CIRC ACCESSION NO--AP0111491
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE LOW TEMP. POLYCONDENSATION OF
3,3 PRIME,DIHYDROXYBENZIDINE AND OF 4,4 PRIME, DIHYDROXY, 3,3 PRIME,
DIAMINODIPHENYL SULFONE WAS CARRIED OUT WITH $P,(P,CLCOC\ SUB6\ H\ SUB4\ O)$
$SUB2\ C\ SUB6\ H\ SUB4$, $P,(P,CLCOC\ SUB6\ H\ SUB4\ S)\ SUB2\ C\ SUB6\ H\ SUB4$, AND
$(P,CLCOC\ SUB6\ H\ SUB4\ S)\ SUB2$ TO GIVE POLYAMIDES (I). SUBSEQUENT
DEHYDRATION OF I GAVE POLYBENZOXAZOLES (II, WHERE R IS DERIVED FROM THE
DIACID CHLORIDE AND R PRIME) IS DERIVED FROM THE DIAMINE). THE PRESENCE
OF O, S, OR SO SUB2 BRIDGES IN II INCREASES THE TEMP. RANGE IN WHICH II
RETAIN THEIR ELASTICITY, INCREASES THEIR TENSILE STRENGTH AT BREAK AND
ELONGATION AT BREAK.

UDC: 541.64:678.86

USSR

YAKUBOVICH, A. YA. (DECEASED), FILATOVA, I. M., ZAYTSEVA, YE. L., YAKUBOVICH,
V. S., Scientific Research Physico Chemiscal Institute imeni L. Ya. Karpov,
Moscow, State Committee for Chemistry

"Reaction Scheme and Peculiarities of Polycondensation of Alkyl(aryl)phos-
phazenechlorophosphonyls"

Abstract: The behavior of some 1-dichlorophosphonyl-2,2,2-alkyl(aryl)chloro-
phosphazenes was studied at high temperatures to determine the mechanism of
condensation of compounds in this series to polyphosphazenes. It was found
that 1-dichlorophosphonyl-2,2,2-diphenylchlorophosphazene remains unchanged
with no conversion to polyphosphazenes when heated to 320°C. When this com-
pound is heated together with 1-dichlorophosphonyl-2,2,2-trichlorophosphazene,
a polychlorophosphazene is formed which contains chlorodiphenylphosphazene
groups as substituents. In analogous experiments, 1-dichlorophosphonyl-2,
2,2-triethylphosphazine forms a polychlorophosphazene which contains triethyl-
phosphazene groups as substituents of the principal polymer chain. It is
shown that heating linear polydichlorophosphazenes with 1-dichlorophenyl-2,2,-

1/2

USSR

YAKUBOVICH, A. YA., et al, Vysokomolekulyarnyye Soyedineniya, Vol XII, No 3,
Mar 70, pp 585-591

2-diphenylchlorophosphazene initiates a reaction with substitution of chloro-
diphenylphosphazene radicals for chlorine atoms and release of phosphorus
chloroxide.   With an excess of 1-dichlorophosphonyl-2,2,2-diphenylchloro-
phosphazene, the maximum substitution reaches 50% of the total chlorine con-
tent in the polydichlorophosphazene.   A reaction scheme is proposed for
thermal condensation of 1-dichlorophosphonyl-2,2,2-alkyl(aryl)chlorophos-
phazenes to polyphosphazenes as a two-stage process with formation of the
polydichlorophosphazene on the first stage, and substitution of a chloral-
kyl(aryl) substituted phosphazene radical for the chlorine atoms in the com-
pound in the second stage.

2/2

USSR

UDC 576.895.771.095.38:576.895.132.5

FEDDER, M. L., SUPRYAGA, V. G., YAKUBOVICH, V. Ya., and MANTUKHOV, A. G., Division of Epidemiology and Prophylaxis of Malaria in the USSR and of the Nosogeography of Parasitic Tropical Diseases in Foreign Countries, Institute of Medical Parasitology and of Tropical Medicine imeni Ye. I. Martsinovskiy, Ministry of Health USSR, Moscow

"Susceptibility to Wuchereria bancrofti Cobbold of Culex pipiens molestus Forskal Mosquitoes Occurring in Moscow"

Abstract: Culex pipiens molestus Forsk. mosquitoes from the City of Moscow were successfully infected with Wuchereria bancrofti Cobbold microfilaria by feeding them through a biological membrane (a freshly removed skin of a white mouse) with venous blood of wuchereriasis patients (one a native of East Africa and another of Vietnam) mixed with a physiological saline solution and stored at a temperature $\leq 5^\circ$. The W. bancrofti larvae reached the invasion stage 16- 17 days after infection of the female mosquitoes, which were kept at 23-26° and a relative humidity of 60-75%.

1/1

- 8 -

USSR

UDC 531.01

YAKUBOVSKIY, Yu. V.

"Some Thoughts on Possible Applications of the Le Chatelier-Brown Principle"

V sb. Vopr. mekhaniki (Problems in Mechanics -- Collection of Works), Moscow, Moscow University, 1971, pp 3-5 (from RZh-Mekhanika, No 6, Jun 72, Abstract No 6A101)

Translation: A certain generalization of a particular case of the Le Chatelier-Brown principle to the case when the force function U, in addition to the coordinates x, y, also depends on a certain parameter a is considered. It is shown that for a stable state of the equilibrium of any conservative system having an isolated extremum of the force function, its derivative with respect to a variable parameter increases more rapidly under stabilization of external effects than under stabilization of the position of the system itself. Ye. N. Berezkin.

1/1

USSR

UDC 531.01

YAKUBOVSKIY, Yu. V.

"On the Extension of the Le Chatelier-Brown Principle to the Case of Any Finite Number of Variables"

V sb. Vopr. mekhaniki (Problems in Mechanics -- Collection of Works), Moscow, Moscow University, 1971, pp 6-9 (from RZh-Mekhanika, No 6, Jun 72, Abstract No 6A102)

Translation: The Le Chatelier-Brown principle (see Abstract No 6A101) is extended to the case of four variables, including a certain variable parameter. It is shown that a conservative system subjected to an external effect tends to go into a new stable state in which the results of this effect will be weakened. The application to the case of an exploding wire is discussed. Ye. N. Berezkin.

1/1

1/2   026   UNCLASSIFIED   PROCESSING DATE--02OCT70
TITLE--LIPIDS METABOLISM DURING THE TREATMENT OF EXPERIMENTAL
   HYPERCHOLESTEROLAEMIA BY NYAMIDE -U-
AUTHOR-(02)-OGNIVENKO, V.M., YAKUBOVSKAYA, V.I.

COUNTRY OF INFO--USSR

SOURCE--VOPROSY MEDITSINSKOY KHIMII, 1970, VOL 16, NR 2, PP 184-189

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ATHEROSCLEROSIS, LIPID METABOLISM, CHOLESTEROL, CATABOLISM,
   BLOOD SERUM, BILE ACID

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1986/0301   STEP NO--UR/0301/70/016/002/0184/0189

CIRC ACCESSION NO--AP0102764
                           UNCLASSIFIED

CIRC ACCESSION NO--AP0102764

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. HYPERCHOLESTEROLAEMIA WAS INDUCED
IN MALE ALBINO RATS BY KEEPING ON ATHEROGENIC DIET DURING 16 DAYS.
AFTER THAT THE RATS WERE KEPT ON ORDINARY RATION, AND EFFECT OF 7-21
FOLD NYAMIDE INJECTIONS ON NORMALIZATION IN LIPIDS METABOLISM WAS
STUDIED. NYAMIDE STRONGLY DECREASES THE TOTAL LIPIDS CONTENT,
CHOLESTEROL, TRIGLYCERIDES, BETA,LIPOPROTEINS LEVELS IN BLOOD SERUM.
THE RATIOS TOTAL LIPIDS-PHOSPHOLIPIDS, CHOLESTEROL-PHOSPHOLIPIDS,
THRILYCERICES-PHOSPHOLIPIDS WERE ALSO DECREASED. PROCESSES OF
CHOLESTEROL CATABOLISM ARE ACTIVATED: BILE ACIDS CONTENT IN BILE, AND
THE EXCRETION OF LATTER AND TOTAL STERINES WITH EXCREMENTS IS ELEVATED.

