic analysis. Both polycrystalline and single-crystal specimens were used. The results are summarized below. 1) The β-phase, stable at 855 - 890 °C, could not be retained by quenching. Polycrystalline specimens, held at 870 °C for 5 hours and water-quenched, consisted of the γ-phase with a lattice parameter of 2.718 Å. On subsequent ageing at 500 °C the α-phase was formed, the intensity of the X-ray lines produced by this phase increasing as the ageing time increased from 3 min to 7 hours. Examination of microsections revealed that the α-phase particles were formed first at the grain boundaries; after 1-hour ageing at 500 °C the α-phase precipitates could be

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A study of ....

observed in the interior of the grains along the slip lines formed as a result of plastic deformation caused by quenching stresses. 2) Single-crystal specimens, prepared by slow (10 °C/h) cooling of the melt in the crucible and quenched (with the crucible) on reaching 870 °C, had a structure which depended on the rate of cooling during quenching. Specimens quenched in porcelain crucibles consisted of the γ-phase; those quenched in a graphite crucible constituted single crystals of a metastable phase with a face-centred cubic lattice; air-cooling of a single crystal produced by the pulling-out technique resulted in the γ-phase, in which the process of precipitation of the α-phase had begun. 3) Slip on the (110) and (112) planes took place in water-quenched, single-crystal specimens; This was accompanied by the formation of atom aggregates with destroyed periodicity which, on subsequent ageing, became crystals of the α-phase, oriented in accordance with the principle of structural conformity. There are 7 figures.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M.V. Lomonosova (Moscow State University im.M.V.Lomonosov)

SUBMITTED: April 13, 1962

USSR / Zooparasitology. Mites and Insects as Disease Vectors. G

Abs Jour : Ref Zhur - Biol., No 12, 1958, No 53011

Author : Arnosova, I. S.
Inst : Not given
Title : New and Little Known Species of Malanders Genus Culicoides Latr. (Diptera, Heleidae) of the Primorskiy Kray.

Orig Pub : Entomol. obozreniye, 1957, 36, No. 1, 233-247.

Abstract : In the southern part of Primorskiy Kray, 20 species of Culicoides were found, among them 5 new to science (C. obsoletiformis, C. chaetophthalmus, C. dendrophilus, C. litoreus, C. palustris) and one new to the fauna of the USSR (C. raripalpis). Descriptions with illustrations of the species mentioned and data on classification are given.

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AMOSOVA, I.S.

Gonotrophic relations of midges of the genus Culicoides (Diptera, Heleidae). Ent. oboz. 38 no.4:774-789 '59 (MIRA 13:3)

1. Institut zoologii AN SSSR, Leningrad.
(Diptera)

AMOSOVA, I. S.

Resistance of tissues in some synanthropic flies (Diptera, Calliphoridae and Muscidae) to high temperatures. Ent. obozr. 41 no.4:816-826 '62. (MIRA 16:1)

1. Laboratoriya sravnitel'noy tsitologii Instituta tsitologii AN SSSR, Leningrad.

(Blowflies) (Temperature—Physiological effect) (Flies)

AMOSOVA, I.S.

Effect of breeding temperature on the heat resistance of tissues of the bluebottle fly Calliphora erythrocephala. Sbor. rab. Inst. tsit. no.6:102-107'63. (MIRA 16:8)
(BLOWFLIES) (HEAT—PHYSIOLOGICAL EFFECT)

AMOSOVA, I.S.

Sterilization of bluebottle fly as a result of its cultivation under increased temperature. Sbor.rab. Inst. tsit. no.8:140-144 '65.

Increase in the resistance of the muscle tissue in the offsprings of bluebottle fly as a result of a short-time heat effect on its pupa. Ibid.:145-152

(MIRA 18:12)

1. Laboratoriya sravnitel'noy tsitologii Instituta tsitologii AN SSSR, Leningrad.

KHMYROV, V.K.; AMOSOVA, M.M.; KALKAN, P.M., professor, zaveduyushchiy; KOGAN, V.Kh., dotsent, zaveduyushchiy.

