

USSR

WDC 616.988.75-036.2(47+497.2)

ZAKSTEL'SKAYA, L. YA., NIKOLOVA, Z., ANTONOVA, I. V., KEBEDZHIYEV, G., YEVSTIGNEYEVA, N. A., and SHENDEROVICH, S. F., Institute of Virology ineni D. I. Ivanovskiy, Academy of Medical Sciences USSR, Moscow, and Scientific Research Institute of Epidemiology and Microbiology, Sofia

"A Comparative Study of the 1969 Influenza Epidemic in the Soviet Union and in the People's Republic of Bulgaria"

Moscow, Voprosy Virusologii, No 6, Nov/Dec 71, pp 656-661

Abstract: The influenza epidemics which lasted from December 1968 to April 1969 in the USSR, afflicting 12.4% of the population, and from February to April 1969 in Bulgaria, afflicting 5.9% of the population, had several common characteristics: both were of foreign origin (brought in by travellers), both developed more gradually but lasted longer than previous epidemics, and the severity of the diseases was mild to moderate, so that no special disruptions occurred either in business or in schools. Over 2,000 strains of virus A2 were isolated in the USSR, of which 439 were investigated, while 226 strains of the same virus were isolated and investigated in Bulgaria. All these strains formed a homogeneous antigenic group, with variant A2 (Hong Kong)68 predominating. Virological, serological, and immunofluorescent tests revealed that this variant differed considerably from the 1/2

ZAKSTEL'SKAYA, L. YA., et al., Voprosy Virusologii, No 6, Nov/Dec 71, pp 656-661

parent strain A2(Singapore)57 and from the subtype A2 which proliferated in 1964-1967 but was practically identical with the subtype A2/3.

2/2

- 6 -

1/2 012 UNCLASSIFIED PROCESSING DATE—30OCT70
TITLE—SANITARY HELMINTHOLOGICAL EVALUATION OF THE METHOD OF
CENTRIFUGATION OF URBAN SEWAGE SEDIMENTS -U-
AUTHOR—(02)—KEBINA, V.YA., AGRANONIK, R.YA.
COUNTRY OF INFO—USSR
SOURCE—MEDITSINSKAYA PARAZITOLOGIYA I PARAZITARNYYE BOLEZNI, 1970, VOL
39, NR 3, PP 311-315
DATE PUBLISHED—70
SUBJECT AREAS—BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS—PARASITE, SANITATION, WASTE TREATMENT, CENTRIFUGE/(U)NOGSH325
CENTRIFUGE
CONTROL MARKING—NO RESTRICTIONS
DOCUMENT CLASS—UNCLASSIFIED
PROXY REEL/FRAE—2000/0216 STEP NO—UR/0358/70/039/003/0311/0315
CIRC ACCESSION NO—AP0123983
UNCLASSIFIED

2/2 012

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0123983

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. STUDIES WERE CARRIED OUT TO INVESTIGATE POSSIBILITIES OF USING NATIONAL SCREW CENTRIFUGES (NOGSH-325) FOR TREATMENT OF SEWAGE SEDIMENTS. IN A SEMI PRODUCTIONAL UNIT, THE PROCESS OF CENTRIFUGATION OF A WET SEDIMENT OF SEWAGE FROM THE PRIMARY SETTLER WAS STUDIED, ONE OF TWO EXPERIMENTAL PRODUCTION UNITS WAS USED TO STUDY THE PROCESS OF CENTRIFUGATION OF ACTIVE SILT, THE OTHER, THE PROCESS OF CENTRIFUGATION OF FERMENTED SEDIMENT FROM EMSCHERIAN. CENTRIFUGATION WAS FOUND NOT TO DESTROY ASCARID EGGS PRESENT IN THE INITIAL PRODUCT BOTH IN EARLY STAGES OF DEVELOPMENT AND IN THE STAGE OF INVASIVE LARVAE. DEPENDING UPON THE COMPOSITION OF THE INITIAL PRODUCT, FROM 5 TO 50PERCENT OF ASCARID EGGS WENT TO THE FUGATE, THE REMAINING PORTION CONCENTRATING IN THE CAKE. THE LATTER MUST BE SUBJECTED TO DEHELMINTHIZATION, AND THE FUGATE MUST BE RETURNED TO PURIFICATION UNITS. FACILITY: OTDEL MEDITSINSKOY GEL'MINTOLOGII INSTITUTA MEDITSINSKOY PARAZITOLOGII I TROPICHESKOY MEDIYSINY IM. YE. I. MARTSINOVSKOGO MZ SSSR, SEKTOR VODOSNADZHENIYA I OCHISTKI VODY, AKADEMII KOMMUNAL'NOGO KHOZYAYSTVA IM. PAMFILOVA.

UNCLASSIFIED

Magnesium

USSR

UDC: 669.721.41

KECHIN, V. A., WYATKIN, I. P., CHUKHROV, M. V., SHPAKOV, V. I.

"Relationship Between Quality of Magnesium and its Degree of Degassing During Refining"

Liteyn. Proiz-vo, Metalloved. i Obrabotka Met. Davleniyem [Foundry Production, Metal Science and Pressure Working of Metals -- Collection of Works], No 6, Krasnoyarsk, 1972, pp 46-48 (Translated from Referativnyy Zhurnal Metallurgiya, No 8, 1973, Abstract No 8G205, by the authors).

Translation: The influence of the degree of oxidation of Mg on the effect of its degassing during refining is demonstrated. The degassing effect of Mg raw material is twice that of bar remelt. It is recommended that raw Mg be used as the raw material for the manufacture of Mg-based working alloys. 1 table, 5 biblio. refs.

1/1

Magnesium

USSR

UDC 669.721

VYATKIN, I. P., KECHIN, V. A., MUSHKOV, S. V., SHCHELKONOGOV, A. A., and STOLBOVA, A. D.

"On the Continuous Production of High-Purity Magnesium"

Moscow, Tsvetnyye Metally, No 6, Jun 73, pp 47-48

Abstract: The continuous production of high-purity magnesium by processing the melt with titanium-containing additives in a casting complex is described. The quality of the magnesium produced satisfies the purity requirements for all admixtures, except for iron admixtures. To eliminate iron, the titanium-containing additives are introduced into the refining chamber of the furnace together with crude magnesium; as a result of titanium reacting with iron in the crude, the generated compounds precipitate on cooling on the bottom of the refining chamber. The iron-purified magnesium, under pressure of the next portion of the cast crude, overflows into the pouring chamber; from there it is fed onto the casting conveyer. The iron content, its analysis, and the dynamics of C_{Fe} change are discussed. Industrial results showed that melts contained 0.003-0.004% Fe and 0.006-0.014% Ti. Two tables, three bibliographic references.

1/1

USSR

UDC 669.721.4

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KECHIN, V. A., VYATKIN, I. P., and CHUKHROV, M. V.

"Degassing Primary Magnesium by Different Refining Methods"

Moscow, Tsvetnyye Metally, No 5, May 73, pp 52-53

Abstract: This work was devoted to studying the change of gas content (hydrogen) in the refining of magnesium by settling and by treating with VI-2 flux and a titanium-containing flux. The raw magnesium was heated to 700, 740, and 780°C and saturated with hydrogen. Results showed that the amount of hydrogen remaining after refining was least for the titanium-containing flux process while the settling process left the most hydrogen. 1 figure, 2 bibliographic references.

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USSR

"UDC 669.721.4

KECHIN, V. A., VYATKIN, I. P., and CHUKHROV, M. V.

"Degassing Primary Magnesium by Different Refining Methods"

Moscow, Tsvetnyye Metally, No 5, May 73, pp 52-53

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1/1

1/2 009 UNCLASSIFIED PROCESSING DATE--11SEP70
 TITLE--PRODUCTION OF VALERIAN GALENICALS USING CONDENSED CARBON DIOXIDE
 -U-
 AUTHOR--MURAVYEV, I.A., KECHATOV, YE.A., SMETANIN, YU.I.
 COUNTRY OF INFO--USSR
 SOURCE--KHM. FARM. ZH. 1970, 4(1), 48-51
 DATE PUBLISHED-----70

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SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
 TOPIC TAGS--DRUG PRODUCTION, CARBON DIOXIDE, PROCESSED PLANT PRODUCT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
 PROXY REEL/FRAME--1985/1645

STEP NO--UR/0450/70/004/001/0048/0051

CIRC ACCESSION NO--AP0101700

UNCLASSIFIED

2/2 009

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0101700

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ROOTS OF THE VALERIAN PLANT (17 KG), MACERATED AND CRUSHED BY MILLING, WERE LOADED IN EXTRACTORS AND THE EXTRACTORS HERMETICALLY SEALED. AFTER FILLING UP THE EXTRACTORS WITH GASEOUS CO SUB2 FROM A TANK ON TOP OF THE EXTRACTORS TO A GIVEN PRESSURE, CONDENSED CO SUB2 GAS FORMED OVER THE MATERIAL. THE EXTN. WAS CARRIED OUT AT 25DEGREES AT 65 ATM FOR 3 HR. THE MICELLES FROM THE EXTRACTORS WERE FED INTO A FILTER, AND THE FILTRATE INTO AN EVAPORATOR FOR REMOVING THE EXTRACTANT. THE NATIVE EXT. THUS OBTAINED WAS A MOBILE LIQ. WITH THE CHARACTERISTIC 'ODOR OF THE STARTING CRUDE'. THE YIELD WAS 2.2PERCENT BASED ON THE STARTING CRUDE. A DIAGRAM OF THE APP. IS GIVEN.

UNCLASSIFIED

USSR

UDC 669.721

VYATKIN, I. P., KECHIN, V. A.

"Titanium Content in High-Purity Magnesium"

Moscow, Tsvetnyye metally, No 3, Mar 72, pp 36-38

Abstract: An analysis is made of the factors responsible for Ti fluctuations in high-purity Mg during its production on the basis of statistical data on the quality control of high-purity Mg for the 1968-70 period. A correlation has been established between the absolute moisture content in atmospheric air and the Ti content in Mg. It is shown that the Ti content in Mg increases with decreasing air humidity. A decrease in the Ti content by thoroughly refining the Mg from Fe may be achieved by Ti charge optimization. Experimentation with various weighed amounts of Ti charges in the melt indicates 0.1% Ti as the optimum charge ensuring minimum contents of Ti and Fe. A test series of ten melts has shown that charges of lower Ti chlorides with 0.1-0.15% Ti resulted in <0.015% Ti and <0.004% Fe.

3 illustrations
1/1

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Magnesium

USSR

UDC 669.721

VYATKIN, I. P., KECHIN, V. A., and STOLBOVA, A. D.

"Hydrogen in Electrolytic Magnesium and Initial Magnesium Alloys"

Moscow, Tsvetnyye metally, No 5, May 72, pp 57-58

Abstract: The presence of gases -- primarily hydrogen -- in magnesium and magnesium alloys adversely affects the quality of the finished product. Bar materials are among the principal hydrogen sources. This study deals with hydrogen content in crude magnesium as a function of the electrolyzer feed system and other related electrolytic and production processes. The results obtained offer a positive evaluation of producing castings directly from molten alloys and bypass pouring and remelting operations of bar metals and alloys in order to reduce the hydrogen content. Maximum hydrogen contents are shown to occur during stirring operations. (2 illustrations)

1/1

Magnesium

USSR

UDC 669.721'884

VYATKIN, I. P., MUSHKOV, S. V., ~~KECHIN, V.A.,~~ and YELKIN, F. M.