1/2   028   UNCLASSIFIED   PROCESSING DATE--11SEP70
TITLE--NIAMIDE (NICOTINAMIDE) ACTION ON CHOLESTEROL METABOLISM AGAINST THE
BACKGROUND OF AN ATHEROGENIC DIET -U-
AUTHOR--OGNIVENKO, V.M., YAKUBOVSKAYA, V.I.

COUNTRY OF INFO--USSR

SOURCE--FARMAKOL. TOKSIKOL. (MOSCOW) 1970, 33(1), 31-4

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--METABOLISM, CHOLESTEROL, RAT, DIET, LIVER, HEART, LUNG,
SPLEEN, KIDNEY, BRAIN, BILE, ANTIDIABETIC, ADRENAL GLAND, SPINAL CORD,
MYOCARDIUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1986/1695   STEP NO--UR/0390/70/033/001/0031/0034

CIRC ACCESSION NO--AP0103461
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0103461
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. NIAMIDE (20 MG-KG, I.M.)
ADMINISTERED FOR 7 OR 21 DAYS TO RATS ON AN ATHEROGENIC DIET DECREASED
HYPERCHOLESTEROLEMIA BY HALF AND REDUCED THE AMT. OF CHOLESTEROL IN THE
LIVER, AORTA, LUNGS, SPLEEN, KIDNEYS, AND BRAIN, BUT DID NOT EFFECT THE
CONCN. IN THE ADRENAL GLANDS, SPINAL CORD, MYOCARDIUM, AND FEMORAL
MUSCLES. NIAMIDE INCREASED THE CONTENT OF BILE ACIDS, THE RATIO OF
CHOLATE TO CHOLESTEROL IN THE BILE, AND EXCRETION OF BILE ACIDS AND
STEROLS WITH THE FECES.

UNCLASSIFIED

USSR

KHAYKIN, M. S. and YAKUBOVSKIY, A. Yu., Institute of Physical Problems, USSR Academy of Sciences

"Excitation of Constant Potential Differences by an Ultrahigh-Frequency Field in Bismuth"

Abstract: The authors investigated the constant potential differences (on the order of µV) which set in in single crystals of bismuth at helium temperatures acted on by an ultrahigh-frequency field (with a power on the order of mW) and a constant magnetic field. They established that two types of emf are excited in the bismuth samples: (1) Nernst emf, which is the result of heating the sample with UHF currents and (2) "radio-emf", which is produced by the effect of UHF magnetoplasma radiowaves which propagate in the bismuth in the presence of a sufficiently strong magnetic field (on the order of kGs). The authors also discuss several possibilities for studying radio-emf in metals. The discussions are rather detailed with numerous references to other works; the authors use schematics to illustrate and clarify their findings. Figure 1 is a schematic of the resonator used in the research. Figure 2 shows the recording of the potential difference excited in a sample by a UHF field. Figure 3
1/2

USSR

KHAYKIN, M. S., et al, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 60, No 6, Jun 71, pp 2214-2219

gives the curve of emf versus temperature for H = 1 kOe. The authors conclude by suggesting that further study, both experimental and theoretical, be made on the phenomenon of exciting radio-emf in metals. The article contains 3 figures and a bibliography of 17 titles.

2/2

USSR

UDC 622.011.43

PETUKHOV, I. M., FEL'DMAN, I. A., YAKUBSON, G. G.

"Experimental Study of the Deformation of Worked Strata"

Tr. VNII gorn. geomekh. i marksheyd. dela (Works of the All-Union Scientific Research Institute of Mining Geomechanics and Surveying), 1970, Collection 74, pp 423-428 (from RZh-Mekhanika, No 9, Sep 71, Abstract No 9V690)

Translation: The technique and experimental results are presented on measuring deformations of the elastic restoration of worked strata at the "Vorkutaugol'" combine. It was found that deformations attenuate with distance from the working according to the exponential law $\epsilon = 0.0007 \cdot e^{-7y/2x_0}$ (where ϵ is the deformation, $2x_0$ is the width of the working, and y is the distance from the working). It is pointed out that it is possible to use these results in calculating cleaned zones in cold beds dangerous for strata shocks. A. B. Fadeyev.

1/1

UDC 632.954:633.11

USSR

PETINOVA, A. A., KAZARINA, YE. M., YAKUBTSOV, S. I., All-Union
Scientific Research Institute of Plant Protection

"Resistance of 'Diamant' and 'Zarya' Strains of Spring Wheat to
Various Herbicides"

Abstract: The article is a report on an investigation of the resis-
tance of "Diamant" and "Zarya" strains of spring wheat to herbicides
with various types of action applied for three consecutive years
(1966-1968). The wheat was treated in the tillering stage with con-
tact herbicides (dinitro-0-cresol, nitraphene, ioxinyl and bromo-
xinyl) and systemic herbicides (2,4-D, 2M-4Cl, 2,3,6-TB, 2M-4ClM,
2,4-DM, 2M-4ClP and 2,4-DP). The resistance of the grain to the
herbicides was determined by plant weight in the early stages, and by
grain harvest, protein and starch content and seed quality in later
stages. Differences in reactions of the wheat strains to the herbi-
cides were most pronounced in the first days after spraying. The
"Zarya" strain proved to be less susceptible to contact chemicals,
while the "Diamant" strain was more resistant to systemic herbicides
1/2

USSR

PETUNOVA, A. A., et al. Khimiya v Sel'skom Khozyaystve, Vol 8, No 10 (84), Oct 70, pp 46-49

(especially 2,4-D). Of the contact chemicals, ioxinyl had the least effect on wheat. "Zarya" wheat was more resistant to derivatives of phenoxypropionic and phenoxybutyric acids. Both strains showed farily high resistance to 2M-4Cl, and 2,3,6-TB. The differences between the strains leveled off in later stages. However, the harvest of the "Zarya" strain was reduced by the use of 2,4-D and harvests of both strains were reduced by application of derivatives of phenoxy-propionic and phenoxybutyric acids. The protein content of "Zarya" wheat was higher when sprayed with 2M-4ClP, 2,4-DM and ioxinyl. In the case of "Daimant" wheat, protein content was increased by spraying with 2,3,6-TB, while ioxinyl treatment reduced protein content. Analysis for residues of the herbicide showed no traces.