Treating eczema by X-ray irradiation of the higher centers of the central nervous system. Vest.rent.i rad. no.2:16-19 Mr-Ap '53. (MLRA 6:6)

1. Kafedra kozhnykh i venericheskikh bolezney Yaroslavskogo meditsinskogo instituta (for Khmyrov, Amosova and Zalkan). 2. Kafedra rentgenologii Yaroslavskogo meditsinskogo instituta (for Khmyrov, Amosova and Kogan).
(Eczema) (Nervous system) (X-rays--Therapeutic use)

USSR/General Biology - General Histology. B-3

Abs Jour : Ref Zhur Biol., No 7, 1958, 28498

Author : Amosova, N.R.
Inst :
Title : Histological Observations on the Development and Structure of Some Frog Cartilages.

Orig Pub : Arkhiv anatomii, gistol. i embriologii, 1956, 33, No 2, 47-52

Abstract : Histogenesis of cartilage was observed in 14 consecutive stages of tadpole development and in the frog. Basic cartilage substance develops of the mesenchyme type. Adult frogs have cartilages of different stages of maturity simultaneously.

Card 1/1

EXCERPTA MEDICA Sec 9 Vol 13/12 Surgery Dec 59

7005. (1515) REGENERATION OF TENDONS UNDER DIFFERENT EXPERIMENTAL CONDITIONS (Russian text) - Amosova N. R. Fac. of Histol. and Embryol., Leningrad Inst. of Ped., Leningrad - ARKH. ANAT. GISTOL. I EMBRIOL. 1958, 35/6 (90-100) Illus. 9

The excision of a small part of the Achilles tendon in the cat is followed by the formation of new tendon bundles, but not by that of a scar. Both in kittens and in adult cats the tendon cells actively reproduce by mitosis, and then shift into the tendon defect zone similarly to endotenonium and peritenonium cells. Thus, it cannot be considered that the regeneration of a tendon is due only to the 'emerging cambium'. Primarily, the process of fibre formation is of the mesenchymal type, according to Jasvoin (formation of pre-collagenous fibrils with subsequent transformation into collagenous ones); this type of formation is then replaced by the desmal type (development of collagenous fibrils without the pre-collagenous stage). Innervation disturbances cause a lagging of the differentiation process of the granulation tissue. In experiments involving a complete sectioning of tendon, there formed at the late stage of regeneration a fibrous cartilage in the region of both distal and proximal stumps with the endochondral development of the osseous tissue.

(I, 5, 9)

7006. (1516) [illegible]

621.372.4/.5

~~708.~~ **Calculation of non-linear a.c. and d.c. circuits.** G. P. PUKHOV AND S. T. ARKISOVA. *Elektrichestvo*, 1954, No. 10, 39–42. (In Russian.)

The non-linear elements in the circuits considered are such that their presence does not lead to appreciable distortions of the waveform from the sinusoid. If the V-A and phase characteristics of the non-linear elements are known, the calculations may be carried out by the usual iteration methods after the introduction of the non-linear impedances or admittances into the equations of the special problem considered. This method may be called the method of "complex non-linear characteristics." If the condition of the sinusoidal character of the phenomena can be satisfied or maintained, the method may be extended to include magnetic circuits and constant currents and fluxes, respectively.

B. F. KRAUS

Taganrog Radio Inst. & Tomsk Polytechnic Inst. im Kirov

ARKOSOVA, S. P.

ARKOSOVA, S. P.: "The problem of calculating nominally nonlinear electrical and magnetic circuits." Min Higher Education Ukrainian SSR. L'vov Polytechnic Inst. L'vov, 1956. (Dissertation for the Degree of Candidate in Technical Sciences).

Source: Knizhnaya letopis' No. 28 1956 Moscow

AMOSOVA, S.P., BLISTORIN, I.F., OKHOTSKAYA, V.N.

Analysis of the operation of semiconductor thermistors with indirect heating in an a.c. and d.c. current comparison network. Trudy Inst. avtom. i elektrometr. SO AN SSSR no.1:63-69 '65. (MIRA 18:8)

AMOSOVA, V. V.

At the Izhevsk Machinery Plant. Mashinostroitel' no.10:43 O '62. (MIRA 15:10)

(Izhevsk—Machinery industry)

AMOSOVA, V.V.; SINYAKIN, S.T.

Mechanical suture in a mammary-coronary anastomosis. Uch. trudy GMI no.19:247-254 '65. (MIRA 18:8)

1. Iz kafedry operativnoy khirurgii Gor'kovskogo gosudarstvennogo meditsinskogo instituta imeni S.M.Kirova.

AMOSOVA, V.V.; KOLOKOL'TSEV, Ye.F.