"Technological Requirements For the Production of Magnesium-Lithium Alloys"

Moscow, Tsvetnyye Metally, No 6, 1972, pp 43-44

Abstract: Two methods were considered for the preparation of magnesium-lithium alloys. One method required the use of a protective flux consisting of molten lithium chloride and lithium fluoride. It was unacceptable because of many difficulties encountered during the work. The second method uses argon as a protective atmosphere in a 500-kg crucible equipped with a cover. The charge elements are added in the following sequence: at first, a small amount of magnesium ingot with 1.8-2.5% Mn is melted in the crucible at 700° for 4-5 hr, then a high-purity magnesium ingot with not more than 0.005% Na is added at the same temperature, followed by aluminum, zinc, cadmium, and lithium, in that order. The alloy was mixed for 5-15 min after the addition of each alloying element. All metals were added as ingots in order to eliminate impurities, especially Na. Lithium ingots were washed in kerosene at first, wiped up, and dried in air before being placed into the crucible. The whole production process took 9-10 hr. The pouring of the alloy was done at 700-710°C. The alloys (several smeltings) contained 1/2

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VYATKIN, I. P., et al., Tsvetnyye Metally, No 6, 1972, pp 43-44

7.79-8.14% Li, 4.64-5.09% Al, 1.42-1.56% Zn, 4.12-4.48% Cd, 0.34-0.39% Mn, and 81% Mg. The concentration of components varied, depending on smelting. Special precautions were taken to exclude Na and chlorides from the alloys.

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USSR

UDC 669.721.053.4

VYATKIN, I. P., GULYAKIN, A. I., ~~KECHIN, V. A.~~, MUSHKOV, S. V.

"Protection of Magnesium from Saturation with Iron During Remelting in Steel Crucibles"

Tr. Vses. N.-i. i Proekt. In-ta Alyumin., Magn. i Elektrod. Prom-sti [Works of All-Union Scientific Research and Planning Institute for the Aluminum, Magnesium and Electrode Industry], No 79, 1971, pp 83-87, (Translated from Referativnyy Zhurnal, Metallurgiya, No 5, 1972, Abstract No 5 G247 by G. Svodtseva).

Translation: High purity Mg is produced in a steel crucible by processing of the Mg raw material with Ti-containing additives, followed by cooling for various periods of time. The content of Fe is decreased from 0.03-0.04%, the content of Mg raw material to 0.001-0.005% following Ti treatment. Remelting of high purity Mg is possible in the production of alloys based on Mg or Al at consumer plants. High purity pig Mg containing 0.001% Fe was charged into a steel crucible, melted for 4 hours, heated to 710° and held for 1.5 hours, then repoured. The content of Fe remained at the same level during all stages of remelting. The content of other impurities also remained unchanged.

1/1

USSR

UDC 669.721.41

VYATKIN, I. P., KECHIN, V. A., MUSHKOV, S. V., BRANDMAN, O. I., BONDAREVA, E. P.

"Composition and Structure of Highly Pure Primary Magnesium"

Metalloved. splavov legkikh met -- V sb. (Physical Metallurgy of Alloys of Light Metals -- collection of works), Moscow, Nauka Press, 1970, pp 185-189 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4G220)

Translation: A new procedure has been developed and introduced for purifying Mg by treating the Mg with Ti-containing additives. The dependence of the Mg structure on its composition has been studied in special samples with Ti and Be additives. The Be additive used to decrease the oxidizability of highly pure Mg does not lead to enlargement of the Mg macrograin in the presence of Ti admixture. There are 4 illustrations, 1 table, and a 7-entry bibliography.

1/1

Magnesium

UDC 669.721.834

USSR

VYATKIN, I. P., MUSHKOV, S. V., KECHIN, V. A., and AKININA, N. K.

"Purity of the Starting Material for Magnesium-Lithium Alloys"

Tsvetnye Metally, No 4, Apr 71, p 53

Abstract: Since traces of sodium in a magnesium-lithium alloy increase its brittleness, a study was made to determine the maximum allowable amounts of sodium which may be present in the raw materials used for the electrolytic production of the alloy. The use of carnallite with a maximum amount of 7.5% magnesium chloride for electrolysis allowed the production of magnesium-lithium alloy ingots with a maximum sodium content of 0.003%.

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USSR

UDC 669.721

VYATKIN, I. P., KECHIN, V. A., MISHKOV, S. V., BRANDMAN, O. I., and
BONDAREVA, E. P.

"Composition and Structure of High-Purity Initial Magnesium"

Metallovedeniye Splavov Legkikh Metallov-Sbornik, Moscow, "Nauka", 1970,
pp 185-189, resume

Translation: A new method of refining magnesium by processing magnesium with titanium-containing additives has been developed and introduced. The composition dependence of the magnesium structure was investigated on special specimens with titanium and beryllium additions. It is shown that the addition of beryllium with a view to decreasing the oxidizability of high-purity magnesium does not affect an enlarging of the macrograin in presence of a titanium admixture. Four figures, one table, seven bibliographic references.

1/1

Magnesium

USSR

UDC 669.715


VYATKIN, I. P., KECHIN, V. A., BRANDMAN, O. I., and MUSHKOV, S. V.

"Variation of Iron Content in Refining and Holding Magnesium Melts in Industrial Furnaces"

Moscow, Tsvetnyye Metally, No 5, May 70, pp 47-48

Abstract: A study was made of the variation of iron content in magnesium melts. It is noted that the variation of iron content probably depends not only on the magnesium cooling rate, but also on its state and on the nature of impurities. The dispersion of iron content in magnesium in SMT-1 furnaces is explained by the wide range of magnesium temperature variation and the related iron solubility in magnesium. The magnesium temperature stabilization in continuous refining furnaces with capacities of 6 to 15 tons of Mg made it possible to obtain a constant iron content in magnesium.

1/1

1/2 023 UNCLASSIFIED PROCESSING DATE--11DEC70
TITLE--MAIN INDICATORS OF PERFORMANCE OF AIR CLEANER IN D-50 ENGINE -U-
AUTHOR--(02)-KECHIN, V.A., SKVORNYUK, P.A. 
COUNTRY OF INFO--USSR
SOURCE--TR. SARATOVSK. IN-TA MEKHANIZ. S. KH. (TRANSACTIONS OF THE SARATOV
REFERENCE--REFERATIVNYY ZHURNAL-DVIGATELI VNUTRENNEGO SGOBANIYA, NO 4,
DATE PUBLISHED-----70

SUBJECT AREAS--PROPELLSION AND FUELS, MECH., IND., CIVIL AND MARINE ENGR
TOPIC TAGS--AIR FILTER, INTERNAL COMBUSTION ENGINE, CLEANING TECHNIQUE,
FILTRATION, AIR/(U)50 ENGINE

CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD70/605031/F05 STEP NO--UR/0000/70/000/042/0091/0096
CIRC ACCESSION NO--AR0141987
UNCLASSIFIED

2/2 023

UNCLASSIFIED

PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AR0141587

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE HANDLING CAPACITY OF A CLEAR AIR CLEANER IN THE D-50 ENGINE FOR NOMINAL AIR CONSUMPTION (225 M PRIME3 -HK) IS 2.95PERCENT FOR A RESISTANCE OF 325 MM H SUB2 0. CONTAMINATION OF THE AIR CLEANER REDUCES ITS HANDLING ABILITY. WHEN 2400 G OF DUST ENTERS AN AIR CLEANER, THIS ABILITY IS REDUCED BY FIVE TIMES. THE DUST TRAPPING CAPACITY OF AN AIR CLEANER IS RESTRICTED BY THE MAXIMUM ALLOWABLE RESISTANCE FOR A GIVEN ENGINE AND IS 2100 G OF DUST. A RISE IN RESISTANCE DEPENDS MAINLY ON THE INTENSITY OF RESISTANCE BUILT UP IN THE SECCND CARTRIDGE OF THE PACKING DUE TO ITS POOR FLUSHING WITH OIL. OPERATING INDICATORS OF THE AIR CLEANER IN THE D-50 ENGINE DO NOT MEET PRESENT DAY REQUIREMENTS AND ARE IN NEED OF MARKED IMPROVEMENT.

UNCLASSIFIED

1/2 023 UNCLASSIFIED PROCESSING DATE--11DEC70
TITLE--EQUALIZING VELOCITIES OF AIR FLOW IN PACKING OF AIR CLEANER IN D-50
ENGINE -U-
AUTHOR-(02)-MECHIN, V.A., SKVORNYUK, P.A.
COUNTRY OF INFO--USSR
SOURCE--TR. SARATOVSK. IN-TA MEKHANIZ. S. KH. (TRANSACTIONS OF THE SARATOV
REFERENCE--REFERATIVNYY ZHURNAL-DVIGATELI Vnutrennego Sgoraniya, NO 4,
DATE PUBLISHED-----70

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SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, PROPULSION AND FUELS
TOPIC TAGS--INTERNAL COMBUSTION ENGINE, AIR FILTER, FILTRATION, AIR/UIDSO
ENGINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PRJXY FICHE NO----FD70/605031/F03 STEP NO--UR/0000/70/000/042/0097/0101

CIRC ACCESSION NO--AR0141985

UNCLASSIFIED

2/2 023

UNCLASSIFIED

PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AR0141985

ABSTRACT/EXTRACT--(U) GP-C- ABSTRACT. AIR BY PASS FROM THE HEAD OF AN AIR CLEANER LEADS TO NONUNIFORM DISTRIBUTION OF FLOW VELOCITIES IN PACKING. NONUNIFORMITY OF VELOCITY FIELDS DEPENDS ON DESIGN PARAMETERS OF THE AIR CLEANER: HEAD RESISTANCE, PACKING RESISTANCE, AND CROSS SECTIONAL AREA OF HEAD CHANNEL. USING THE EQUALIZING WASHER, MORE UNIFORM DISTRIBUTION OF VELOCITIES IN PACKING CAN BE REALIZED. USING THE EQUALIZING WASHER REDUCES THE INITIAL HANDLING CAPACITY OF THE AIR CLEANER FOR AIR CONSUMPTION OF 180 M³ PER HOUR BY 12 PERCENT AND INCREASES RESISTANCE BY 20-25 MM H₂O. AN AIR CLEANER WITH EQUALIZING WASHER WHEN OPERATED UP TO MAXIMUM ALLOWABLE RESISTANCE HAS A MEAN HANDLING CAPACITY THAT IS 47 PERCENT LOWER THAN SERIES PRODUCED AIR CLEANERS. USE OF THE EQUALIZING WASHER DOES NOT REDUCE THE DUST TRAPPING CAPACITY OF THE AIR CLEANER.

UNCLASSIFIED

AA0047079 - Kedra, Yu. V. UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent,

1/70

241700 FILM THICKNESS CHECK RIG to control it during its application on cathode (13) from atomizer (15) has on the same rotating holder as the cathode a transparent indicator (3). The film thickness on the latter is compared with that on a reference indicator by a photoelectric system which is actuated periodically by lamp (1) switched on by pick-up (11). When the required film thickness has been reached, the atomizer is cut off.
26.1.68 as 1214955/25-28. I.A. PRUDVIBLOKH et alia.
L'VOV POLYTECHNIC (25.8.69) Bul 14/18.4.69. Class 42b
Int.Cl.G 01 b.

1/2

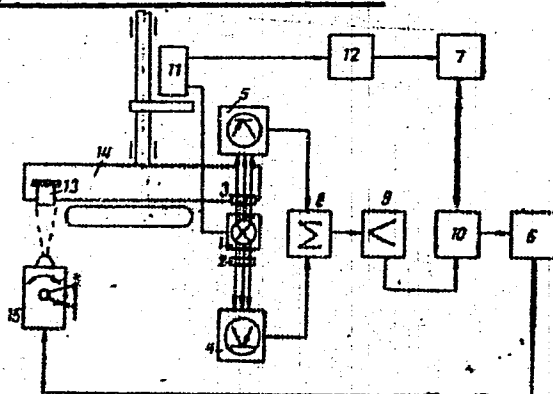
18

19790550

AA0047079

AUTHORS: Prudviblokh, I. A.; Greben', Yu. I.; Kedra, Yu. V.; Marets, V. M.;
Traube, L. V.; Oranskiy, G. A.; Soroka, B. P.

L'vovskiy Politekhnicheskiy Institut



19790551

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MT

AA0046284

UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent,

1/70

241701 FILM THICKNESS CHECK METHOD uses a short-pulse illumination of a reference sample and of an indicator but the start of the measurement is delayed until the differential signal has reached its maximum value. Once started, the measurement is continued until the differential signal changes its polarity and the atomizing process is then stopped.

26.1.68 as 1214954/25-26. YU.V.KEDRA & I.A.PHUDVI-BLOKH. LVOV POLYTECHNIC (25.8.69) Bul 14/18.4.69. Class 42b. Int.Cl.G 01 b.