2/2

USSR

UDC 620.186.14;669.24

TARNOVSKIY, G. A., GRATSIANOV, YU. A., OVCHAROV, V. P., YAKUKHINA, L. I., CHIRKOVA, S. N., and KULIKOVA, L. P., Ural Scientific Research Institute of Ferrous Metals

"Nature of Nonmetallic Inclusions in Alloy 58N Billets"

Abstract: Results of correlated studies on the contamination of billets with nonmetallic inclusions are presented. The billets were batch produced (vacuum induction melting) and produced by new means using electron-beam (EBR) and plasma-arc (PAR) remelting, and were made from 58N invar alloy containing (in %): 58 Ni, 0.02 C (max), 0.5-0.8 Mn, 0.2 Si, balance-Fe. The contaminants consist mainly of titanium nitride and alumina minerals. The technological schemes of melting: open induction melting + EBR and open induction melting + PAR provide not only significant lowering of inclusion content but alos producing metal free from large (greater than 7.5 microns) inclusions. Both production methods can be recommended for the industrial manufacture of alloy 58N. From the aspect of minimum inclusion content the EBR method is preferred, but for producing the required nature of inclusions and degree of dispersity the PAR method is better. Two tables.

1/1

- 66 -

USSR

OMEL'YANENKO, YU. I. and YAKUNIN, B. S.

"Studying the Possibility of Using a General Type Antenna-Waveguide Channel with an Increased Number of Superhigh Frequency Columns in Four Gigacycle Band Radio-Relay Lines"

Abstract: Results are given from a study where the authors consider the possibility of using one variant of the superhigh frequency polynomial filter for increasing the capacitance of four gigacycle radio-relay communication systems. The research procedure is given using the GTT 4000/600 type unit which was incorporated into one of the main radio-relay communications lines. Original article: four tables, one formula, and four bibliographic entries.

1/1

USSR   UDC 621.910.71

ABDURAKHMANOV, A. A., YAKUNIN, G. I.

"Appearance of the Rebinder Effect in Testing of Certain Steels"

Izvestiya Akademii Nauk Uzbekskoy SSR, Seriya Tekhnicheskikh Nauk, No 5, 1971, pp 51-52.

ABSTRACT: P. A. Rebinder discovered that when monocrystals are tested in a surface-active medium, a significant reduction in strength is observed. However, very little data is available concerning the influence of external films on the strength of metals. It was determined that the influence of surface films such as oxide films on the strength of steels may vary depending on the material of the specimen, surrounding medium and temperature-velocity factors of deformation. For example, Type R18 tool steel was found to be actually stronger at 400-600° with an oxide film than without.

1/1

Entomology

USSR

UDC 576.895.7

AKHMETBEKOVA, R. T. and YAKUNIN, M. P., Institute of Zoology, Academy of Sciences Kazakh SSR

"Study of Insecto-Acaricidal Effects of Some Compounds on Nest-Inhabiting Ectoparasites"

Alma-Ata, Izvestiya Akademii Nauk Kazakhskoy SSR, No. 1, Jan/Feb 1971, pp 54-56

Abstract: In this investigation, the insecto-acaricidal effects of solutions and emulsions of chlorophos, sevin, and methylnitrophos (0.5, 1.0, 2.0, and 3%), dithiophos (0.01, 0.02, and 0.03%), and dust (5%) on larvae, nymphs, and imagoes of Argas persicus, Dermanyssus gallinae, and Cimex lectularius were studied. Depending on the concentration, aqueous chlorophos killed adult Argas persicus in 1-7 days; larvae and nymphs were more susceptible. Sevin emulsions killed adult ticks in 1-5 days, and hungry larvae almost immediately. Methylnitrophos killed the ticks in 1-2 days. Dithoiphos emulsions, even very dilute ones, killed all ticks within a few hours. Sevin dust killed all experimental insects in 1-2 days. A. persicus, in
1/2

USSR

AKHMETBEKOVA, R. T. and YAKUNIN, M. P., Izvestiya Akademii Nauk
Kazakhskoy SSR, No 1, Jan/Feb 1971, pp 54-56

all its developmental stages, was most resistant to aqueous
chlorophos solutions. D. gallinae and C. lectularius were
generally less resistant, than A. persicus. The residual effec-
tiveness of chlorophos was 1-3 days, that of sevin, methylnitrophos,
and dithiophos 4-7 days. The compounds appeared to act primarily
on the nervous system, though they also affected the chitin
integument. On the basis of the results, it was concluded that
sevin, methylnitrophos, and dithiophos are effective pesticides
and can be successfully used against the above-mentioned
ectoparasites.

2/2

USSR

SEMENOV, V. S., FORSBLOM, G. V., TSYPLAKOV, A. M., YAKUNIN, N. P.

"Study of the Coefficient of Heat Transfer from the Electrolyte to the Lining in Industrial Aluminum Electrolyzers"

Translation: A procedure has been developed and an instrument designed to measure the coefficient of heat transfer from the electrolyte to the lining in industrial aluminum electrolyzers. Measurements have been taken. The magnitude of the heat transfer coefficient varies from 300-400 to 1,200 watts/m^2-deg and more depending on the distance of the measurement point from the anode and its location along the perimeter. Equations are derived for the heat transfer coefficient as a function of the temperature head under the conditions of natural convection and the circulation rate of the electrolyte with forced movement of it. The circulation rate of the electrolyte is calculated, and its dependence on the distance from the anode is demonstrated. There are 3 illustrations.
1/1

1/2   018
UNCLASSIFIED
TITLE--PREPARATION OF AGGREGATE FROM A METALLURGICAL SLAG -U-
PROCESSING DATE--27NOV70

AUTHOR-(04)-YAKUNIN, O.A., LAPINA, V., RUTUS, M.V., LIKHTERMAN, YA.N.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R, 267,438
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--01APR70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--METALLURGIC SLAG, METAL CRYSTALLIZATION, METAL INCLUSION,
  METAL COOLING, METAL INGOT, METALLURGIC PATENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3003/1072
STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0130107
UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AA0130107
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AGGREGATE WAS OBTAINED FROM
METALLURGICAL SLAG BY CRYSTG. THE SLAG MELT AND COOLING THE HARDENED
SLAG WITH WATER.   TO GUARANTEE THE INCREASED RECOVERY OF METALLIC
INCLUSIONS FROM THE SLAG, SOLIDIFICATION OF THE SLAG MELT TOOK PLACE IN
BULK AND THE HARDENED INGOT WAS SUBMERGED IN WATER TO BE COOLED, PRIOR
TO BREAKUP INTO AGGREGATE.   FACILITY: STATE ALL UNION SCIENTIFIC
RESEARCH INSTITUTE OF HIGHWAYS.

UNCLASSIFIED

UNCLASSIFIED

TITLE--MATHEMATICAL DESCRIPTION OF THE THERMAL CONTACT PREPARATION OF HYDROGEN -U-

PROCESSING DATE--11SEP70

AUTHOR--OPRISHKO, A.A., AMERIK, B.K., ZHOROV, YU.M., PASKUDSKAYA, L.A., YAKUNIN, O.V.