Experimental evaluation of the revascularization of the myocardium by the method of emission spectrography. Uch. trudy GMI no.19:255-259 '65. (MIRA 18:8)

1. Iz kafedry operativnoy khirurgii i kafedry sudebnoy meditsiny Gor'kovskogo gosudarstvennogo meditsinskogo instituta imeni S.M. Kirova.

TROFIN, V.P.; AMOSOVA, V.V.

Study of cerebral circulation with the aid of rheoencephalography in experimental myocardial infarction. Uch. trudy GMI no.19:260-263 '65. (MIRA 18:8)

1. Iz kafedry nervnykh bolezney i kafedry operativnoy khirurgii Gor'kovskogo gosudarstvennogo meditsinskogo instituta imeni S.M. Kirova.

ACC NR: AP6034494 SOURCE CODE: UR/0204/66/006/005/0665/0670

AUTHOR: Bagriy, Ye. I.; Abosova, Ye. I.; Sanin, P. I. Abosova, Ye. I.

ORG: Institute of Petrochemical Synthesis AN SSSR im. A. V. Topchiyev (Institut neftekhimicheskogo sinteza AN SSSR)

TITLE: Separation of adamantine from certain Balakhan and Surakhan petroleums

SOURCE: Neftekhimiya, v. 6, no. 5, 1966, 665-670

TOPIC TAGS: petrochemistry, petroleum, chromatography, intermolecular complex, polynuclear hydrocarbon

ABSTRACT: The adamantine content in one kerosene fraction and in three petroleums (high in naphthene hydrocarbons) from the Balakhan and Surakhan fields was determined, using a modification of the Landa and Gala methods. Adamantine was concentrated by multistage complexing with thiourea; gas-liquid chromatography was used for separation. This method is especially effective for concentrating and separating adamantine from petroleums containing gasoline fractions. The adamantine content in the investigated petroleums ranged from 0.0004-0.0013 weight percent (on weight of initial petroleum), the higher content occurring in the petroleum containing the greater amount of naphthene hydrocarbons. Other hydrocarbons accumulated in the extracts along with adamantine; their separation and identification will be studied further. "The authors

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UDC: 547.678.06:665.5 (479.24)

ACC NR: AP6034494

thank Al. A. Petrov for capillary gas-liquid chromatographic determination of the purity of the adamantine, M. V. Shishkin for spectral studies, and I. K. Chudakov for elementary analysis of the material." Orig. art. has: 4 figures.

SUB CODE: 07, 11/ SUBM DATE: 22Mar66/ ORIG REF: 005/ OTH REF: 018

Card 2/2

AMOSZOV, N. M., prof.

Pulmonary resection with mechanical bronchial suture. Tuberkulozis 13 no.12:353-357 D '60.

1. Az Ukran Tudomanyos Kiserleti Tbc Intezet (igazgato: A. Sz. Memalat) kozlemenye.

(PNEUMONECTOMY equip & supply)

EFTIMOV, B.; KONSTANTINOV, G.; ALEXIEV, D. [Aleksiev, D.]; AMOV, B.

Changes in heredity and in some physiological and biochemical indices under the effect of radioactive iodine. Doklady BAN 16 no.1:89-92 '63.

1. Submitted by Corresponding Member K. Bratanov.

L 22619-66 EWP(t) IJP(c) JD
ACC NR: AT6004204 SOURCE CODE: BU/2503/65/013/001/0013/0023

61
B+1
21

AUTHOR: Amov, B.

ORG: none

TITLE: Mass-spectrometric study of thermal ionization of lead by layers containing SiO_2, ZrO_2, Al_2O_3 and phosphorus oxide

SOURCE: Bulgarska akademiya na naukite. Fizicheski institut. Izvestiya na Fizicheskiya institut s ANEB, v. 13, no. 1, 1965, 13-23

TOPIC TAGS: mass spectroscopy, thermal ionization, thermal decomposition, mass spectrum, ionization, tungsten filament, specialized coating

ABSTRACT: The thermal ionization of lead by layers with different contents of SiO_2, ZrO_2, Al_2O_3 and phosphorus oxide applied to tungsten filament has been investigated by a mass spectrometer. A separate registration has been made of positive ions and neutral atoms of lead which evaporate from the layer. A considerable rise has been established in the degree of ionization of lead from layers with