L'vovskiy Politekhicheskiy Institut

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19781432

USSR

UDC 621.791.4:539.378.3.015:669.27

ABRAMTSEV, A. V. (Engineer), KEDRIN, I. D., and NICHUSHKIN, V. V.
(Candidates of Techn. Sciences)

"Effect of Surface Preparation on the Formation of Permanent Joints
From VNZ Alloy by Diffusion Welding Under Vacuum"

Moscow, Svarochnoye proizvodstvo, No 5, May 72, pp 23-24

Abstract: Diffusion welding in vacuum seems to hold great promise for producing permanent welds from refractory metals and alloys. This study concerns the effect of a vacuum spray-coated interlayer (on the surface to be welded) on the strength of joints from VNZ alloys produced by diffusion welding in vacuum. The chemical composition of VNZ alloy was (in %): 4.0-5.2 Mo; 0.8-2.0 Zr; 0.08-0.16 C; 0.03 O₂; < 0.04 H₂; > 0.005 N₂; the balance--Nb. Nickel was used for the spray-coated interlayer. It is shown that the upper temperature limit for the joint is confined to the recrystallization temperature of niobium and its alloys. The presence of recrystallized grains does not reduce the weld strength but appears to depend on the number of gripping centers which increase with surface purity. The positive effect of the spray-coated film lies primarily in cleaning the surface rather than promoting diffusion processes. (6 illustrations, 7 bibliographic references)

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1/2 025 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--NATURE OF ACTIVE CENTERS DURING ANIONIC POLYMERIZATION OF
FORMALDEHYDE CN TRIETHYLAMINE -U-
AUTHOR--(05)--MARKEVICH, M.A., PENCHEV, P.I., KEDRINA, N.F., IVANOV, V.V.,
YENIKLOPYAN, N.S.
COUNTRY OF INFO--USSR
SOURCE--DOKL. AKAD. NAUK SSSR 1970, 190(5), 1140-2 (PHYS. CHEM) K
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--POLYMERIZATION, FORMALDEHYDE, TRIETHYLAMINE, CHEMICAL REACTION
MECHANISM, NMR SPECTRUM
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--2000/0719 STEP NO--UR/0020/70/190/005/1140/1142
CIRC ACCESSION NO--AT0124389
UNCLASSIFIED

2/2 025

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AT0124389

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE FOLLOWING 2 MECHANISMS ARE CONSIDERED FOR THE ANIONIC POLYMN. OF HCHO IN THE PRESENCE OF ET SUB3 N: (1) ET SUB3 N PLUS H SUB2 O IN EQUILIBRIUM TO ET SUB3 N PRIME POSITIVE H PLUS OH PRIME NEGATIVE; OH PRIME NEGATIVE PLUS HCHO YIELDS HOCH SUB2 O PRIME NEGATIVE. THE POLYMER CHAIN GROWTH INVOLVES (HO(CH₂ O) SUBN CH SUB2 O PRIME NEGATIVE)HNET SUB3 PRIME POSITIVE (I) AS THE ACTIVE CENTER; H SUB2 O MUST BE PRESENT AS THE COCATALYST. (2) ET SUB2 N PLUS HCHO YIELDS ET SUB3 N PRIME POSITIVE CH SUB2 O PRIME NEGATIVE. THE POLYMER CHAIN GROWTH INVOLVES THE ZWITTERION ET SUB3 N PRIME POSITIVE (CH SUB2 O) SUBN CH SUB2 O PRIME NEGATIVE (II). HCHO WAS POLYMD. IN PHME OR IN THE GAS PHASE IN THE PRESENCE OF ET SUB3 N. THE POLYMN. MIXTS. WERE EXTD. WITH PHNO SUB2 AT 100DEGREES. THE EXTS. DID NOT HAVE COMPS. OF TYPE II AS SHOWN BY COMPARING NMR SPECTRA OF THE EXTS. WITH THE SPECTRUM OF (ET SUB3 NCH SUB2 OME) PRIME POSITIVE CL PRIME NEGATIVE. THUS, MECHANISM (1), POSSIBLY ALSO INVOLVING FAST PROTON EXCHANGE (E. K. RALPH, ET AL., 1967), IS PREFERRED. FACILITY: INST. KHIM. FIZ., MOSCOW, USSR.

UNCLASSIFIED

USSR

3 Apr 73

An item states that
MAKSAREV, YU. YE., Chmn, Com for Inventions and Discoveries attached to the
Council of Min USSR, and
KEDROVSKIY, O. V., Dep Chief, Adm of Scientific and Technical Information,
State Com for Science and Technology, Council of Min USSR, presented
reports at conference held in the Baumanskiy rayon of Moscow.

Vechernyaya Moskva, 3 Apr 73, p 2, col 4

(2)

USSR

UDC: 669.295'6'787:620.191.32

KENINA, Ye. M., KORNILOV, I. I., VAVILOVA, V. V., Institute of Metallurgy
Izvestiya A. A. Baykov

"Influence of Oxygen on Scale Resistance of Titanium-Tin Alloys"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 5, 1972,
pp 23-26.

Abstract: The influence of 1 at. % (0.35 wt. %) oxygen on the heat resistance of binary alloys of titanium with tin at 700-1000°C is studied. The studies show that the oxygen increases the oxidation rate of these alloys at all temperatures studied, less with increasing tin content. The mechanism of oxidation remains the same.

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1/2 019 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--EFFECT OF CATHODE MATERIAL AND ACIDITY OF THE MEDIUM ON THE
ELECTROREDUCTION OF TETRANITROMETHANE AND NITROMETHANE -U-
AUTHOR--(02)--KUROCHKINA, N.A., KEORINSKIY, I.A.

COUNTRY OF INFO--USSR

SOURCE--ZH. PRIKL. KHIM. (LENINGRAD) 1970, 43(2), 341-7

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CATHODE, PLATINUM GRAPHITE, PYROLYSIS, ELECTROLYTIC REDUCTION,
NITROMETHANE, TETRANITROMETHANE, HYDROLYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1987/0332

STEP NO--UR/0080/70/043/002/0341/0347

CIRC ACCESSION NO--AP0103987

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--18SEP70

2/2 019

CIRC ACCESSION NO--AP0103987

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THE ELECTROCHEM. REDN. OF TETRANITROMETHANE (I) AND NITROMETHANE (II) ON PT, PYROLYTIC GRAPHITE, AND DROPPING HG CATHODE WAS INVESTIGATED AT SATD. AND 0.001 M CONCNS. IN AQ. AND IN 10 VOL. PERCENT ETOH AQ. SOLNS AT DIFFERENT PH. THE ELECTROLYTE WAS 3N NACL. THE MAX REDN. RATE OF I WAS ON THE PYROLYTIC GRAPHITE CATHODE AT ALL PH VALUES, WHILE FOR II, THE MAX. REDN. RATE WAS IN NEUTRAL SOLNS. ON PT AND IN THE ACIDIC ONES ON PYTOLYTIC GRAPHITE. THE REDN. OF I AND ITS HYDRATED COMPLEX TAKES PLACE IN THE 1.0-0.0 V REGION AT PT AND PYROLYTIC GRAPHITE CATHODES, THE REDN. OF CHINO SUB2) SUB3, FORMED BOTH BY ELECTROCHEM. REDN. OF I AND ITS HYDROLYSIS, OCCURS AT 0.0 TO MINUS 0.6 V. IT IS PROPOSED THAT THE ACIDITY AND THE CATHODE MATERIAL AFFECT ONLY THE RATE OF I HYDROLYSIS. FOR II, NO STEPS WERE OBSERVED ON THE POLARAGRAPHIC CURVE, BUT THE POTENTIAL IS SHIFTED TO THE MORE POS. VALUES.

UNCLASSIFIED

USSR

UDC: 621.396.69:621.316.8

BLOKHIN, Yu. I., KEDROV, Ye. M., BERUCHKO, N. I.

"Working Capacity of Thin-Film Resistors in the Pulse Mode With a Pulse Duration of More Than 500 μ sec"

Elektron. tekhnika. Nauchno-tekhn. sb. Radiodetaili (Electronic Technology. Scientific and Technical Collection. Radio Components), 1970, vyp. 1 (18), pp 67-71 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12V337)

Translation: The authors describe the results of determination of the working capacity of thin-film resistors operating in the pulse mode with a pulse duration from 500 μ sec to 20 msec. A method is proposed for calculating the maximum permissible amplitudes of pulses and overloads for bulk thin-film resistors for various average power levels and the above-mentioned pulse duration range. Bibliography of 3 titles. Ye. M.

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- 120 -

1/2 021

UNCLASSIFIED

PROCESSING DATE--30OCT70

TITLE--CHROMATOGRAPHIC ANALYSIS OF DIBORANE, SILANE, AND GERMANE FOR ORGANIC IMPURITIES -U-
AUTHOR--(05)--ZORIN, A.D., FROLOV, I.A., KARABANOV, N.T., KEDYARKIN, V.M., BALABANOV, V.V.
COUNTRY OF INFO--USSR

SOURCE--ZH. ANAL. KHIM. 1970, 25(2), 389-91

DATE PUBLISHED-----70

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SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--DIBORANE, SILANE, GERMANIUM COMPOUND, CHROMATOGRAPHIC ANALYSIS, CHEMICAL PURITY, ALKANE, ALKENE, ALDEHYDE, METHANOL, ETHANOL

CENTRCL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--2000/2070

STEP NO--UR/0075/70/025/002/0389/0391

CIRC ACCESSION NO--AP0125657

UNCLASSIFIED

2/2 021

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0125657

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A CHROMATOGRAPHIC METHOD WAS DEVELOPED FOR THE DETN. OF ORG. COMPOS. IN DIBORANE, SILANE, AND GERMANE WITH A SENSITIVITY OF 2 TIMES 10 PRIME NEGATIVE5-1.6 TIMES 10 PRIME NEGATIVE4 VOL. PERCENT. INZ-600, TND-FS-M, DIATOMITE BRICK WERE USED AS SOLID SUPPORTS FOR THE DETN. OF GERMANE, SILANE, AND DIBORANE, RESP.; THE LIQ. PHASE WAS SQUALENE, VASELINE OIL AND POLYETHYLENE GLYCOL-2000, TRICRESYL PHOSPHATE AND SQUALENE. N IS THE CARRIER GAS. INDUSTRIAL DIBORANE CONTAINS C SUB6 H SUB6, PROPYLENE, C SUB6 H SUB8, C SUB5 H SUB12, MECL, AND C SUB6 H SUB14. INDUSTRIAL SILANE CONTAINS C SUB4 H SUB10, ME SUB2 C, MEETO, ET SUB2 O, ETCL, ACETYLALDEHYDE, ME SUB2 CO, MEDH, ETOH, C SUB6 H SUB6, TRIETHOXY SILANE; INDUSTRIAL GERMANE CONTAINS CH SUB4, C SUB2 H SUB4, C SUB2 H SUB6, PROPYLENE, C SUB3 H SUB7, C SUB4 H SUB10, AND ISCBUTANE. FACILITY: SCI.-RES. INST. CHEM., GORKI STATE UNIV., GORKI, USSR.

UNCLASSIFIED

USSR

UDC 532.57+532.137+536.51+532.14.08+531.787

KEFALIDI, S. G., DUDIN, V. F.

"On Vibration Methods for Measuring Viscosity, Density and the Viscosity-Weight Constant of Liquids on the Basis of Vibration Damping"

Tr. Groznen. neft. in-t (Works of Groznenskiy Petroleum Institute), 1971, Collection 33, pp 228-230 (from RZh-Mekhanika, No 12, Dec 71, Abstract No 12B1631)

Translation: A theoretical analysis presented of the vibration method for measuring liquid viscosity on the basis of vibration damping at any Reynolds number. A differential equation is obtained for the damping oscillations for the case of a vibrational system with lumped parameters. Formulas are obtained from this equation for calculating the liquid viscosity and the viscosity-weight constant ($\mu\rho$) in the case of small ($R < 1$) and large Reynolds numbers. I. G. Bulina.