COUNTRY OF INFO--USSR

SOURCE--KHIM. TEKHNOL. TOPL. MASEL 1970, 15(3), 38-40

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--THERMODYNAMICS, THERMAL DECOMPOSITION, METHANE, ETHANE, ETHYLENE, ACETYLENE, INDUSTRIAL PRODUCTION, HYDROGEN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1990/2039

STEP NO--UR/0065/70/015/003/0038/0040

CIRC ACCESSION NO--AP0109971

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UNCLASSIFIED

CIRC ACCESSION NO--AP0109971   UNCLASSIFIED   PROCESSING DATE--11SEP70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PROCESS OF DECOMPN. OF A CH SUB4-C SUB2 H SUB6-C SUB2 H SUB4-C SUB2 H SUB2 MIXT. IN CONTACT WITH AL SUB2 O SUB3 HEAT CARRIERS WAS DESCRIBED BY 11 EQUATIONS INCLUDING MATERIAL AND THERMAL BALANCES. THE EQUATIONS WERE RESOLVED BY THE RUNGE KUTTA METHOD AT VARIOUS TEMPS. OF THE HEAT CARRIER IN THE LOWER PART OF THE REACTOR AS A FUNCTION OF THE REACTOR TEMP. THE THERMAL EQUIL. OF THE GAS AND HEAT CARRIER STREAMS WAS ESTABLISHED IN 0.05 M, THE TEMP. DIFFERENCE BEING REDUCED TO LESS THAN OR EQUAL TO 4DEGREESK. THE DECOMPN. OF CH SUB4 WAS INTENSIVE AT SIMILAR TO 1500DEGREESK, AT WHICH THE TEMP. DIFFERENCE OF THE STREAMS INCREASED TO 30DEGREESK.

ZZZZZZZZZZZZ   UNCLASSIFIED

USSR   UDC   621.3.049.75

NEFEDOV, V. S., YAKUNIN, V. A., BOLOTOV, G. V., KIREYEV, I. V., UMOV, V. S.,
GRISHCHENKO, G. V., VAYSBURG, A. O.

"A Method of Making Multilayered Printed-Circuit Boards"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki,
No 2, Jan 71, Author's Certificate No 290492, division H, filed 18 Dec 67,
published 22 Dec 70, pp 169-170

Translation: This Author's Certificate introduces a method of making multi-
layered printed-circuit boards which is based on stacking the boards
followed by interconnection of the current-conducting sections. As a
distinguishing feature of the patent, the manufacturing technique is sim-
plified and the resolving capacity of the boards is improved by connecting
the outer current-conducting layers to the inner layers, and interconnecting
the inner layers, the interlayer connections of the boards being made by
current-conducting pins.

1/1

USSR

UDC: 621.372.852.3(088.8)

BARLASOV, R. L., DOROGUSHKIN, L. V., KARPUSHIN, P. N., KUNAVIN, V. V.,
MIASNIKOV, N. I., YAKININ, V. A.

"An Automatic Polarization Attenuator"

Translation: The proposed attenuator consists of two fixed waveguide adap-
ters, a movable section with an absorbing plate, a readout instrument, a
rod linkage and a step-by-step drive motor. The rod linkage is made up of
three levers mounted on a common frame. The drive lever is rigidly fixed to
the axis of the drive motor, and the driven lever is secured to the axis of
the movable section. These levers are hinged together through the third
lever. The length of the levers is selected in such a way that the linkage
has a transfer ratio determined from calculating the permissible value of
signal attenuation per step of the drive motor for the entire range of ro-
tation of the movable section. The attenuator provides a linear change in
attenuation. Two illustrations. A. K.

1/1

UNCLASSIFIED

TITLE--FINE STRUCTURE OF THE SUPERRADIATION SPECTRUM IN A PULSED NEON LASER -U-

PROCESSING DATE--30OCT70

AUTHOR-(04)-KOROLEV, F.A., ABROSIMOV, G.V., ODINTSOV, A.I., YAKUNIN, V.P.

COUNTRY OF INFO--USSR

SOURCE--OPTIKA I SPEKTROSKOPIIA, VOL. 28, MAR. 1970, P. 540-542

DATE PUBLISHED------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--FINE STRUCTURE, NEON, LASER PULSE, GAS LASER, LASER RADIATION SPECTRUM, FABRY PEROT INTERFEROMETER, LINE SPLITTING, LASER PULSE LENGTH

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/1508

STEP NO--UR/0051/70/028/000/0540/0542

CIRC ACCESSION NO--AP0118495

UNCLASSIFIED

CIRC ACCESSION NO--AP0118495   UNCLASSIFIED   PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT. STUDY OF THE SPECTRAL COMPOSITION OF THE SUPERRADIATION ON THREE LINES OF A PULSED NEON LASER WITH WAVELENGTHS OF 6143, 5944, AND 5401 A WITH THE AID OF A FABRY-PEROT INTERFEROMETER WITH A THICKNESS OF 10 AND 15 CM. THE SUPERRADIATION LINES ARE OBSERVED TO POSSESS A FINE STRUCTURE WHICH IN TYPICAL CASES CONTAINS FROM THREE TO SIX COMPONENTS WITH AN INTERVAL RANGING FROM 150 TO 400 HMZ BETWEEN NEIGHBORING COMPONENTS. THE WIDTH OF AN INDIVIDUAL COMPONENT RANGES FROM ABOUT 100 TO 200 MHZ, WHICH AGREES IN ORDER OF MAGNITUDE WITH THE SUPERRADIATION PULSE LENGTH (ABOUT 5 TO 8 NSEC).   NO DEPENDENCE OF THE SPLITTING INTERVAL ON THE GEOMETRY OF THE DISCHARGE REGION, THE GAS PRESSURE, AND THE SIZE OF THE CHARGE CAPACITANCE IS FOUND. THE OBSERVED FINE STRUCTURE CANNOT BE ATTRIBUTED TO THE ISOTOPIC STRUCTURE OF NEON, SINCE THE NUMBER OF COMPONENTS AND THE DISTANCES BETWEEN THEM DO NOT CORRESPOND TO THE CHARACTERISTICS OF THE ISOTOPIC SHIFT IN NEON.   IT IS SUGGESTED THAT THE COMPONENTS OF THE FINE STRUCTURE MAY BELONG TO SUPERRADIATIVE MODES OF THE PULSED LASER.

UNCLASSIFIED

1/2   028   UNCLASSIFIED   PROCESSING DATE--04DEC70
TITLE--KINETICS OF THE THERMAL DECOMPOSITION OF RARE EARTH AND YTTRIUM
 BROMATES -U-
AUTHOR-(03)-YAKUNINA, G.M., ALEKSEYENKO, L.A., SEREBRENNIKOV, V.V.

COUNTRY OF INFO--USSR

SOURCE--ZH. FIZ. KHIM. 1970, 44(1), 60-3

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--BROMATE, RARE EARTH COMPOUND, CHEMICAL REACTION KINETICS,
 THERMAL DECOMPOSITION, YTTRIUM COMPOUND, ACTIVATION ENERGY, MATHEMATIC
 EXPRESSION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3004/0896   STEP NO--UR/0057/70/044/001/0060/0063

CIRC ACCESSION NO--AP0131482
                          UNCLASSIFIED

CIRC ACCESSION NO--AP0131482

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. KINETICS OF LN(BRO SUB3) SUB3 (LN
  EQUALS LA, PR, ND, SM, CD, DY, HO, ER, YB, LU, AND Y) THERMAL DECOMPN.
  WAS STUDIED AT 160-280DEGREES IN A PURE N ATM. BY A SPRING BALLANCE
  METHOD. THE BROMATES WERE SYNTHETIZED FROM THE RESP. OXIDES AND HBRO
  SUB3. THE EXPTL. DATA WERE TREATED ACCORDING TO THE EQUATION ALPHA
  EQUALS 1 MINUS EXP(MINUS KTAU PRIMEN) WHERE ALPHA EQUALS FRACTION OF
  DECOMPD. BROMATE, TAU EQUALS TIME, K EQUALS REACTION RATE CONST., N
  EQUALS CONST.; THE ACTIVATION ENERGIES WERE COMPUTED. THE ACTIVATION
  ENERGIES OF BROMATE DECOMPN. DECREASE IN THE LA-LU SERIES; THIS DECREASE
  IS EXPLAINED BY THE INCREASING ROLE OF CATION POLARIZATION IN THE SAME
  SERIES.   FACILITY: TOMSK. GOS. UNIV. IM. KUIBYSHEVA, TOMSK,
  USSR.