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ACC NR: AT6004204

a predominance of SiO_2 and an increased amount of phosphorus oxide. The presence of thermally stable ZrO_2 and Al_2O_3 in the mixture decreases the degree of ionization but increases the stability of the thermal-ionization current. The mass spectrum of the products of the thermal decomposition of phosphorus oxide, contained in the mixture, has been studied; this spectrum varies with time and temperature and strongly depends on the composition of the layer. A close link between the nature of this spectrum and the degree of ionization from layers of various composition has been established. Orig. art. has 6 figures. [Based on author's abstract]

SUB CODE: 18,20/ SUBM DATE: none SOV REF: 007/ OTH REF: 004/

Card 2/2 BW

AMOZOV, A.F.

Use of chemical stimulants in pine tapping in Karelia. Gidroliz.i lesokhim.prom. 15 no.3:29-30 '62. (MIRA 15:5)

1. Trest "Karelkhimleszag."
(Karelia--Turpentining)

ANDZOV, A.F.

Prospects for the development of the wood chemistry industry in Karelia. Gidroliz. i lesokhim. prom. 14 no.8:24 '61. (MIRA 16:11)

1. Trest "Karelkhimleszag."

AMPANTOV, A.

AMPANTOV, A.

"A single stain of grains of diphtheria organisms. A. Ampantov. *Pediatriya* 1955, No. 6, 44–5.—The smears are stained with a dye (methylene blue 0.1, H_2O 100.0, and AcOH 1.0) for 5 min. The bodies of the organisms are stained light blue, while the grains become deep blue.
G. M. Kosolapoff

AMPEL, R.

"Photovisual stellar magnitudes in the Cassiopeia field"

p. 60 (Studia. Sectio F; Astronomia, Vol. 1, no. 3, 1958, Torun, Poland)

Monthly Index of East European Accessions (EEAI) LC, Vol. 8, No. 1, Jan. 59.

"

S/269/63/000/003/024/036
A001/A101

AUTHORS: Ampel, R., Iwaniszewska, C.

TITLE: Investigations of dust density in the constellations Cassiopeia and Sagitta

PERIODICAL: Referativnyy zhurnal, Astronomiya, no. 3, 1963, 40 - 41, abstract 3.51.319 ("Postępy astron.", 1962, v. 10, no. 1, 57 - 59, Polish)

TEXT: See abstract 28. The authors investigated the density of interstellar dust in directions of the constellations Cassiopeia and Sagitta. The average density of spherical particles (radius = 3.1×10^{-5} cm) was derived to be of the same order of magnitude (higher by a factor of 1.5 - 2) as that of elliptical particles of radius 3.1 and 1.55×10^{-5} cm, i.e. for Cassiopeia the density is 1.8 and 3.3×10^{-25} gcm^{-3}, for Sagitta the density is 1.2 - 1.7 and 0.6×10^{-26} gcm^{-3}. The authors considered also the model of a non-spherical, elongated immobile particle. An intermediate value was derived for their density. It follows thereof that the assumed shape of dust particles is not a decisive factor in determining the density of dust particles. A comparison of densities

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S/269/63/000/003/024/036
A001/A101

Investigations of dust density in the...

of interstellar dust in clouds, in dark regions of the sky and in bright regions, led to the following results:
in Cassiopeia: bright region 0.05×10^{-25}, cloud 2.8×10^{-25} gcm^{-3},
in Sagitta: dark region 0.2×10^{-25}, cloud 1.2×10^{-25} gcm^{-3}.
The densities obtained are compared with neutral hydrogen densities (on the basis of Dutch observations on the 21-cm wavelength). The dust-to-hydrogen ratio was confined within the limits 0.4 - 10%.

W. Wiśniewski

[Abstracter's note: Complete translation]

Card 2/2

AMPEL, Roman; IWANISZEWSKA, Cecylia

The density of stars and the interstellar center in the Galaxy. Postepy fizyki 13 no.3:353-359 '62.