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1/2 006 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--THE EXPERIENCE OF REGISTRATION WAVES FROM DIRECTED SOURCES BY THE
ORE SEISMIC PROSPECTING -U-
AUTHOR--KEFELI, A.S., MIKHELEV, I.P., TRIGUBOV, A.V.
COUNTRY OF INFO--USSR
SOURCE--GEOLOGIYA I GEOFIZIKA, 1970, NR 1, (121) PP 110-115
DATE PUBLISHED-----70
SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY
TOPIC TAGS--SEISMIC PROSPECTING, ORE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1986/1287 STEP NO--UR/0210/70/000/001/0110/0115
CIRC ACCESSION NO--AP0103169
UNCLASSIFIED

2/2 006

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0103169

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE POSSIBILITIES OF REFLECTED
TRANSITIONAL WAVES APPLICATION BY THE STUDY OF UPPER PART OF THE SECTION
IN ORE AREAS ARE DISCUSSED. THE RESULTS OF FIRST OBSERVATIONS IN ORE
ALTAI REGION AND UZBEKISTAN ARE LISTED.

0123

UNCLASSIFIED

USSR

UDC 547.91.7

LIVSHITS, N. D., KADYROV, Ch. Sh., and KEFELI, V. I., "Order of the Red Banner of Labor" Institute of the Chemistry of Plant Materials, Academy of Sciences of the Uzbek SSR; Institute of Plant Physiology imeni Timiryazev

"Synthesis and Biological Activity of RS-Absciscic Acid and Its Analogs"

Tashkent, Khimiya Prirodnikh Soyedineniy, No 6, 1970, pp 731-735

Abstract: A three-stage method is used for synthesizing absciscic acid giving a 24% yield of intermediate 1-hydroxy-4-keto- α -ionone. The purity of the ketone was checked by the method of thin-layer chromatography. Condensation of 1-hydroxy-4-keto- α -ionone with carboethoxymethylene triphenylphosphoran yields a mixture of isomers of (+) cis-trans and (+) trans-trans-absciscic acid esters. The precipitated triphenylphosphonium oxide was separated from the mixture of absciscic acid ester isomers. The acid ester mixture was then washed in the column without removing the triphenylphosphonium oxide. When the residue was treated with a mixture of ether and petroleum ether, absciscic acid was isolated with a yield of 34%. A possible biosynthetic predecessor of RS-absciscic acid -- ethyl ether of β -ionolylene acetate -- was synthesized by reacting β -ionone with carboethoxymethyl phosphonic acid. The reaction was 1/2

USSR

LIVSHITS, N. D., et al, Khimiya Prirodnikh Soyedineniy, No 6, 1970, pp 731-735

done with sodium and lithium hydrides in a nitrogen atmosphere in dimethylformamide. Ethyl ether of β -ionolydene acetate was also synthesized by reacting β -ionone with ethyl bromoacetate. In this reaction, ethyl ether of retro- β -ionolydene acetate is produced in addition to the main product. The authors studied the effect of various factors on condensation of β -ionone with ethyl bromoacetate: duration of the reaction, the nature of the catalyst (zinc powder, zinc amalgam) and its quantity, and also the presence of impurities which affect product yield. Other possible predecessors of RS-*abscisic acid* -- ethyl ether of dehydro- β -ionolydene acetate and dehydro- β -ionone -- were synthesized by N-Br-succinimide allyl bromination of ethyl ether of β -ionolydene acetate and β -ionone respectively. The best yield of products for dehydro- β -ionone (50%) was achieved by carrying out the reaction in carbon tetrachloride (treatment by diethyl aniline and pyridine, 3:1), while the best yield for dehydro- β -ionolydene acetate (57%) was achieved by carrying out the reaction in methylene chloride (quinoline treatment). It was found that the predecessors of RS-*abscisic acid* suppresses the growth of coleoptile segments to a much lesser extent than the acid itself.

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1/2 009 UNCLASSIFIED PROCESSING DATE--23JCT70
TITLE--POSSIBILITIES AND LIMITATIONS OF A METHOD FOR ASSAY OF NATURAL
AUXINS AND GROWTH INHIBITORS -U-
AUTHOR--(03)-KEFELI, V.I., TURETSKAYA, KH.R., KOF, E.M.

COUNTRY OF INFO--USSR *R.*

SOURCE--FIZIOLOGIYA RASTENIY, 1970, VOL 17, NR 3, PP 627-634

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PROCESSED PLANT PRODUCT, SOLVENT EXTRACTION, PLANT GROWTH
REGULATOR, CHROMATOGRAPHIC SEPARATION, PLANT PHYSIOLOGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1998/0388

STEP NO--UR/0326/70/017/003/0627/0634

CIRC ACCESSION NO--AP0121074

UNCLASSIFIED

2/2 009

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0121074

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SOME FEATURES OF EXTRACTION OF GROWTH SUBSTANCES AND RELATED PIGMENTS FROM PLANT MATERIAL BY ETHER AND OTHER SOLVENTS ARE DISCUSSED. IT IS NOTED THAT THE EXTRACTABILITY OF IAA FROM GROUND TISSUES DEPENDS ON THE MOISTURE CONTENT OF THE SAMPLE AND ON ITS ABILITY TO COMBINE WITH POLYMER COMPOUNDS. RESTRICTIONS ARE ESTABLISHED FOR APPLICATION OF TOLUENE FOR PURIFICATION OF GROWTH SUBSTANCE EXTRACTS FROM PIGMENTS AND LIPIDS. THE VARIOUS STAGES OF ANALYSIS OF GROWTH SUBSTANCES ARE CONSIDERED. THE FIRST IS CHOICE OF THE SAMPLE AND OPTIMAL SOLVENT MIXTURE FOR ONE DIMENSIONAL CHROMATOGRAPHY; THIS PERMITS ONE WITH AID OF BIOTESTS TO DETECT THE STIMULATION AND INHIBITION ZONES AND WITH HELP OF COLOR REACTIONS TO ASSESS THEIR CHEMICAL NATURE. THE SECOND STAGE CONSISTS IN PREPARATIVE EXTRACTION OF THE MAJOR AUXINS AND INHIBITORS, THE ACCUMULATION AND RECHROMATOGRAPHY OF SEPARATE PHYSIOLOGICALLY ACTIVE COMPOUNDS. THE PREPARATIVELY EXTRACTED AND CHEMICALLY IDENTIFIED GROWTH SUBSTANCES, AUXINS AND INHIBITORS, CAN SUBSEQUENTLY BE EMPLOYED FOR FURTHER ASSESSMENT OF THEIR PHYSIOLOGICAL PROPERTIES. IN PARTICULAR TWO INDICES CAN BE CHOSEN FOR CHARACTERIZING THE SUPPRESSING ACTION OF THE GROWTH INHIBITORS. THESE ARE 1) C SUB50, THE INHIBITOR CONCENTRATION WHICH SUPPRESSES GROWTH BY 50PERCENT AND 2) CRITERIA FOR INTERACTION BETWEEN INHIBITORS AND SUB OPTIMAL PHYTOHORMONE CONCENTRATIONS: COMPLETE ANTAGONISM, PARTIAL ANTAGONISM, ABSENCE OF ANTAGONISM AND STIMULATION OF PHYTOHORMONE ACTION BY THE INHIBITOR. FACILITY: K. A. TIMIRIAZEZ INSTITUTE OF PLANT PHYSIOLOGY, USSR ACADEMY OF SCIENCES, MOSCOW.

UNCLASSIFIED

Acc. Nr.

AP0055925

Abstracting Service:
CHEMICAL ABST.

6-70

Ref. Code
UR0078

115226g Thermal decomposition of nitrosyl chloride studied by an ir spectroscopic method. Kefer, B. G.; Amirova, S. A.; Yagud, B. Yu. (USSR). Zh. Neorg. Khim. 1970, 15(2), 362-5 (Russ). Decompn. of NOCl at 400-600° K was accelerated in the presence of N or Cl. Temp. dependence of dissozn; consts. of the reactions, $\text{NOCl} + \text{N}_2 \rightleftharpoons \text{NO} + \text{Cl} + \text{N}_2$ and $\text{NOCl} + \text{Cl}_2 \rightleftharpoons \text{NO} + \text{Cl} + \text{Cl}_2$, (K_1 and K_2 , resp.) are: $\log K_1 = 15.2 - 7510/T$ and $\log K_2 = 13.03 - 6003/T$, resp. The decompn. rates were detd. by measuring the decreasing intensity of $\nu(\text{NOCl})$ at 1801 cm^{-1} .

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REEL/FRAME
19841254

Water Treatment

USSR

UDC 628.16.094.9

MIRKIS, I. M., DYKHNO, A. Yu., MIKHAYLOV, I. P., MITLITSKIY, G. A., and
KEGAMYAN, Yu. Sh.

"Removal of Calcium From Caspian Sea Water by Ion Exchange"

Moscow, Vodospabzheniye i Sanitarnaya Tekhnika, No 10, 1972, pp 1-5

Abstract: Three types of sediments form during evaporation of sea water: calcium carbonate, magnesium hydroxide and calcium sulfate. The first two precipitate due to the presence of carbonate and bicarbonate ions whose content is rather low in comparison to other sediment-forming ions. Pilot plant studies were carried out with Caspian Sea water in an attempt to develop preventive measures against formation of sediment in the evaporators, by means of the decomposition of carbonates formed with acid, followed by removal of the calcium with the ion exchange technique. Scrubbed water was used for the regeneration of cation exchange resin. It was shown that it is possible to carry out a long-lasting cyclic process. The technology of such a process was developed. Effective exchange capacity of sulfonated coal and cation exchange resin KU-2 was determined.

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Water Treatment

USSR

UDC 542.48.003.1

DYKHNO, A. Yu., ~~KEGAMYAN, Yu. Sh.~~, MALYSHEVA, A. E., MITLITSKIY, G. A.,
and SENDEROVICH, A. E.

"Technological and Economical Comparison of Two Multipurpose TETs [Heat and
Electric Power Stations] for Distillation of Sea Water"

Moscow, Vodsnabzheniye i Sanitarnaya Tekhnika, No 1, 1972, pp 2-5

Abstract: Results of performance, maintenance cost, reliability, and the
cost of distilled water for two types of distillation plants (A and B) are
analyzed. Plant A is equipped with separate zones for water boiling and
uses seed crystals for reducing the formation of low-temperature boiler
scale, consisting mainly of calcium carbonate and magnesium hydroxide.

Plant B operates by the open cycle principle with the feeding of vapor
generators with demineralized sea water. Both plants produce electrical
energy, steam, and distilled water. The cost of distilled water is 59
and 86 kopeks/ton water for plants A and B, respectively, with an electrical
energy consumption of 66 kopeks/kwatt/hour.

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UR 0482.

Soviet Inventions Illustrated, Section II Electrical, Derwent,

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241516 CONVERTER SUBSTATION FOR HIGH-VOLTAGE D.C. TRANSMISSION is made more reliable. It employs a reserve block (1) which is connected in the middle of the converter system. Normally the reserve block is shorted (2) and earthed via switchgears (3,4). In case of a unit is damaged it is shorted by its own switch (5) and switchgear (4) is automatically opened followed by the removal of short (2) from the reserve unit. If a unit is to be removed from the right-hand side switch (6) and switchgear (3) are operated.

25.1.65 as 940712/24-7.A.N.FILIMONOV et al.(19.9.69)
Bul 14/18.4.69. Class 21d¹. Int.Cl.H 02j.

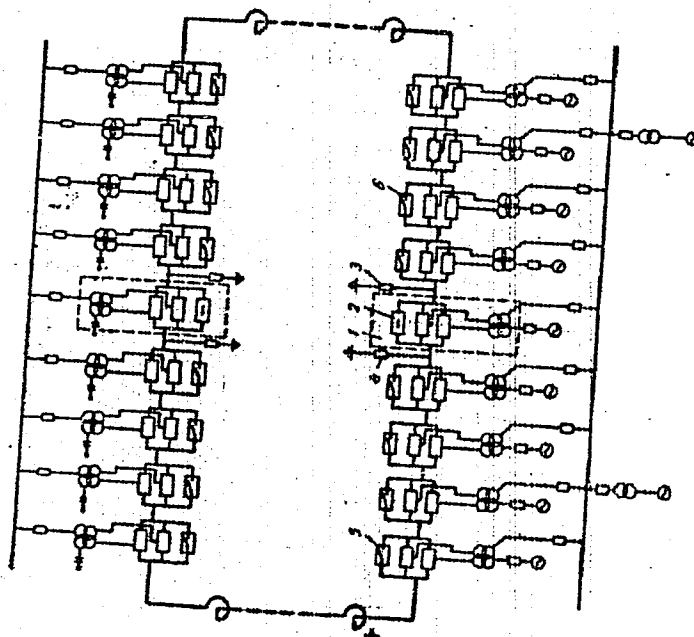
AUTHORS: Filimonov, A. N.; Kegeles, M. B.; Malkin, P. A.