UNCLASSIFIED

1/2   017
UNCLASSIFIED
TITLE--CHLORATES AND RARE EARTH ELEMENTS AND YTTRIUM -U-   PROCESSING DATE--13NOV70

AUTHOR-(02)-YAKUNINA, G.M., SEREBRENNIKOV, V.V.

COUNTRY OF INFO--USSR

SOURCE--ZH. NEORG. KHIM. 1970, 15(3), 879-80

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--RARE EARTH COMPOUND, CHLORATE, YTTRIUM COMPOUND, THERMAL STABILITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1994/1877
STEP NO--UR/0078/70/015/003/0879/0880
CIRC ACCESSION NO--AP0115696
UNCLASSIFIED

UNCLASSIFIED

CIRC ACCESSION NO--AP0115696   PROCESSING DATE--13NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. $LN(ClO_3)_3 \cdot NH_2O$ (LN EQUALS LA, ND, HO, ER, TM, YB, Y AND N EQUALS 4 OR 5) WERE PREPD. AND THEIR STABILITY WAS DETD. BY DTA. ON HEATING, THE COMPDS. DISPROPORTIONATED TO LNOCL, $LNCL_3$, CL, AND O.

UNCLASSIFIED

USSR

YAKUNIN, V. M.

UDC: 621.316.9:621.398

"A Device for Protecting Telemetric Equipment from Interference when the Radio Link is Disconnected"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 6, 1970, p 38, patent No 262184, filed 28 Oct 68

Abstract: This Author's Certificate introduces a device for protecting telemetric equipment from interference when a radio link is disconnected. The device contains a message registration element, a unit for detection of distortions in received combinations, a unit which fixes the number of successive errors detected, an element which inhibits decoding when there is an error in the unit which fixes the stored signals, and a reception unit which consists of an input accumulator and a decoder. As a distinguishing feature of the device, the interference resistance of the telemetric equipment is improved by connecting an element which delays the received combinations between the output of the message registration element and the reception unit of the telemetric equipment. The input of the delay element is connected in parallel with the unit for detection of distortions in received combinations, while the output of the delay element is connected to the input accumulator, and the output of the decode inhibit element is connected to the decoder.
1/1

USSR

UDC 531.131

YAKUPOV, R. G. (Kazan'. Kazan' Physico-Technical Institute AN SSSR)

"Vibrations of a Cylindrical Shell Under Acoustic Pressure"

Abstract: Results of an experimental study on the excitation by acoustic pressure of the forced axisymmetrical vibrations of the three cylindrical shells, made of the 30KhA steel are presented. A KuAI-3 air vibrator was used as the acoustical waves generator. A schematic diagram of the experimental setup is presented and the experimental procedure is described. The differential equation for axisymmetrical vibrations of cylindrical shells, without consideration of axial inertia forces, is derived and solved. Results are presented in graphs in terms of annular stresses and acoustic pressures in shells at $f-276 - 280,128$ and 380Hz vibration frequencies of the air column, and at various forms of pressure curve. 10 formulas, 5 figures, 4 references.

1/1

YAKUSHA, G.B.

Econ

ELECTRIC POWER AND RELATED EQUIPMENT

PROSPECTS FOR DEVELOPMENT OF ATOMIC POWER ENGINEERING

[Article by Academician of the Ukrainian Academy of Sciences G. B. Yakusha and L. T. Shvets, Doctor of Economic Sciences; Candidate of Technical Sciences Ye. I. Buratov; Kiev, Visnyk Akademii Nauk Ukrains'koy RSR, Ukrainian, No 9, 1971, pp 65-76]

During the Ninth Five-Year Plan, an accelerated rate and increased amount of electric power generation will rank among the most important tasks of the Soviet economy. The directives of the 24th CPSU Congress envisage that between 1971 and 1975 new electric power generating capacity of 65-67 million kilowatts will be put into operation. Electric power will also develop widely in the Ukrainian SSR. By the end of the current five-year plan, electric power output in the republic will rise to 200 billion kilowatt-hours, that is, by 45 percent in comparison with the last year's figures.

The electric power base of our country, as the Congress Directives emphasize, will be enlarged chiefly by construction of thermal power plants. At the same time, more than 10 percent of the new capacity will be installed in atomic power plants. In the long run, atomic power will become the basic source of the increase in power generating capacity. All this poses a whole series of theoretical and practical problems which require assiduous investigation. This article is devoted to examining the future prospects of atomic energy in the Ukrainian SSR.

The erection of power plants which would ensure development of the productive forces in any economic region remains a considerable expenditure to national economy. In terms of fixed industrial capital the fuel power sectors of the Ukraine require about one-third of the republic's total industrial appropriations and more than 14 percent of its total workers. The transportation of fuel accounts for 35 percent of the total freight handling of the republic. Thus, it is not at all surprising that the share of expenditures on thermal and electric power and fuel in the total production costs of the power-intensive industrial

USSR   UDC 620.9.001.24

YAKUSHA, G. B., BARATOV, E. I. MAN'KOVSKIY, A. L., KHMELEVSKIY, YE. I.

"Procedural Problems of Forecasting the Development of Regional Power Engineer-
ing to the Year 2000"

Vopr. metodol. regional'n. ekon. prognozir. (Problems of Procedural Regional
Economic Forecasting), Novosibirsk, 1970, pp 207-221 (from RZh-Teploenergetika,
No 2, Feb 71, Abstract No 2G1)

Translation: Research in predicting the development of power engineering in
the USSR to the year 2000 should include the prospects for development of power
engineering of individual republics or economic regions. The forecasting pro-
cedure used for the USSR is to a great extent inapplicable for individual
economic regions. Forecasting such complex economic phenomena as the develop-
ment of branches of the national economy, in particular, power engineering, re-
quires the use of a set of forecasting methods -- normative, expert estimates,
simulation, extrapolation, and so on. The development of the forecasts to the
year 2000 requires careful preparation of the initial base. The statistical
series of the base period must be highly representative with respect to the
forecasted period. As the base it is expedient to take statistical series for
the postwar years (approximately from 1950). The level and nature of
1/2

USSR

development of an economic region and its energy base (types and capacities of
the generating sources, electric power network, power systems, and so on) are
determined by the presence of primary energy sources economically expedient and
practically accessible for development. Insurance of primary power sources and
prospective estimation of the initial energy base are acquiring special urgency
for regions having a highly developed multiple-branch economy characterized by
significant power consumption. The basic areas of development of power en-
gineering of the region permits the development of recommendations with re-
spect to scales of production of the power resources proper and those received
from the outside (fuel, electric power), the scales of development of atomic
power engineering, and so on. The most widespread tool of optimization of the
fuel and energy balance of the region is the production-distribution model
which permits optimization of the scales of extraction and production of local
forms of energy resources, distribution of the energy resources between indi-
vidual networks and consumers and also the placement scheme for the large elec-
tric power plants and internetwork flows of electric power. The bibliography
has 8 entries.
2/2

- 102 -

USSR

UDC 628.34:546.79

SHVEDOV, V. P., and YAKUSHEV, M. F.,

"The use of Electrophoresis, Electrocoagulation, and Electroflotation in Purifying Radioactive Water"

Abstract: Purification processes were studied to remove strontium-90 and cesium-137 from water by electrocoagulation and electroflotation, using electrodes made of titanium, carbon steel, and stainless steel K18N10T. Maximum total removal of strontium-90 was achieved at pH > 10. The purification coefficient for titanium electrodes was 50, for the carbon steel about 28, and for stainless steel about 18. Electrocoagulation is ineffective in removal of cesium-137, and strontium-90 may be removed up to 20% at pH 10. Electroflotation removes 60% of the radiocesium and more than 90% of radiostrontium, the maximum for both cases being reached around pH 6. The effect of both the electrocoagulation and electroflotation depends on the current density: less than 0.02 a/cm^2 current gives a very low purification. With current density

1/2

USSR

SHVEDOV, V. P. et al., Radiokhimiya, Vol 12, No 6, 1970, pp 871-876

$\geqslant$ 0.2 a/cm^2 the rate of the formation of gas bubbles should give a complete removal of colloids -- those present in the original solution and those formed by electrocoagulation -- into the foamy product.