1. Obserwatorium Astronomiczne, Uniwersytet M.Kopernika, Torun.

P/526/62/003/004/001/002
A055/A126

AUTHORS: Ampel, Roman, Iwaniszewska, Cecylia

TITLE: A preliminary estimate of the ratio of dust to neutral hydrogen density in the Cassiopeia and Sagitta fields

SOURCE: Towarzystwo Naukowe w Toruniu. Studia. Sectio F. Astronomia. v. 3, no. 4, 1962, 1 - 10

TEXT: This is Part IVa of the paper "A Study of Galactic Structure in Four Selected Fields in Aquila-Sagitta and Cassiopeia". Subsequent to the study of the galactic structure in two selected fields in Sagitta and Cassiopeia, the authors calculated the dust density in the dark absorbing clouds observed in both fields, as well as the dust-to-neutral hydrogen ratio. The results of this calculation (giving, as emphasized by the authors, only a rough estimate, i.e. a possible density range, rather than definitive and certain values) are stated in the present article. Two clouds (D_1, D_2) were identified in Cassiopeia. In Sagitta, the regions showing strong obscuration could also be treated as two clouds (D_1, D_2), according to the degree of obscuration. The density s of a dust par-

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A preliminary estimate of the ratio of...

ticle was taken equal to 1.1 gcm^{-3}, according to v. d. Hulst. The clouds were assumed to be oblate spheroids. The chemical composition of the grains was assumed the same in Cassiopeia and Sagitta. The dust density was obtained from formula:

$$g_{\alpha} = \frac{4/3\ a^3\ s\ A}{3.34 \times 10^{21}\ a^2\ Q} \qquad (4)$$

for spherical grains (a being the radius of a particle, A the extinction and Q the efficiency factor) and from formula:

$$g_{\alpha} = 4/3\ \pi\ a\ b^2\ s\ N \qquad (6)$$

for nonspherical particles (a and b being the semi-axes of the ellipsoidal dust grain model, N the number of particles per cm^3). The results of the calculation are grouped in two tables. The first table gives position, distance (in %), extinction and depth (in %) of the clouds D_1, D_2 of Cassiopeia and Sagitta, as well as the values for the dust-density and the dust-to-hydrogen ratio. The second table gives a comparison of the dust density and the dust-to-hydrogen ratio in the clearest region (in Cassiopeia) and the darkest region (in Sagitta).

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S/269/63/000/004/011/030
A001/A101

AUTHORS: Ampel, Roman, Iwaniszewska, Cecylia

TITLE: A study of galactic structure in four selected fields in Aquila-Sagitta and Cassiopeia

PERIODICAL: Referativnyy zhurnal, Astronomiya, no. 4, 1963, 41, abstract 4.51.353 ("Studia Soc. scient. torunensis", 1962, v. F3, no. 4, 1 - 10, English; Polish summary)

TEXT: The data are used which were obtained at the observatory of Torun-Pivnice for two regions of the Milky Way in constellations Sagitta and Cassiopeia; the clouds of absorbing matter there are investigated from the apparent distribution of the stars. The authors estimate the dust density for the cases of particles of spherical, spheroidal, conical and ellipsoidal shapes. Dimensions, density and other quantities, pertaining to a dust particle, are taken from the data of other authors. Absorption in clouds and particle dimensions are given in a table. The dust density varies in Cassiopeia from 0.05 to 3.3×10^{-25} g/cm^3 and in Sagitta from 0.2 to 1.7×10^{-25} g/cm^3. In both regions

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A study of galactic structure in four...

the dust density amounts to 0.5 - 12% of the neutral hydrogen density. There are 14 references.

B. Fesenko

[Abstracter's note: Complete translation]

Card 2/2

AMPEL, R.

Evolution of effects in stellar associations Cas III, Cas IV, and Cas V. Postepy astronom 12 no.1:11 '64.

AMPEL, R.

Cassiopeia associations:Cas III, Cas IV, and Cas V.
Acts astronom 14 no. 1:52-72 '64.

1. Astronomical Observatory, N. Copernicus University, Torun.

STARIK, I.Ye.; AMPELOGOVA, I.A.

State of microquantities of radioelements in solutions. Part 12: Electrochemical study of the state of polonium in aqueous solutions. Radiokhimiia 1 no.4:419-424 '59. (MIRA 13:1)
(Polonium)

STARIK, I.Ye.; AMPELOGOVA, N.I.; GINZBURG, F.L.; LAMBET, M.S.; SKUL'SKIY, I.A.; SHCHEBETKOVSKIY, V.N.

Molecular state of ultraminute quantities of radioelements in solutions. Radiokhimiia 1 no.4:370-378 '59. (MIRA 13:1)
(Radioactive substances)

STARIK, I.Ye.; AMPELOGOVA, N.I.