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19790562

AA0047085



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19790563

UNCLASSIFIED

PROCESSING DATE--17JUL70

TITLE--NMR SPECTRA OF ACETYLATED 1,0,ACYL D, GLUCOPYRANOSSES AND ACETYLATED METHYL 1,0,ACYL D, GLUCOPYRANURONATES. SHIELDING EFFECT OF THE AROMATIC

AUTHOR--PRAVDIC, A., KEGLEVIC, D.

COUNTRY OF INFO--YUGOSLAVIA

SOURCE--CARBOHYD. RES. 1970, 12(2), 193-9

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--STEREOCHEMISTRY, NUCLEAR MAGNETIC RESONANCE, ACETYLENE, CARBHYDRATE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1984/1311

STEP NO--NE/C000/70/012/002/0193/0199

CIRC ACCESSION NO--APOC55982

UNCLASSIFIED

6/1/70

Acc. Nr:

AP0055982

Abstracting Service:

CHEMICAL ABST. 5-70

Ref. Code:

NE0000

101017c NMR spectra of acetylated 1-O-acyl-D-glucopyranoses and acetylated methyl 1-O-acyl-D-glucopyranuronates. Shielding effect of the aromatic substituent on the 2-acetoxy group. Pravdic, N.; Keglevic, D. (Tracer Lab., Inst. "Ruder Boskovic," Zagreb, Yugoslavia). *Carbohydr. Res.* 1970, 12 (2), 193-9 (Eng). The NMR spectra of acetylated 1-O-acyl-D-glucopyranoses and acetylated Me 1-O-D-glucopyranuronates showed that, in derivs. contg. an aryl- or indolylacetyl grouping at C-1, one of the Ac group signals appears at unusually high field (τ 8.18-8.43). The highest shift is assocd. with the β -D-linked 1-O-(indol-3-ylacetyl) substituent. The synthesis of 3,4,6-tri-O-acetyl-2-O-trideuterioacetyl-1-O-(indol-3-ylacetyl)-D-glucopyranose allowed the assignment of the upfield-shifted signal to the 2-acetoxy group. A rationalization of this specific shielding, based on preferential steric orientation, is presented.

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19841311

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UDC 615.849.19.015.4:612.35

OGNEV, B. V., VISHNEVSKIY, A. A., TROITSKIY, R. A., KECUM, E. M., RAZYGRIN, B. A., and FEDOTKIN, G. F., Institute of Surgery imeni A. V. Vishnevskiy, Academy of Medical Sciences, Chair of Operative Surgery and Topographical Anatomy, USSR, and Central Institute of Advanced Training of Physicians, Ministry of Health USSR, Moscow

"Effect of Laser Radiation on Rabbit Liver"

Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, No 6, 1972, pp 20-23

Abstract: Following laparotomy, the right lobes of the livers of rabbits were exposed to either pulsed or continuous laser waves. The pulsed waves produced a local burn and coagulation necrosis of the tissue together with hemorrhages and thrombosis of the blood vessels. Continuous laser irradiation resulted in bloodless incision of liver parenchyma and formation of a scar at the site of entry 5 days later. Vascularization was restored within 15 to 30 days with the formation of blood vessels possessing an atypical structure (narrowed, enlarged, amputated, bent, etc.).

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- 77 -

USSR

UDC 535.347.083

KEIMAKH, R. YA., PANKRATOV, V. M., GORELOV, L. V., AKSENOV, A. S., KRETOV, V.F.

"Automated Device for Measuring and Recording the Spectra of Optical Circular Dichroism"

Moscow, Izmeritel'naya Tekhnika, No 11, 1973, pp 23-24

Abstract: The first Soviet instrument for measuring and recording the spectra of optical circular dichroism is described. This instrument can be used to study the spatial structure of organic and inorganic compounds, materials of biological origin and others having the properties of optical activity. The spectral range of the instrument is 230-600 nm; the measurement ranges in units of optical density are $150 \cdot 10^{-4}$, $200 \cdot 10^{-4}$ and $300 \cdot 10^{-4}$ with a sensitivity no worse than one percent of the measurement range. The mathematical description of the operation of the device is presented along with its technical specifications and a brief explanation of its schematic diagram.

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USSR

UDC 539.12.08

KEIRIM-MARKUS, I. B., KOROLEVA, T. V., KRAYTOR, S. N., and USPENSKIY, L. N.

"The Characteristics of the DINA Personal Neutron Track Dosimeter"

Moscow, Atomnaya Energiya, Vol 34, No 1, Jan 73, pp 11-15

Abstract: The characteristics of the DINA personal neutron dosimeter, consisting of track detectors of fission fragments from Np^{237} beyond a $0.1 \text{ g/cm}^2 \text{ B}^{10}$ filter and U^{235} , are investigated. They include the sensitivity of the dosimeter, its reading dependences on the distance from the human body surface and the radiation incidence angle, and the influence of the neutron spectrum on the track level. The characteristics of the DINA personal neutron track dosimeter are shown for five types of neutron spectra and dosimeter locations. The average value of the track level, $2.3 \text{ mrad/track} \cdot \text{mg Np}^{237}$, has a dispersion of $+8\%$ and is shown to correspond to the calculated value of $2.2 \text{ mrad/track} \cdot \text{mg Np}^{237}$. Four figures, two tables, six formulas, fourteen bibliographic references.

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USSR

UDC 617-001.28.-73.916

KEIRIM-MARKIS, I. B.

"A Dosimetric Index of the Degree of Acute Radiation Injury"

Moscow, Meditsinskaya Radiologiya, Vol. 17, No 7, Jul 72, pp 32-35

Abstract: The probability of death in the hematological form of radiation sickness is treated as a probability that the number of viable stem cells of the bone marrow will decrease below a certain minimum. The degree of radiation injury upon nonuniform irradiation with a certain equivalent dose D^* defined by an expression of the type $f(D^*) = \frac{1}{M} \int m(D)f(D)dD$, where $f(D)$ is the lethality-dosage relation, M the mass of the bone marrow, and $m(D)dD$ the distribution of the dosage load through the bone marrow, can then also be determined. The possibility of expanding the theory advanced to cover mixed forms of radiation sickness is discussed.

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USSR

UDC 669.1:538.248

KEKALO, I.B., SMIRNOVA, L. P., Moscow Institute of Steel and Alloys

"Low-Temperature Magnetic Aftereffect in Ferrosilicon Single Crystals
Subjected to Thermomagnetic Treatment"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 35, No 3, 1973, pp 512-517

Abstract: The effect of thermomagnetic treatment (TMT) on a ferrosilicon alloy containing 3% Si and traces of carbon was studied. The surface of the samples was identical with the (011) plane and their longitudinal axes formed the angle φ which amounted to 0.55 and 90° with the direction $\sqrt{100}$. The magnetic field during the TMT was applied along the longitudinal axis, transversely to this axis, and during rotation of samples around their axes (perpendicular to the plane (011)). The TMT was applied at 550°C followed by a gradual cooling in the magnetic field to 150°C. The results indicate that the TMT in several cases changed the magnetization curves and the $H_s(B)$ curves. The effect of TMT on the nature of magnetization curves and $H_s(B)$ curves was observed only in those cases when a complete or local rearrangement of the domain structure took place. This rearrangement was caused by the redistribution of the axes of easy magnetization, and as a result the boundaries of domains that participate in magnetization changed. In those cases when the axes of light magnetization remained unchanged, the TMT did not affect the nature of the magnetization curves.

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Single Crystals

USSR

UDC 620.1:338.22:539.373

REKALO, I. B., VILHENS, N. S., SMIRNOVA, L. P., STOLYALOV, V. I., and TULKOV, I. I.

"Study of the Dynamics of the Domain Structure During Deformation and Magnetoelastic Damping of Oscillations in Single Crystals of the Alloy Fe-3% Si"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 30, No 5, 50: 70, pp 590-596

Abstract: The Fe-3% Si alloy was used in a study of the magnetoelastic damping of oscillations and investigation of the dynamics of the domain structure during twisting, allowing a number of regularities to be determined which expand our ideas of the domain mechanism of magnetoelastic damping in this material. During twisting of single crystal specimens of Fe-3% Si, the following irreversible processes occur: displacement of the 180° boundaries of the principal domains, fractionation of the initial domain structure as a result of the appearance of a pair of boundaries within the principal domains, and also complete restructuring. Comparatively slight displacements of the 180° boundaries of the principal domains, as well as displacements of the boundaries of drop-shaped domains during twisting of a specimen with $\psi = 0^\circ$ caused no losses in magnetoelastic hysteresis. High magnetoelastic attenuation in specimens with $\psi = 55$ and 90° could have been

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USSR

KEKALO, I. B., et al, Fizika Metallov i Metallovedeniya, Vol 30, No 3, Sep 70, pp 566-576

related to intensive displacement of the 180° boundaries of the principal domains or the effect of fractionation of the domain structure, which obviously results in restructuring of the internal domain structure with participation of the 90° boundaries. Restructuring of the principal domain structure in specimens with $\phi = 55^\circ$ occurred with deformations considerably exceeding the deformations for which magnetoelastic attenuation reaches its maximum.

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USSR

UDC 539.67

VILLEMS, Kh. B., GLUSHCHETS, A. M., KEKALO, I. B., and LIVSHITS, B. G.

"Certain Magnetic and Magnetoelastic Relaxation Effects in Invar, Governed by Carbon Atom Diffusion"

Sb. "Vnutrenneye treniye v metallicheskih materialakh" (Internal Friction in Metallic Materials), Moscow, Izd-vo "Nauka", 1970, pp 182-187

Abstract: The temperature dependence of relaxed and nonrelaxed initial permeability is studied. It is shown that processes inducing a temporary drop in permeability take place in the 20-200°C temperature range. It is concluded from an analysis of data on the effect of elastic vibration amplitude on Q^{-1} in the carbon peak region (200°C) that two relaxation processes take place in invar. A mechanism on the onset of the relaxation process is presented. 4 figures, 14 references.

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USSR

UDC 539.67

KEKALO, I. B., KURAKIN, I. S., and FAVSTOV, Yu. K.

"Effect of Heat Treatment on Magneto-elastic Damping in Certain Construction Steels"

Sb. "Vnutrenneye treniye v metallicheskih materialakh" (Internal Friction in Metallic Materials), Moscow, Izd-vo "Nauka", 1970, pp 178-182

Abstract: It is shown that the vibration decrement of a series of steels at small stress amplitudes is maximal after hardening: at higher amplitudes, it is maximal after high-temperature annealing and normalizing. The effect of heat treatment on the magnetoelastic share of damping is considered. It is shown that the nonmagnetic share of damping decreases with increasing annealing temperature, while the damping share governed by magnetoelastic process increases. A relationship between these damping modes, the coercive force, and hardness is established. 6 figures, 2 references.

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USSR

UDC 669.15-194.3:534-16

K
KEKALO, I. B., KURAKIN, I. S., FAVSTOV, Yu. K.

"The Effect of Heat Treatment on the Magnetoelastic Losses and Losses of a Non-magnetic Nature in Steel 30KhGSA in the Case of Mechanical Vibrations"

Kiev, Problemy Prochnosti, No 6, June 1970, pp 54-60

Abstract: Losses in magnetic vibrations brought about by magnetoelastic processes were isolated by means of magnetization. It was shown that the attenuation level in hardened and low-temperature (to 400° C) steel 30KhGSA, which can be used for making parts operating not only under variable loads but also in external magnetic fields of various intensities, was determined principally by losses of a nonmagnetic nature, and after tempering at temperatures in excess of 400° C, by losses brought about by magnetoelastic hysteresis. The relative input of magnetoelastic attenuation at high stresses into the general attenuation level in this steel was calculated after various kinds of heat treatment. Attenuation of a nonmagnetic nature decreases as the tempering temperature increases to 400° C, above this temperature the value of these attenuations is almost constant. The increase of attenuation at high stresses is almost constant. The increase of attenuation at high stresses as a result of tempering at temperatures of 520 and 600° C, as well as after normalizing, is due to an increase of losses for magnetoelastic hysteresis. A correlation is established among the attenuation characteristics, hardness, and the magnetic properties of the investigated steel.