2/2

USSR

CHISTYAKOV, G. YE., NOGOVITSYN, D. D., YAKUSHEV, M. V.

Gidroenergeticheskiye resursy basseyna reki Yany. (Hydroelectric Power Re-
sources of the Yana River Basin), Moscow, Nauka,Press, 1970, 214 pp (from
RZh-Elektrotekhnika i Energetika, No 2, Feb 71, Abstract No 2 D2 K)

Translation: This book contains a brief physical-geographic description of the
Yana River Basin, information on hydrography and the regime of the principal
rivers and the potential hydroelectric power reserves of the basin rivers more
than 10 km long. In addition, other power resources and the economy of the
region are investigated, and some arguments are presented regarding the pros-
pects of development of power consumption and installation of power equipment.
There are 13 illustrations, 51 tables and an 83-entry bibliography.

1/1

- 34 -

USSR   UDC 621.319.4.002.5

PSHENICHNYY, I. S., NIKITIN, V. A., YAKUSHEV, S. G., BUDKIN, I. A.,
ALEKSEYEV, V. L., ARBUZOV, A. D.

"A Device for Applying Silver Paste to Ceramic Disc Capacitor Blanks"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki,
1970, No 33, Soviet Patent No 285112, class 21, filed 8 May 69, published
29 Oct 70, p 58

Translation: This Author's Certificate introduces a device for applying
silver paste to ceramic disc capacitor blanks. The unit contains a rotating
disc for transporting the blanks. Around the periphery of the disc are
multiple-place cartridges with pockets for the blanks. The device also
contains a mechanism for applying the paste to the blanks which is fitted
with punches. Also included in the device are a drying chamber and a
drive mechanism. As a distinguishing feature of the patent, the precision
and productivity of the device are improved by placing hollow split sleeves
with spring-loaded lugs in the cartridge pockets. Rods fit into these
hollow sleeves and open them, and the punches are located on both sides of
the cartridges.

1/1

- 25 -

USSR

GABIDYLLIN, R. M. and YAKUSHEV, V. A., Moscow Aviation Tech-
nology Institute

"Distribution of Hydrogen in Iron"

Abstract: The authors find equations which allow them to com-
pute the amount of hydrogen in a solid solution and in the
pores as a function of the mean concentration of hydrogen, po-
rosity of the metal, and the temperature. At temperatures
greater than 200 degrees C the greater part of the hydrogen
is found in the solid solution, and at low temperatures it
moves into the pores. The authors have computed the equilib-
rium pressures of the hydrogen in the pores. The article con-
tains 2 illustrations and 2 bibliographic references.

1/1

USSR

UDC 669.71.017:669.785/788

GAVIDULLIN, R. M., YAKUSHEV, V. A., BOKATUYEVA, T. A., and UVAROVA, T. A.,
Moscow Aviation Technological Institute, Chair of the Science of Metals and
of the Heat Treatment of Metals

"Kinetics of Hydrogen Redistribution in Aluminum in the Process of Heat
Treatment"

Ordzhonikidze, Izvestiya Vysshikh Uchebnykh Zavedeniy, Tsvetnaya Metallurgiya,
No 6, 1973, pp 114-119

Abstract: The duration of establishing the thermodynamic equilibrium between
the hydrogen concentration in the Al solid solution and its pressure in the
pores was calculated with the help of a hydraulic integrator assuming a con-
tinuous distribution of pores in the metal and an initial pore radius of
$5 \cdot 10^{-6}$ cm. Derived formulas were used for the determination of the incubation
and the growing period of pores. The time-dependent relative change of the
pore radius is shown. For the investigated conditions of heat treatment at
$400-600°$, the duration of equilibrium achievement does not exceed two seconds.
The principal growing process of pores at heat treatment proceeds by the coale-
scence mechanism. The short period of hydrogen redistribution is of particular
1/2

USSR

GABIDULLIN, R. M., et al., Izvestiya Vysshikh Uchebnykh Zavedeniy, Tsvetnaya Metallurgiya, No 6, 1973, pp 114-119

use in specifying the mechanism of the development of internal defects in deformed aluminum alloys. Two figures, two bibliographic references, 16 formulas.

2/2

- 2 -

USSR

GABIDULLIN, R. M., and YAKUSHEV, V. A., Stupinsk Branch of Moscow Aviation Technological Institute, Chair of the Science of Metals and Hot Working of Metals"

"On the Hydrodynamics of the Hydrogen Distribution in Metals"

Abstract: The distribution of hydrogen between different phases of the crystal lattice was analyzed, assuming the absence of hydrogen losses through the surface of the specimen. On the basis of Borelius' equation for the volumetric concentration of H in each phase and from derived functions characterizing H pressure in pores after stabilized thermodynamic equilibrium and H masses in the solid solution and in pores, formulas for the distribution coefficient of H and of its average concentration in the solid solution were derived from which the equilibrium concentration of H in metal can be determined. Calculated relative concentrations of H in solid Al and Fe solutions show that in Al, at practically occurring average H concentrations, the larger

1/2

USSR

GABIDULLIN, R. M., and YAKUSHEV, V. A., Tsvetnaya Metallurgiya, No 2, 1973, pp 40-43

part of H is found in pores over the entire temperature range of the solid state. An analogous concentration is observed in steel at temperatures below 200°C; however, at rising temperature, most part of H changes into the solid solution. Calculations revealed that the establishment of thermodynamic equilibrium of H between the solid solution and pores takes place over a very short period not exceeding tens of seconds. Three figures, thirteen formulas, four bibliographic references.

2/2

- 41 -

USSR

UDC 541.12.03

YAKUSHEVA, O. B., YAKUSHEV, V. V., and DREMIN, A. N., Moscow

"On the Possibility of Diffusion Processes Occurred During Shock Compression

Novosibirsk, Fizika Goreniya i Vzryva, Vol 7, No 2, Jun 71, pp 264—266

Abstract : An attempt was made of direct diffusion observation of thin metal films into transparent dielectrics by a described optical method by which the reflecting properties of a Cu-film sprayed in vacuum on Plexiglas supports were investigated. The shown photochronograms of the light reflection from the Cu-film did not show a notable decrease of the reflection factor by entering of the shock wave into the Cu-film and of its going through the dielectric during $\sim 1\,\mu$sec. For the diffusion film thickness $X = 500$ Å, developed within a time of $t = 10^{-6}$sec, the maximum value of the diffusion factor D is $D_{max} = X^2/2t \simeq 10^{-5}$ cm^2/sec . Generally, the problem of the possibility of diffusion processes occurred in solids within times of shock compression has been left open. Two illustr., eight biblio. refs.