State of microquantities of radioelements in solutions. Part 11: Electrophoretic mobility of polonium in aqueous solutions. Radiokhimiia 1 no.4:414-418 '59. (MIRA 13:1)
(Polonium) (Electrophoresis)

MOSKVIN, A.I.; AMPELOGOVA, N.I.

State of microquantities of radioelements in solutions. Part 13: Study of the state of polonium in aqueous solutions by means of ultrafiltration and adsorption on glass. Radiokhimiia 1 no.4: 425-429 '59. (MIRA 13:1)
(Polonium)

Ampelogova N. I.

21 (0), 5 (0)

AUTHOR: Shchebetkovskiy, V. N. SOV/89-7-2-17/24

TITLE: All-Union Symposium on Radiochemistry (Vsesoyuznyy simpozium po radiokhimii)

PERIODICAL: Atomnaya energiya, 1959, Vol 7, Nr 2, pp 175-176 (USSR)

ABSTRACT: A symposium was held in Leningrad from 3 to 5 March 1959. More than 200 participants from different institutes in Moscow, Leningrad, Kiyev, Novosibirsk, Tbilisi and Gor'kiy attended it. Twentyeight papers were read. The following are mentioned: I. Ye. Starik: On the problem of the molecular state of micromasses of radioactive elements in solutions; I. Ye. Starik, N. I. Ampelogova, F. L. Ginzburg, L. I. Il'menkova, I. A. Skul'skiy, L. D. Sheydin: Condition of radioactive elements occurring in microconcentrations of solutions (Zr, Am, Pa, Po). M. N. Yakovleva, M. A. Shurshalina: Application of the dialysis method for examination of uranium carriers in natural bodies of water; V. I. Paramonova, Ye. F. Latyshev: Complex formation of the multivalent ruthenium with chlorine ions. K. B. Zaborenko, A. V. Zaval'skaya, V. V. Fomin: Determination of the composition and the instability constants by ion exchange of the cerium oxalate complexes. A. I. Moskvin:

Card 1/3 Complex formation of plutonium and americium with the anions of

ethylene diamine tetra acetic acid (EDTA) and oxalic and phosphoric acid. A. M. Trofimov, L. N. Stepanova: A new method for the determination of ion charges of radioactive elements in solutions by application of ion exchanging resins of different swelling capacities. N. B. Vysokoostrovskaya, A. M. Trofimov, B. N. Nikol'skiy: Confirmation of the non-existence of complex formation between potassium and EDTA by application of the ion exchange and the potentiometric methods. V. M. Vdovenko, Ye. A. Smirnova: Determination of the conditions of compounds to be extracted in the organic phase (hydration of uranyl nitrate with ester). V. M. Vdovenko, N. F. Alekseyeva: Degree of hydration of nitric acid in dibutyl ether of the diethylene glycol. V. M. Vdovenko, A. S. Krivokhatskiy: Degree of solvation of the nitric acid in the dibutyl ether of the diethylene glycol. A. K. Lavrukhina: Determination of the dependency of the distribution coefficients between the organic and the watery phases in order to determine the condition of the substance in the solution and to fixate the concentration range at which complex formation starts. V. I. Kuznetsov, P. D. Tarov lectured on extraction of hexavalent tungsten with aniline from hydrochloric media. An. N. Nesmeyanov on substitution of hydrogen in benzol by the recoil

atoms P^{32}, As^{76} and Sb^{124}. B. G. Dzantiyev lectured on the recoil atoms from the reactions of $Li^6(n,\alpha)T$, $N^{14}(n,p)C^{14}$ in a medium of cyclic hydrocarbons. P. I. Artyukhin lectured on the influence of the NO_3 and H^+ ions on the reduction velocity of hexavalent plutonium under the influence of its own α-radiation. In the course of thorough discussions it was established that the comprehension of the condition of radioactive elements in solution are of eminent importance for the whole range of radio chemistry. More studies have to be made in this field as were made before. A better coordination of all the institutes which are occupied with this problem will yield good results in the future.

AMPELOGOVA, N I

LAIYSHEV, G D

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PHASE I BOOK EXPLOITATION SOV/5410

Tashkentskaya konferentsiya po mirnomu ispol'zovaniyu atomnoy energii. Tashkent, 1959.