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USSR

K

UDC 669.15-194:669.782:669-172:621.365.5:538.21

KEKALO, I. B., and SMIRNOVA, L. P., Moscow Institute of Steel and Alloys

"Effect of the Anisotropy of Form on the Efficiency of Thermomagnetic Treatment of Fe-3% Si Alloy Single Crystals"

Moscow, IVUZ Chernaya Metallurgiya, No 4, 1970, pp 148-150

Abstract: The effect of dimensions of laminar specimens on the magnetic properties and domain structure before and after thermomagnetic treatment is considered. Two series of specimens were studied: 1) 70 mm long, 10 mm wide, and 0.5, 0.3, and 0.15 mm thick; 2) 70 mm long, 10.5 mm wide, and 0.3 mm thick. The effectiveness of thermomagnetic treatment depends to a considerable extent on the form of the specimens, which is related to the rearrangement of the domain structure as a result of thermomagnetic treatment.

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USSR

UDC 576.851.71.083.3

KEKCHAYEVA, N. G., Institute of Epidemiology and Microbiology imeni Gamaleya,
Academy of Medical Sciences USSR

"Culturing Rickettsia tsutsugamushi and Obtaining Antigens from These Micro-organisms"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 9, 1972,
p 153

Abstract: An essential prerequisite for obtaining active antigens from R. tsutsugamushi is an abundance of the microorganisms in the starting material. After testing various cultivation conditions, the author found the "yield" to be highest at 35°C and when 6-day-old live (not dead) chick embryos were used. Soluble antigens were obtained by Shepard's method or by the method of "whole antigens" and centrifugation. The titers of such antigens ranged from 1:8 to 1:32. It is noted that antigens from R. tsutsugamushi are much less active than similar antigens from the agents of typhus and tickborne spotted fever.

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172 015

UNCLASSIFIED

PROCESSING DATE--13NOV70

TITLE--ELECTRON MOBILITY IN INDIUM PHOSPHIDE, INDIUM ARSENIDE SOLID SOLUTIONS AT ROOM TEMPERATURE -U-

AUTHOR--(04)-KEKELIDZE, N.P., GOGIASHVILI, V.A., MUSHKUDIANI, O.L., KEKELIDZE, G.P.

COUNTRY OF INFO--USSR

SOURCE--SOOSHCH. AKAD. NAUK GRUZ. SSR 1970, 57(2), 313-16

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--INDIUM COMPOUND, PHOSPHIDE, ARSENIDE, SOLID SOLUTION, ELECTRON MOBILITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/1068

STEP NO--UR/0251/70/057/002/0213/0316

CIRC ACCESSION NO--AP0123061

UNCLASSIFIED

2/2 015

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0123061

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. AN ANAL. OF CALCD. AND EXPTL. MOBILITY DATA SHOWS THAT THE MAIN SCATTERING MECHANISM AT ROOM TEMP., INP, INAS, AND INP-INAS SOLID SOLNS. CONTG. ELECTRONS WITH N SIMILAR TO 10 PRIME16-10 PRIME17-CM PRIME3, IS SCATTERING OF CARRIERS ON POLAR LATTICE VIBRATIONS. THE POLAR SCATTERING INCREASES WITH THE TRANSITION FROM INAS TO INP. SCREENING MAY CONSIDERABLY DECREASE THE EFFECTIVENESS OF POLAR SCATTERING WHEN N IS LARGER THAN 10: PRIME17-CM PRIME3. WHEN N EQUALS 0.8 TIMES 10 PRIME19-CM PRIME3 IONIC SCATTERING IS THE MAIN MECHANISM.

FACILITY: TBILIS. GOS. UNIV., TBILISI, USSR.

UNCLASSIFIED

USSR

UDC 669.782.018.9(088.8)

KEKELIDZE, M. A., and SAGINADZE, D. I.

"Method of Producing Silicon-Manganese-Calcium-Magnesium Alloy"

USSR Author's Certificate No 273237, Filed 28/08/68, Published 10/09/70
(Translated from Referativnyy Zhurnal-Metallurgiya, No 2, 1971, Abstract
No 2 G178 P)

Translation: A method is presented for the production of an alloy of Si with Mn, Ca, and Mg, consisting of reduction of Ca and Mg from roasted dolomite by the silicon alloy. To produce an Mg content of 4-6% in the alloy with an Mn content of 9-11%, reduction is performed by an alloy of Si with Mn containing Si greater than 70% at 1450-1750°.

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1/2 009 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--ELECTRICAL CONDUCTIVITY OF MANGANESE OXIDES -U-
AUTHOR--(02)-NIKOLAYSHVILI, G.U., KEKELIDZE, M.A.
COUNTRY OF INFO--USSR
SOURCE--SOOBSHCH. AKAD. NAUK GRUZ. SSR 1970, 57(2), 393-5
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY, PHYSICS
TOPIC TAGS--ELECTRIC CONDUCTIVITY, MANGANESE OXIDE, RESISTIVITY, IMPURITY
CONDUCTIVITY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3001/1389 STEP NO--UR/0251/70/057/002/0393/0395
CIRC ACCESSION NO--AP0126927
UNCLASSIFIED

272 009

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0126927

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TEMP. DEPENDENCE OF THE ELEC. RESISTIVITY, ρ , OF BETA,MNO SUB2, BETA,MN SUB2 O SUB3, AND BETA,MN SUB3 O SUB4 ON UNIFORM HEATING FROM ROOM TEMP. TO 1200DEGREES WAS STUDIED. AT 250DEGREES, ρ EQUALS 6.3, 2.4 TIMES 10^4 , AND 7.5 TIMES 10^6 OHM-CM, RESP. DURING DISSOCN., THE ELEC. RESISTANCE OF THE SAMPLES INCREASES IN THE ORDER BETA,MNO SUB2 IS SMALLER THAN BETA,MN SUB2 O SUB3 IS SMALLER THAN BETA,MN SUB3 O SUB4 IS SMALLER THAN GAMMA,MN SUB3 O SUB4. THE TEMP. DEPENDENCE OF ρ OF THE OXIDES IS EXPRESSED BY THE FORMULA $\log \rho = A + B/T$. THE ACTIVATION ENERGY AND THE CRIT. TEMP. OF TRANSITION FROM IMPURITY COND. TO INTRINSIC COND. WERE CALCD. FACILITY: INST. MET., TBILISI, USSR.

UNCLASSIFIED

USSR

UDC 537.311.53:546.28/289

KEKELIDZE, N.P., KAKUA, M.G., KHUTSISHVILE, E.V., GLAZOV, V.I.

"Study Of The Hall Effect In A Heavily Doped n-Type Si-Ge Alloy At High Temperatures"

V sb. Issled. materialov dlya novoy tekhn. (Study Of Materials For New Technics--Collection Of Works), Tbilisi, "Esteniyereba," 1971, pp 94-99 (from RZh--Elektronika i yeye primeneniye, No 11, Nov 1971, Abstract No 11B38)

Translation: The Hall effect and the electrical conductivity were studied of the alloy $Si_{0.85}Ge_{0.15}$ heavily-doped with As, with a concentration of current carriers $\sim 10^{20} \text{ cm}^{-3}$, and also specimens of the n-type alloy $Si_{0.85}Ge_{0.15}$ doped by As and compensated by Ga. Measurements were made in the temperature range 300 - 1000° K at a direct current and in a permanent magnetic field. In the heavily-doped Si-Ge alloy a decrease of the Hall constant with an increase of the temperature was observed, which is connected with an increase of the concentration of current carriers and not with a change of the Hall factor. The increase of the concentration of the current carriers is explained by the fact that part of the As at room temperature is found under conditions where it does not display donor properties. A decrease of mobility is detected, the result

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USSR

KEKELIDZE, N. P., et al., Issled. materialov dlya novoy tekhn. (Study of Materials For New Technics--Collection of Works), Tbilisi, "Metsniyereba," 1971, pp 94-99 (from RZh--Elektronika i yeye primeneniye, No 11, Nov 1971, Abstract No 11B38)

of the introduction of the compensating impurity with the degree of compensation ~ 30 percent. It is assumed that in the compensated specimens the number of ionized centers is increased because of acceptors. It results that in the temperature range $300 - 1000^{\circ} \text{K}$ the mobility is changed approximately according to the law $u \sim T^{-1.1}$ for the noncompensated and $u \sim T^{-0.9}$ for the compensated alloy. An evaluation was conducted of the relationships of the mobilities dependent upon various scattering mechanisms. It is shown that at room temperature scattering is primarily dependent upon ions of the impurity. With an increase of the temperature scattering at thermal vibrations gives an appreciable contribution to the total mobility. 5 ref. I.I.

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- 90 -

1/2 015 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--ELECTRON MOBILITY IN INDIUM PHOSPHIDE, INDIUM ARSENIDE SOLID
SOLUTIONS AT ROOM TEMPERATURE -U-
AUTHOR-(04)-KEKELIDZE, N.P., GOGIASHVILI, V.A., MUSHKUDIANI, G.L.,
KEKELIDZE, G.P.
COUNTRY OF INFO--USSR
SOURCE--SOBSSHCH. AKAD. NAUK GRUZ. SSR 1970, 57(2), 313-16
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY, PHYSICS
TOPIC TAGS--INDIUM COMPOUND, PHOSPHIDE, ARSENIDE, SOLID SOLUTION, ELECTRON
MOBILITY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1999/1068 STEP NO--UR/0251/70/057/002/0313/0316
CIRC ACCESSION NO--AP0123061
UNCLASSIFIED

2/2 015

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0123061

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN ANAL. OF CALCD. AND EXPTL. MOBILITY DATA SHOWS THAT THE MAIN SCATTERING MECHANISM AT ROOM TEMP., INP, INAS, AND INP-INAS SOLID SOLNS. CONTG. ELECTRONS WITH N SIMILAR TO 10 PRIME16-10 PRIME17-CM PRIME3, IS SCATTERING OF CARRIERS ON POLAR LATTICE VIBRATIONS. THE POLAR SCATTERING INCREASES WITH THE TRANSITION FROM INAS TO INP. SCREENING MAY CONSIDERABLY DECREASE THE EFFECTIVENESS OF POLAR SCATTERING WHEN N IS LARGER THAN 10 PRIME17-CM PRIME3. WHEN N EQUALS 0.8 TIMES 10 PRIME19-CM PRIME3 IONIC SCATTERING IS THE MAIN MECHANISM.

FACILITY: TBILIS. GOS. UNIV., TBILISI, USSR.

UNCLASSIFIED

USSR

UDC: 577.4

KEKELIYA, V. I. and TSEYTLIN, G. Ye.

"Realizing Multirecorded Periodic Determinations of the Conversions in One Abstract Model of a Computing Medium"

Novosibirsk, V sb. Vychisl. sistemy (Computer Systems--collection of works) No 47, 1971, pp 87-102 (from RZh--Matematika, No 8, 1972, Abstract No 8V428)

Translation: The article is devoted to developing methods for realizing multirecorded conversions in one abstract model of a computing medium. Microprograms of basic arithmetic operations are described. From the introduction

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USSR

UDC: 577.4

KEKELIYA, V. I., TSEYTLIN, G. Ye.

"Concerning Realization of Multiple-Register Periodically Defined Transformations in an Abstract Model of a Computer Medium"

V sb. Vychisl. sistemy (Computer Systems--collection of works), vyp. 47, Novosibirsk, 1971, pp 87-102 (from RZh-Kibernetika, No 8, Aug 72, Abstract No 8V428)

Translation: The paper deals with development of methods of realizing multiple-register transformations in one abstract model of a computer medium. Microprograms of basic arithmetic operations are described. [From the introduction].