- 35 -

Electrochemistry

USSR

UDC 541.11:541.124.7:541.8

YAKUSHEV, V. V., and DREMIN, A. N., Institute of Chemical Physics, Acad. Sc., USSR, Moscow

"Electrochemical Effects During Impact Compression of Dielectrics. Mechanism of the Electroconductivity of Impact Compressed Liquids"

Abstract: Experimental results are presented on the characteristics of the conductivity of liquid methanol, acetone, water, carbon tetrachloride, tin tetrachloride, silicon tetrachloride, methylmetacrylate, and dichloroethane occuring during impact compression. It has been shown that the emf of electrochemical nature forms on electrodes prepared from two different metals and immersed in any of the experimental liquids listed above. On the basis of the data analyzed, a conclusion was reached that the electroconductivity of these liquids which occurs during a dynamic compression up to the pressures of 100 Kbar is of an ionic character.

1/1

USSR

KEL'MAN, V. M., SAPARGALIYEV, A. A., and YAKUSHEV, Ye. M., Institute of Nuclear Physics, Alma-Ata

"Theory of Cathode Lenses"

Abstract: Under the general title given above, the present article is the second installment, its title being "Electrostatic Cathode Lenses With Rotational Field Symmetry." The first installment appeared in the journal named above (V. M. Kel'man, et al, No 10, 1972); in it the authors developed a method for classifying various forms of aberration in lenses of rotational field symmetry. In the present installment, the authors demonstrate how the method is used to find all aberrational coefficients in a form characteristic of electronic lenses. Using a cylindrical system of coordinates, the authors obtain a set of equations describing the motion of the charged particles in the field of the electrostatic cathode lens. The equations are solved by the method of successive approximations, and simplified expressions for the aberrational coefficients in the image plane are derived.
1/1

USSR   UDC: 537.533.34

KEL'MAN, V. M., FEDULINA, L. V., YAKUSHEV, Ye. M., Institute of Nuclear
Physics of the Academy of Sciences of the Kazakh SSR, Alma-Ata

"Deflection of Parallel Beams of Charged Particles by a Flat Electrostatic
Mirror"

Abstract: The authors discuss the electron-optical properties of a flat
electrostatic two-dimensional mirror which is distinguished by the fact
that a parallel beam of charged particles incident on its surface remains
parallel in the paraxial approximation after reflection as well. It is
shown that there are two types of flat electrostatic mirrors which differ
with respect to the nature of the trajectories. Cardinal points are
defined for each type of mirror. The nature of angular aberrations is
investigated, and expressions are found for the aberration coefficients.
In the direction parallel to the central plane of the mirror, aberrations
vanish to the fourth order, while in the direction perpendicular to this
plane, aberrations vanish to order three. The general theory is applied

1/2

USSR

KEL'MAN, V. M. et al., Zhurnal Tekhnicheskoy Fiziki, Vol 41, No 9, Sep 71, pp 1825-1831

to the case of two-electrode electrostatic mirrors. All necessary parameters are calculated for such mirrors. Two figures, bibliography of three titles.

2/2

- 81 -

USSR

BASIN, L.A., BOBYKIN, B.V., DAVYDOVSKIY, V.YA., KEL'MAN, V.M., FINOGENOV, P.A., YAKUSHEV, YE. M. [In-t yadern. fiz. AN KazSSR--Institute Of Nuclear Physics, AS, Kazakh SSR]

UDC 621.384.6

"Magnetic Prism"

USSR Author's Certificate No 255429, filed 2 Mar 68, published 31 Mar 70 (from RZh--Elektronika i yeye primeneniye, No 11, November 1970, Abstract No 11A268P)

Translation: The magnetic prism which is patented, consisting of an electromagnetic with extended pole shoes of parallelepiped form, differs in the fact that with the object of reducing the inhomogeneity of a two-dimensional magnetic field and suppressing the dispersal of the fields, the prism contains another such electro- magnet located above the first, while the winding of both electromagnets is connect- ed in opposition, and a gasket [prokladka] is mounted between the poles of the magnet and the yoke.

1/1

- 114 -

USSR

UDC: 621.317.78

STUPAR', V. I., YAKUSHEV, Zh. F.

"A Pondermotor SHF Wattmeter of Torsional Type"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 32, Nov 71, Author's Certificate No 318876, Division G, filed 10 Mar 70, published 28 Oct 71

Translation: This Author's Certificate introduces a ponder-motor SHF wattmeter of torsional type containing a rectangular waveguide housing in which a moving element is mounted by means of a suspension device. As a distinguishing feature of the patent, the sensitivity of the instrument is increased and matching of the moving element in the waveguide is im-proved by making this moving element in the form of a half wave plate, while the waveguide section at the point where the plate is located is made in the form of a twist around the longitudinal axis, the angle of twist being in the direction of rotation of the plate.

1/1

Pulse Techniques

USSR

UDC: 621.396.963.325(088.8)

ZAGIROV, U. G., SPOKOYNYY, M. M., RABINOVICH, G. L., YAKUSHEV, Zh. F.

"A Device for Reception of Pulse Radio Signals"

Translation: The proposed device contains an antenna pickup of azimuthal marks, a reception module, a module for shaping a range origin pulse, a threshold stage, an accumulator, an indicator of operability of the reception channel, an input/output selector switch, and a pilot signal shaper which includes a pilot signal oscillator and a modulator. In order to keep a constant check on the working capacity of the receiving device directly from the mark on the display for the range and azimuth operator, the device is equipped with a stage for time coincidence of signals from the outputs of the threshold stage and the modulator of the pilot signal shaper; the modulator trigger pulses are sent from the azimuthal mark pickup through a switch whose controlling input is connected to the output of the channel for shaping the pulse of range origin through the delay line of the pilot signal shaper.

1/1

USSR

UDC: 621.396.963

LOPATIN, V. A., SOL'NIKOV, I. M., RABINOVICH, G. L., YAKUSHEV, Zh. F.

"A Device for Introducing Graphic Information Into Analog Azimuth-Range Indicators"

Moscow, Otkrytiya, Izobreteniya, Promyshlernyye Obraztsy, Tovarnyye Znaki, No 14, 1970, Author's Certificate No 268514, filed 3 Apr 69, pp 43-44

Abstract: This author's certificate introduces a device for feeding graphic information into analog azimuth-range indicators. The unit contains an azimuth mark pickup and an interrogation pulse shaper which consists of a shaper control unit, shapers, a register for control of electronic keys, electronic keys and an interrogation pulse decoder. Also included in the device are an amplifier module, a code-to-time converter, a unit which shapes graphic information pulses, and a calibrated range mark pickup. As a distinguishing feature of the patent, the precision of plotting an electronic route map is improved and operation is made more convenient by adding a range code memory unit whose inputs are connected through the interrogation pulse shaper to the azimuth mark pickup, while the outputs are connected through the amplifier module to the record inputs of the code-to-time converter. Connected to the counter input of this converter is the output of the calibrated range mark pickup.
1/1

YAKUSHEVA, A. I.

MEDICINE

V. AWARDS, CONTESTS, APPOINTMENTS, AND PERSONALITIES

19. USSR

'V. M. Nikitin'

Moscow, Izvestiya, 28 Oct 70, p 4

Translation: V. M. Nikitin, head of the Chair of the Chemistry of Wood and Cellulose
of the Leningrad Forestry Engineering Academy, has become the first Soviet scientist
elected a member of the International Academy of Forestry Sciences (IALA).