Trudy (Transactions of the Tashkent Conference on the Peaceful Uses of Atomic Energy) v. 2. Tashkent, Izd-vo AN UzSSR, 1960. 449 p. Errata slip inserted. 1,500 copies printed.

Sponsoring Agency: Akademiya nauk Uzbekskoy SSR.

Responsible Ed.: S. V. Starodubtsev, Academician, Academy of Sciences Uzbek SSR. Editorial Board: A. A. Abdullayev, Candidate of Physics and Mathematics; D. N. Abdurasulov, Doctor of Medical Sciences; U. A. Arifov, Academician, Academy of Sciences Uzbek SSR; A. A. Borodulina, Candidate of Biological Sciences; V. N. Ivashev; G. S. Ikramova; A. Ye. Kiv; Ye. N. Lebanov, Candidate of Physics and Mathematics; A. I. Nikolayev, Candidate of Medical Sciences; D. Nishanov, Candidate of Chemical Sciences; A. S. Sadykov, Corresponding Member, Academy of Sciences USSR, Academician, Academy of Sciences Uzbek SSR; Yu. N. Talanin,

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Transactions of the Tashkent (Cont.) SOV/5410

Candidate of Physics and Mathematics; Ya. Kh. Turakulov, Doctor of Biological Sciences. Ed.: R. I. Khamidov; Tech. Ed.: A. G. Babakhanova.

PURPOSE : The publication is intended for scientific workers and specialists employed in enterprises where radioactive isotopes and nuclear radiation are used for research in chemical, geological, and technological fields.

COVERAGE: This collection of 133 articles represents the second volume of the Transactions of the Tashkent Conference on the Peaceful Uses of Atomic Energy. The individual articles deal with a wide range of problems in the field of nuclear radiation, including: production and chemical analysis of radioactive isotopes; investigation of the kinetics of chemical reactions by means of isotopes; application of spectral analysis for the manufacturing of radioactive preparations; radioactive methods for determining the content of elements in the rocks; and an analysis of methods for obtaining pure substances. Certain

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instruments used, such as automatic regulators, flowmeters, level gauges, and high-sensitivity gamma-relays, are described. No personalities are mentioned. References follow individual articles.

TABLE OF CONTENTS:

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23875
S/186/61/003/001/008/020
A051/A127

21320

AUTHORS: Starik, I.Ye., Ampelogova, N.I.

TITLE: The state of microquantities of radioelements in solutions
XV. Sorption of polonium by ionites

PERIODICAL: Radiokhimiya, v 3, no 1, 1961, 37-43

TEXT: The article deals with the investigation of the nature of polonium sorption on ionites of various types in 0.1-12 M solutions of HCl and HNO_3 and the charge sign of the polonium complexes formed. The authors used the KU-2 (KU-2) cationite and two types of anionites: the PE-9 (PE-9) medium-basic anionite and the strongly-basic AV-17 (AV-17). The sorption of polonium was also studied on a styrene and divinylbenzene copolymer. In order to check the degree of shift of equilibrium between the cation and anion forms of polonium during the sorption process on the ionite, the sorption of polonium on PE-9 was studied from fresh solutions and from solutions, in which previously sorption was conducted on KU-2. The results of

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The state of microquantities ...

the polonium sorption from solutions of HCl are given in Fig 1 and from HNO_3 in Fig 2. Obtained experimental data were compared to the electromigration of polonium ions in HCl and HNO_3 solutions. The curves of the relationships of the polonium migration to the anode and cathode and the curves of the relationship of the sorption on the anionite and cationite in HNO_3 are found to have the same shape; this coincidence of data obtained by two different methods led the authors to the conclusion that at a HNO_3 concentration from 2.5 to 10 M negatively-charged forms prevail. In the diluted and concentrated (over 10 M HNO_3) solutions the cation forms are prevalent. No interaction of polonium complexes with the organic resin base (Fig 1) is noted in concentrated HCl and sorption increases somewhat on the cationite. The authors assume that sorption takes place here on the cationite and anionite of the neutral complex forms, polarizing under the action of the highly-polar ionic groups. In order to check the reversibility of the polonium sorption on the cationites and anionites, the relationship was investigated of the distribution coefficient of polonium to the ratio V/m (V- the volume of the solution, m- mass of the resin in grams) and the desorption of polonium from ionites (percentage of desorption was calculated from the relationship of polonium