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USSR

UDC 681.3

KEKELIYA, V. I.

"Realization of Operational Unit in One Abstract Model of a Computing Medium"

Teor. Kibernetika. Vyp. 3 [Theory of Cybernetics, No. 3 -- Collection of Works]
Kiev, 1970, 72-79 (Translated from Referativnyy Zhurnal Kibernetika, No. 4,
April, 1971, Abstract No. 4 V614).

Translation: This note is dedicated to realization of the basic arithmetic operations of a machine with a floating point, the microprograms of which are recorded in terms of periodically defined transforms in a computing medium, a model of which has been described earlier (Tseytlin, G. Ye, Keliya, V. I., Vychislitel'nyye Sistemy [Computer Systems] (N. Press)).

1/1

USSR

UDC 621.396.677.7

KEKELIYA, V. I.

"On Studying Electromagnetic Waves From an Infinite System of Plane Waveguides"

Tr. Gruz. politekhn. in-ta (Works of the Georgian Polytechnical Institute), 1970, No 5(140), pp 158-164 (from RZh-Radiotekhnika, No 7, Jul 71, Abstract No 7B66)

Translation: The author studies the field of radiation of a system formed by an infinite system of waveguide emitters with in-phase excitation. The problem is solved by factoring, but only for the case of magnetic waves. The directional properties of such a system are determined. One illustration, bibliography of one title. A. K.

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USSR

K
UDC 621.372.851

KEVANISHVILI, G. Sh., KEKELIYA, V. L.

"Delay of Electromagnetic Waves in an Open Rectangular Wave Guide"

Tr. 15-y Nauchno-tekhn. konferentsii professorsko-prepodavatelsk. sostava nauchn. rabotnikov, problemn. i otraslev, labor. Gruz. politekhn. in-t Vyp. 7
(Works of the 15th Scientific and Technical Conference of the Professorial and Teaching Staff of Scientific Workers of the Problem and Branch Laboratories of the Georgian Polytechnical Institute. Vyp. 7), Tbilisi, 1970, pp 62-66 (from RZh-Radiotekhnika, No 8, Aug 70, Abstract No 8B135)

Translation: This article contains an investigation of waves propagated along a system of infinitely thin ideally conducting disks with square holes; the disks are arranged periodically and symmetrically with respect to a common axis perpendicular to their planes.

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Acc. Nr:

AP0045005

Abstracting Service: 5/70
INTERNAT. AEROSPACE ABST.

Ref. Code:
UR0109

K

A70-22415 # Deceleration of electromagnetic waves in an open waveguide (O zamedlenii elektromagnitnykh voln v otkrytom volnovode). G. Sh. Kevanishvili and V. L. Kekeliig, *Radiotekhnika i Elektronika*, vol. 15, Jan. 1970, p. 173-175. In Russian.

Study of the deceleration of electromagnetic waves in an open cylindrical waveguide formed by two concentric, infinitely thin, ideally conducting circular disks in a free space. Taking into account only symmetrical electromagnetic waves, the expressions for the fields in three different regions of the waveguide are written in the form of a sum of spatial harmonics. It is shown that the investigated waveguide, like other slow-wave systems, is a bandpass filter—i.e., deceleration is achieved in the case of waves with wavelengths lying in a certain band.

A.B.K.

ALS

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REEL/FRAME
19771901

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USSR

UDC 8.74

KEKELIYA, V. V., MISHIN, A. I.

"Arithmetic and Logical Operations on All-Purpose Arrays with Programmable Structure"

V sb. Teor. kibernetika (Cybernetics Theory--collection of works), Kiev, 1971, pp 66-79 (from RZh-Kibernetika, No 12, Dec 72, Abstract No 12V412)

Translation: A study is made of the all-purpose structurally homogeneous device which is designed to execute arithmetic and logical operations and storage functions. The execution of the indicated operations is realized on registers arranged in the structurally homogeneous device. Here, the functioning of the registers is described in terms of periodically defined transformations. It is proposed that single-type operations are executed on an undefined set of operands. Here, the word length of the operand can be changed by programming methods. The proposed homogeneous device with a programmable structure is an array each element of which can exchange information directly only with its adjacent elements. By the elements of the array we mean identical finite automata for which the table of states and the rules defining transitions from one state to another are general. For execution of the arithmetic and logical operations in the structural-homogeneous device, a so-called program circuit is connected which

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USSR

KEKELIYA, V. V., et al., Teor. kibernetika, Kiev, 1971, pp 66-79

executes the following functions: a) input of the initial information to the array, b) copying information in the array itself, c) control of execution of logical and computation operations, d) output of the computation results from the array. As an example, a study is made of the execution of the microprogram for the operation of addition in the described structurally homogeneous device. The bibliography has 16 entries.

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USSR

UDC 591.1.05

AKHVLEDIANI, K. S., LOGUA, G. SH., ~~KEKENADZE, I. V.~~, and LOMOURI, I. D.
Tbilisi State University

"A Method of Direct Microdetermination of Phosphorylcholine and Some Other
Esters of Phosphoric Acid"

Tbilisi, Bulletin of the Academy of Sciences of the Georgian SSR, Vol 66, No 2,
May 72, pp 437-439

Abstract: A new method of direct microchemical determination of phosphoryl-
choline based on a change in the optical density of a phosphomolybdate solution
has been developed. A phosphorylcholine solution (0-240 μ g/ml) is added to
a reagent solution containing 2% phosphomolybdic acid acidified with 0.1 N HCl
to pH 5.3 \pm 0.1. Optical density is measured at $\lambda = 358 \text{ m}\mu$ and the level of
phosphorylcholine is determined from a calibrated titration curve. This
method is suitable for determination of other phosphate and pyrophosphate
esters.

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Inventions & Discoveries

USST

KEKIN, A. A., SOPIKOV, G. D., BEDAREV, P. I.

"A Generator of Light Aero-Ions to Produce Unipolarly Charged Mine Aerosol"

Alma-Ata, Vestnik Akademii Nauk Kazakh SSR, No 6, 1973, pp 50-53

Abstract: A method is proposed for precipitating mine dust by unipolar charging of the dust particles. The central idea of the method is to create a generator of light aero-ions to put the air in an ionized state. Since the outer region of a corona discharge is a gas which contains a high density excess unipolar space charge, the generator was developed on the basis of theoretical and experimental data obtained in tests of various corona discharge devices by using a compressed air jet to carry the space charge out of the discharge column. Basically, the generator is a corona discharge needle electrode enclosed in a tube through which compressed air flows, carrying the space charge to an exit cone from which the jet of ionized air is thrown at high velocity. Test results are given.

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USSR

UDC 537.311.33:546.28/289

KEKELIDZE, N.P., KEKUA, M.G., KHUTSISHVILE, E.V., GLAZOV, V.I.

"Study Of The Hall Effect In A Heavily Doped n-Type Si-Ge Alloy At High Temperatures"

V sb. Issled. materialov dlya novoy tekhn. (Study Of Materials For New Technics--Collection Of Works), Tbilisi, "Metsniyereba," 1971, pp 94-99 (from RZh--Elektronika i vsye primeneniye, No 11, Nov 1971, Abstract No 11B38)

Translation: The Hall effect and the electrical conductivity were studied of the alloy $\text{Si}_{0.85}\text{Ge}_{0.15}$ heavily-doped with As, with a concentration of current carriers $\sim 10^{20} \text{ cm}^{-3}$, and also specimens of the n-type alloy $\text{Si}_{0.85}\text{Ge}_{0.15}$ doped by As and compensated by Ge. Measurements were made in the temperature range 300 - 1000° K at a direct current and in a permanent magnetic field. In the heavily-doped Si-Ge alloy a decrease of the Hall constant with an increase of the temperature was observed, which is connected with an increase of the concentration of current carriers and not with a change of the Hall factor. The increase of the concentration of the current carriers is explained by the fact that part of the As at room temperature is found under conditions where it does not display donor properties. A decrease of mobility is detected, the result

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USSR

KEKELIDZE, N. P., et al., Issled. materialov dlya novoy tekhn. (Study of Materials For New Technics--Collection of Works), Tbilisi, "Metsniyereba," 1971, pp 94-99 (from RZh--Elektronika i yeye primeneniye, No 11, Nov 1971, Abstract No 11B38)

of the introduction of the compensating impurity with the degree of compensation ~ 30 percent. It is assumed that in the compensated specimens the number of ionized centers is increased because of acceptors. It results that in the temperature range $300 - 1000^\circ$ K the mobility is changed approximately according to the law $u \sim T^{-1.1}$ for the noncompensated and $u \sim T^{-0.9}$ for the compensated alloy. An evaluation was conducted of the relationships of the mobilities dependent upon various scattering mechanisms. It is shown that at room temperature scattering is primarily dependent upon ions of the impurity. With an increase of the temperature scattering at thermal vibrations gives an appreciable contribution to the total mobility. 5 ref. I.I.

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- 90 -

Acc. Nr

AP0049989

Abstracting Service:
CHEMICAL ABST.

4-70

Ref. Code

UR0131

82427t Dehydration, rehydration, and sensitivity of Troshkovskii clays to drying. ~~Popov, A. D.; Shchetnikova, I. L.; Chukreeva, E. I.; Kelareva, E. I.; Gaeva, R. T. (Vost. Inst. Ogneupor., Sverdlovsk. SSR). Ogneupory 1970, 85(1), 23-9 (Russ).~~ The temp. interval and the dehydration kinetics of the Troshkovskii clays, their sensitivity to drying, and the possibility to intensify the drying without forming cracks were studied. To study dehydration processes at high temps. all samples of clays were 1st dried to const. wt. at 60°. According to dehydration curves some samples (A) loose a small amt. of H₂O at low temps. (100-200°). It is in abs. accord with DTA: on DTA curves up to 200°C slight initial endothermal effects are evident. Other samples (B) of the Troshkovskii clays lose nearly all adsorbed H₂O at 100-200°. The amt. of H₂O adsorbed is of 2 kinds; it is caused by the presence of Mg⁺⁺ and Ca⁺⁺ in the exchange com-

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REEL/FRAME
19801927

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AP0049989

plex. The dehydration of clays is considerably dependent on duration of heating. Samples (A) dehydrate almost fully at 100° during 20-30 min while samples (B) during 90-100 min. The dehydration is accelerated by increasing temp. to 150-200°. For all samples the escape of adsorbed water is complete at ~300°. Samples after thermal treatment again take up water. This rehydration of samples was detd. from the wt. changes of samples annealed at 100, 200, 300, and 500° and then exposed at room temp. to relative air moisture of 25 and 75%. The rehydration increases with increasing content of the montmorillonite in the clay. All samples after thermal treatment at 100° adsorb much more water than untreated samples. The thermal treatment >300° brings about a lower rehydration. The removal of adsorbed water from montmorillonite is the main cause of propensity of some Troshkovskii clays to cracking. Preliminary treatment of the Troshkovskii clays contg. montmorillonite at 300-400° achieves partial dehydration; also, it decreases rehydration and sensitivity to drying.

J. Jindra

FB

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19801928

1/2 048 UNCLASSIFIED
TITLE--MULTIPHOTON IONIZATION OF ATOMS -U- PROCESSING DATE--27NOV70
AUTHOR--(02)-DELONE, N.B., KELDYSH, L.V. *K*
COUNTRY OF INFO--USSR
SOURCE--NP 18235 1970. 38 P. DEP. CFSTI
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--IONIZATION, ATOM, ELECTROMAGNETIC FIELD, PHOTON, LASER
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3001/1571 STEP NO--UR/0000/70/000/000/0038/0038
CIRC ACCESSION NO--AT0127067
UNCLASSIFIED

2/2 048

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--A70127067

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RECENTLY DISCOVERED NEW PROCESS LEADING TO THE IONIZATION OF ATOMS BY AN ELECTROMAGNETIC FIELD, THE MULTIPHOTON IONIZATION, IS REVIEWED. IN THIS CASE, IONIZATION OCCURS AS THE RESULT OF THE ABSORPTION OF PHOTONS BY ATOMIC ELECTRONS; THE ENERGY OF THESE PHOTONS IS MUCH LOWER THAN THE IONIZATION POTENTIAL OF THE ATOM. THE REQUIRED HIGH INTENSITY MONOCHROMATIC RADIATION MAY BE OBTAINED ONLY BY THE USE OF LASERS. THE PROCESS WAS FIRST OBSERVED IN 1965 BY ONE OF THE AUTHORS IN THE CASE OF THE IONIZATION OF XENON ATOMS AND HYDROGEN MOLECULES BY THE RADIATION EMITTED BY A RUBY LASER. THE STRONG RADIATION FIELD NEEDED TO OBSERVE THE EFFECT NOT ONLY INDUCES ELECTRON TRANSITIONS FROM ONE STAGE TO ANOTHER BUT ALSO CHANGES THESE STATES. THE PROBABILITY OF THE MULTIPHOTON IONIZATION OF AN ATOM DEPENDS ON THE TYPE OF POLARIZATION OF THE RADIATION AND THE ELLIPTICITY OF THE SYSTEM. THE THEORETICAL EXPLANATION IS BASED ON THE HIGHER ORDER PERTURBATION THEORY, OR ON THE RESONANCE EXCITATION OF AN INTERMEDIATE LEVEL. THE EXPERIMENTAL WORK REQUIRES EITHER A HIGH FIELD VOLTAGE OR A HIGH SPECIFICITY OF THE INDIVIDUAL IONIZATION RELATED TO THE ABSORPTION PROCESSES.

FACILITY: AKADEMIYA NAUK SSSR, MOSCOW. INSTITUT FIZIK.

UNCLASSIFIED

USSR

UDC: 533.6.011

ZAYTSEV, Yu. I., KELDYSH, V. V.

"Concerning Detachment of the Compression Shock From the Edge of a Swept-back V Wing"

Uch. zap. Tsentr. aerogidrodinam. in-ta (Scientific Notes of Central Aerohydrodynamics Institute), 1972, 3, No 2, pp 135-139 (from RZh-Mekhanika, No 9, Sep 72, Abstract No 9B459)

Translation: It is shown that the condition of attachment of the compression shock to the sharp sweptback leading edge of a body, determined on the basis of flow analysis in the immediate vicinity of the leading edge as flow around a flat wedge, is necessary, but not sufficient. Detachment of the shock depends also on boundary conditions downstream from the edge, and may begin considerably sooner than on an equivalent wedge in the cross section. Resumé.

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USSR.

UDC: 621.317.44

OUTOVSKIY, I. G., ZHITSKOVA, Z. A., LAVROV, V. P., BEVZNER, G. S., SAVVIN,
A. N., KELEBNIKOV, S. P.

"A Device for Determining the Magnetization Curve and Hysteresis Loops of
Magnetic Materials"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztzy, Tovarnyye Znaki,
No 7, Mar 72, Author's Certificate No 329486, Division G, filed 8 Apr 68,
published 9 Feb 72, p 182

Translation: This Author's Certificate introduces a device for determining
the magnetization curve and hysteresis loops of magnetic materials. The
device contains a measurement and a magnetizing coil for the specimen to be
studied, a fluxmeter (in the form of an integrating amplifier), an adder,
an integrating amplifier for the magnetization circuit, a power amplifier,
a calibrated resistor, and a registration instrument. As a distinguishing
feature of the patent, the device is designed for increased precision and
speed, and for autozation and programming of the measurement process. For
this purpose it is equipped with a program input controller of the change
in magnetic flux in the form of a time-variable voltage controller. The
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OVSKIY, I. G. et al., USSR Author's Certificate No 329486

Device also includes a switch. One input of the adder is connected to the voltage controller, and the other adder input is connected to the output of the magnetic fluxmeter. The output of the adder is connected to the integrating amplifier of the magnetization circuit through the switch. The controlling input of the switch is connected to the output of the adder and to the controlling input of the voltage controller through a logic circuit of the "exclusive OR" or "equivalence" type.

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USSR

UDC 632.95

YUKHTIN, N. N., MOLCHANOV, A. V., ~~IRENCHSAYEVA, YE. A.~~, BAZANOVA, S. S.,
LEBEDEVA, L. I., GRISHINA, YE. A., and PRESNYAKOVA, S. M.

"Propanid -- A Highly Effective Herbicide for Weed Control in Rice Paddies"

V sb. Khim. sredstva zashchity rast. (Chemical Plant Protectants -- collection of works), vyp 1, Moscow, 1970, pp 156-163 (from RZh-Khimiya, No 13, 10 Jul 72, Abstract No 13N514 by. O. A. Korotkova)

Translation: As a result of a study of propanid yield dependence on the solvent, reactant molar ratios and crystallization conditions, it is suggested that propanid be obtained by acylation of 3,4-Cl₂C₆H₃NH₂ Erco H [sic] in a petroleum solvent medium at a 3,4-Cl₂C₆H₃NH₂ and solvent ratio of 1:0.5. The reaction is conducted for 12-15 hours with stirring and at 140-160°, distilling the aqueous azeotrope at 90-95° at the beginning of the process, and 135° at the end. The unreacted starting materials are recycled. The resultant propanid has a purity of 98.5-99.5 percent, melting point 89-91°, yield 83-98 percent.

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Refractory Materials

USSR

UDC 666.764.2.004.12

ANDREYEVA, A. E., LEONOV, A. I., and KELLER, E. K., Institute of the Chemistry of Silicates imeni I. V. Grebenshchikov of the Academy of Sciences USSR

"High-Refractory Materials on a Zirconium Dioxide Base Stabilized by Yttrium and Aluminum Oxides"

Moscow, Ogneupory, No 4, 1973, pp 42-45

Abstract: An account is given of investigation results of a refractory material of zirconium dioxide stabilized by combined additions of yttrium and aluminum oxides. Dilatometric analysis results of specimens with and without Al_2O_3 additions are discussed by reference to linear thermal expansion curves of zirconium dioxide and its solid solutions. The synthesized material, containing from 90 to 93 mol.% ZrO_2 , from 3.5 to 5 mol.% Y_2O_3 , and from 3.5 to 5 mol.% Al_2O_3 , possessed a lower average thermal expansion coefficient and a higher heat resistance in comparison with binary solid solutions of $ZrO_2 - Y_2O_3$ and $ZrO_2 - CaO$ systems. Some physico-technological properties of the synthesized material were determined. It possesses, like zirconium-yttrium solid solution, ionic conductivity; its refractoriness is 2400-2450 °C. One figure, seven bibliographic references.

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USSR

KALANTAROV, M. I., KELIKOVA, T. A., and RASULOV, N. E., Baku

"Investigation of the Effects of a Magnetic Field on the Quality of Cotton Fibers"

Kishinev, Elektronnaya Obrabotka Materialov, No 2, 1971, pp 68-71

Abstract: Cotton fibers were kept in a rotating magnetic field of 400 to 800 a/cm for 1 to 10 minutes, with relative humidity ranging from 65 to 80%. In all cases, this treatment enhanced the tensile strength of the cotton fibers, with the maximum increase of 0.2-0.3 g observed after 3 minutes of exposure. Follow-up tests demonstrated that this improvement was durable. Infrared spectroscopy of the fibers revealed shifts in maximum absorption bands, and x-ray analysis showed a greater degree of polarization of the polymers (up 2-4%) after the treatment. The feasibility of applying this method in industry is being investigated.

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Nuclear Science and Technology

USSR

KOVAL'CHENKO, M. S., ROGOVOY, Yu. I., KELIM, V. D. UDC 669.013.4:539.2:669.01

"Change in Structure in Properties of Titanium Carbide Under Neutron Bombardment"

Atomnaya Energiya, Vol 32, No 4, Apr 72, pp 321-323.

Abstract: An experimental study was performed of the change in micro-structure, lattice parameter, electrical resistance and microhardness of titanium carbide under the influence of neutron bombardment with integral doses of $1.0 \cdot 10^{19}$, $3.7 \cdot 10^{19}$, $7.5 \cdot 10^{19}$ and $1.5 \cdot 10^{20}$ thermal neutrons per square centimeter (flux ratio of thermal neutrons to fast neutrons 8:1) at about 50°C and with subsequent annealing in a vacuum of 10^{-4} mm h.g. at $100-1,000^\circ\text{C}$ at intervals of 100°C for 1 hour. Metallographic studies showed no change in mean grain size. Bombardment with the largest dose caused an increase in specimen volume of 0.3-0.5%. Bombardment caused a significant increase in resistance and lattice parameter. A regular shift in diffraction peaks toward lower angles with simultaneous decreases in intensity was observed, as well as improvement in the degree of resolution of the α doublet on the (333) line. Annealing at 100°C increased the lattice parameter, while annealing at $200-800^\circ\text{C}$ decreased the lattice parameter. The experimental data indicated that there are two stages of recovery in annealing, at 350 and 600°C . The similarity of the mechanisms

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USSR

KOVAL'CHENKO, M. S., ROGOVOY, Yu. I., KELIM, V. D., Atomnaya Energiya,
Vol 32, No 4, Apr 72, pp 321-323.

of annealing in both stages is confirmed by the similarity of kinetic coefficients and activation energies.

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USSR

KELLER, F. E., SHEKHOVTSOV, O. I., KON, Ye. L.

"Testing One Class of Coding and Decoding Device"

Izv. Leningr. Elektrotekhn. In-ta. [Works of Leningrad Institute of Electrical Engineering], 1972, No 118, Part 1, pp 161-165 (Translated from Referativnyy Zhurnal, Kibernetika, No 1, 1973, Abstract No 1 V786).

Translation: Methods are suggested for testing the operation of coding and decoding devices modeling graphs of code intersections of redundant codes.

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Instruments and Equipment

USSR

UDC 612.82.089

LEBEDEV, V. P., JELLER, O. K., and CHERVINSKIY, P. P., Laboratory of the Physiology of Blood Circulation, Institute of Physiology imeni Pavlov, Academy of Sciences USSR, and All-Union Scientific Research Institute of High Frequency Currents imeni Vologdin, Leningrad

"An Improved Ultrasonic Device for Nontraumatic Cutting of Brain Tissue"

Leningrad, Fiziologicheskiy Zhurnal SSSR imeni I. M. Sechenova, Vol 58, No 1, Jan 72, pp 138-141

Abstract: As has been shown in earlier work by Lebedev et al., use of a cutting instrument to the edge of which axial vibrations of ultrasonic frequency are imparted reduces considerably mechanical deformation of tissues that are being cut and the damage to these tissues. This is particularly important as far as the tissues of the brain are concerned. Furthermore, an ultrasonic knife has an inherent hemostatic effect. An ultrasonic cutting instrument has been developed the handle of which contains an electroacoustic converter. The generator to which the instrument is connected has a maximum power of 100 wt. The vibration frequency of the instrument is controlled automatically. At a working frequency of 22 kilocycles \pm 7.5%, the amplitude of vibrations of the instrument with a weight not exceeding 110 g amounts up
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USSR

LEBEDEV, V. P., et al., Fiziologicheskiy Zhurnal SSSR imeni I. M. Sechenova,
Vol 58, No 1, Jan 72, pp 138-141

to 32 microns. Two instruments with different acoustic power can be connected to the generator. The ultrasonic knife will be particularly useful for precision cuttings of brain tissue such as partial chordotomy or cutting into the cortex. It can be fastened to the manipulator of a stereotaxic apparatus.

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USSR

UDC: 621.039.001.5

Mal'tsev, B. K., Khlestkin, D. A., Candidates of Technical Sciences, and Keller, V. D., Engineer, All-Union Institute of Heat Engineering

"Experimental Study of the Efflux of Saturated and Underheated Water at High Pressures"

Moscow, Teploenergetika, No 6, 1972, pp 61-63.

Abstract: The All-Union Institute of Heat Engineering has produced a test stand for investigation of critical modes of escape of hot water from a pressure vessel with initial pressures of up to $240 \cdot 10^5$ N/m². In contrast to earlier test stands, this stand allows a stable mode to be maintained with any parameters for an extended period of time. The test stand was used to study the flow modes of water escaping from leaks modeling those which might arise in the high-pressure cooling circuit of a nuclear power reactor. The data produced on the flows of saturated and underheated water can be used to calculate the critical flow rates of saturated and underheated water, and indicate that: 1) At pressures of over $70 \cdot 10^5$ N/m², a

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