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in solution to polonium in the resin). The results of the investigation of the electromigration of polonium in HCl media showed that polonium is present in the form of negatively-charged complexes, even at low concentrations of HCl (0.1 M). The sorption of polonium on the anionites in HCl media is found to be high and non-reversible to a great extent. By comparing the distribution coefficients of polonium on a styrene and divinylbenzene copolymer, KU-2 and AB-17, the authors conclude that in the case of sorption on KU-2 the reaction of polonium with the organic resin base may play an important part, and in the case of sorption on AB-17 the part of these reactions is slight. It is quite probable that polonium forms certain complexes with the groups of the quaternary ammonium base, such as $-N^{+}(CH_3)_3$, in the AB-17 resin, or with the amino-groups ($-NH_2$, $=NH$, $\equiv N$) in the PE-9 anionite. The nature of the complexes formed is thought to determine the extent and irreversibility of the polonium sorption on the anionites. The authors draw these general conclusions from their observations: 1) they show that the sorption of polonium by AB-17, KU-2, PE-9 ionites is not a purely ion-exchanging process; 2) they note that in weakly-acidic media there is a

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noticeable reaction of polonium with the organic resin base; 3) they establish that at all HCl concentrations polonium sorption by the anionites is high and to a great extent non-reversible, which is due to the complex-formation of polonium with the ionite groups; 4) they show that during the sorption process of polonium on the ionite in weakly-acidic media a shift of the equilibrium between the cation and anion forms present in the solution takes place; 5) they establish that in HCl solutions at a concentration of 0.1-9 M the negatively-charged polonium complexes prevail, in 9-11 M HCl the presence of uncharged complex forms is possible; 6) it is found that in HNO_3 solutions at a concentration from 2.5 to 10 M the anion complexes prevail. In a weakly-acidic medium (0.1-2.5 M) and in concentrated HNO_3 (over 10 M) polonium cation forms are present. The polonium sorption by ionites in HNO_3 media is irreversible. There are 4 tables, 4 graphs and 15 references: 4 Soviet-bloc, 11 non-Soviet-bloc.

22486
S/186/61/003/003/004/018
E071/E435

21.3200

AUTHORS: Starik, I.Ye. and Ampelogova, N.I.

TITLE: Extraction of Polonium in Various Valency States

PERIODICAL: Radiokhimiya, 1961, Vol.3, No.3, pp.261-271

TEXT: A brief review of the literature on the valency states of polonium and its extraction is given. It is pointed out that the valency state of polonium in the presence of reducing and oxidizing agents remained uncertain. For this reason the authors investigated the extraction of polonium from hydrochloric and nitric acid containing media in the presence of oxidants and reducers, controlling its electrode potential of separation under the same conditions, since the value of the electrode potential is an objective indicator of the valency state of polonium. The extraction of polonium with diethyl ether and a 10% solution of tributylphosphate (TBPh) in benzene from solutions of hydrochloric (0.1 to 11 M) and nitric (0.1 to 13 M) acids was studied. The concentration of polonium was 1 to 2 x 10^{-12} M. Sulphur dioxide, hydrogen peroxide and hydrazine were used as reducing agents and chlorine and potassium dichromate as oxidizing agents. Equal volumes of aqueous phase and a 10% TBPh solution in benzene

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Extraction of Polonium ...

were shaken for 5 minutes. After settling, the phases were separated and polonium was re-extracted from the organic phase with equal volume of 1N HCl. Aliquot portions for the measurements were then taken from the aqueous phase and re-extracted. In the case of extraction with diethyl ether, the latter was preliminarily shaken with a non-active solution of the same composition as that investigated since, at high acid concentrations, a considerable increase in the volume of aqueous phase was observed which was caused by dissolution in it of ether. From the ether phase, polonium was re-extracted with 0.1 N hydrochloric acid. The reduction was carried out by heating a given volume of the solution to 60 to 70°C and bubbling sulphur dioxide for 15 min. After standing for 0.5 to 1 hour, carbon dioxide was bubbled through the solution. In nitric acid solutions the evolutions of NO_2 and oxidation of SO_2 to sulphate ion was observed. For comparison, extraction of polonium from nitric acid solution containing sulphuric acid was carried out. The reduction with hydrazine and hydrogen peroxide was done under the same conditions adding them in the form of solutions. Chlorine was bubbled for 30 minutes through the solution which was heated to 60 to 70°C.

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