The International Academy of Wood was created in 1966, and its main purpose is
the coordination and encouragement of scientific research devoted to the problems of
forest renewal and the procurement and use of wood. There are 100 representatives
of science from many countries in IALA.

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20. USSR

'Honorary Titles'

Moscow, Meditsinskaya Gazeta, 1 Sep 70, p 1

Translation: By decree of the Presidium of the Supreme Soviet RSFSR, the title
Honored Physician RSFSR has been awarded to the following medical workers of Kemerovsk
Medical Institute for services in national health: dotsents I. P. Belorus, Yu. T.
Burlikov, and A. I. Yakusheva, and assistant I. P. Valkhina.

By decree of the Presidium of the Supreme Soviet Uzbek SSR, the title Honored
Physician Uzbek SSR has been awarded to M. Farmonov for long and productive service
in medical institutions of the USSR Ministry of Internal Affairs.

By decree of the Presidium of the Supreme Soviet Kazakh SSR, the title Honored
Physician Kazakh SSR has been awarded to the following for services in public health:
Yu. A. Babina, head of the Infection Division of Sarykamys Rayon Hospital, Chimkent
Oblast; Ye. A. Gulmyaeva, physician of Smirnovsky Hospital, Severniy Rayon, Severo-
Kazakhstan Oblast; K. D. Dunanbekov, chief physician of the Antituberculosis Dispen-
sary, Aktyubinsk Rayon, Chimkent Oblast; O. Kasangaubekov, chief physician of the
Medical-Sanitary Sector of the Machine Building Plant imeni Voroshilov, Ural'sk

USSR

YAKUSHEVA, O. B., YAKUSHEV, V. V., and DREMIN, A. N., Moscow

"On the Possibility of Diffusion Processes Occurred During Shock Compression

Abstract : An attempt was made of direct diffusion observation of thin metal films into transparent dielectrics by a described optical method by which the reflecting properties of a Cu-film sprayed in vacuum on Plexiglas supports were investigated. The shown photochronograms of the light reflection from the Cu-film did not show a notable decrease of the reflection factor by entering of the shock wave into the Cu-film and of its going through the dielectric during $\sim 1 \mu$sec. For the diffusion film thickness $X = 500$ Å, developed within a time of $t = 10^{-6}$sec, the maximum value of the diffusion factor D is

$D_{max} = X^2/2t \approx 10^{-5} cm^2/sec$. Generally, the problem of the possibility of diffusion processes occurred in solids within times of shock compression has been left open. Two illustr., eight biblio. refs.

- 35 -

USSR

YAKUSHENKOV, Yu. G., Doctor of Sciences

"Concerning the Atmospheric Turbulence Effect on Inaccuracy of Electron-Optical Angle-Date Transmitter"

Abstract: The necessity of taking into consideration the effect of atmospheric turbulence in the design of high precision electron-optical angle-data transmitters is indicated. This effect is manifested in vibration and flicker of emitter image. Considering the random nature of instrumental error σβ of the transmitter and fluctuations of emission arrival angle in turbulent atmosphere, as well as their additiveness, an expression is derived for the dispersion of total error in determining the bearing of the emitter. An illustrative example of numerical calculations of transmitter minimum dimension is presented.

1/1

- 134 -

USSR

KUDRYAVTSEVA, L. I., MEZHIROV, I. I., PONOMAREV, S. P., YAKUSHEVA, V. L.

UDC: 629.7.036.3:533.697.4

"Experimental Study of Axisymmetrical Profiled Supersonic Nozzles with Low Re Numbers"

Uch. Zap. Tsentr. Aerogidrodinam. In-ta [Scientific Writings of Central Institute of Aerodynamics and Hydrodynamics], 1973, 4, No 3, pp 123-126 (Translated from Referativnyy Zhurnal Aviatsionnyye i Raketnyye Dvigateli, No 11, 1973, Abstract No 11.34.85, from the resume)

Translation: Results are presented from experimental study of the flow into axisymmetrical profiled supersonic nozzles, designed considering the influence of viscosity on the production of a flow with $M=6$ and various design values of wall temperature. The Re_L number for both nozzles is $9.3 \cdot 10^3$, the thickness of extraction of the laminar boundary layer in the output cross section of the nozzle is comparable to the radius of the isen-tropic contour or even greater than it. It is shown that consideration of the influence of the viscosity, consisting in addition of the thickness of extraction of the boundary layer to the radius of the isentropic contour, leads to satisfactory results: in spite of the small dimensions of the nonviscous core, the M number in it, within the limits of the output charac-teristic rhombus, is practically constant and equal to its design value. 6 Figures; 3 Biblio. Refs.

1/1

- 21 -

USSR

UDC 531.717.2

TRUTEN', V. A., YAKUSHEVSKAYA, Ye. S.

"Study of the Accuracy of Recording of Noncircularity with the ARF-1M Device"

Tr. Metrol. In-tov SSSR [Works of Metrological Institutes, USSR], 1970, No 6, pp 84-88, (Translated from Referativnyy Zhurnal, Metrologiya i Izmeritel'naya Tekhnika, 1972, No 5, Abstract No 5.32.298, from the Resume).

Translation: A description is presented of the ARF-1M device and the design of its sensors. A schematic diagram of the electronic control device is presented. The errors of measurement are analyzed and the practical limiting error is determined (as well as variation of indications). The influence of dynamics of the measurement process is studied. Results are presented from experimental studies of the accuracy of the device, as well as results of measurement of noncircularity of large parts. Recommendations are presented for use of the device for testing of heavy machine building parts and the accuracy of vertical turret lathes after repairs. 4 Figures; 2 Biblio. Refs.

1/1

USSR

UDC 621.791.76.011:621.7.044.2:621.791.08:
539.4

TRUTNEV, V. V., Candidate of Technical Sciences, YAKUSHIN, A. F., DUNAYEV, A.A.,
and MISHIN, N. I., Engineers, and GODIN, V. M., Candidate of Technical Sciences

"Comparative Evaluation of Joint Quality From Explosive Welding of Aluminum
With Titanium, Steel and Nickel"

Abstract: Results of a comparative evaluation of the weldability of Al with
Ti, steel, and Ni by explosion welding under identical conditions is presented.
Plates of AMg6 alloy measuring 6x 65 x 130 mm were clad with hot rolled AD1
aluminum and plates of VT5 titanium alloy, Kh18N10T steel, and electrolytic
nickel measuring 5 x 60 x 120 mm. From shear tests it was found that Al + Ti
had the best weldability. Shear strength also increased when the distance
between the metal being welded was increased from 3 to 5 to 8 mm with the high-
est test values noted for the distance of 5 mm. The shear strength of Al + Ni
joints was better than that of Al + Kh18N10T steel. It was noted that the
coefficient of impact energy utilization is one of the important parameters in
the explosive welding process that affects the weldability of dissimilar mater-
ials. 3 figures, 2 tables, 6 bibliographic references.

1/1

USRR

UDC 621.791.1

IVANOV, V. YE., AMONENKO, V. M., GODIN, V. M., RYBAL'CHENKO, N. D., TRON', A. S., and YAKUSHIN, A. F., Khar'kov

"Properties of Compounds of Ti Alloys With Steel Made in Thin Layers"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 2, Mar-Apr 71, pp 101-105

Abstract: The strength and plastic properties of the bimetals VT6S-1Khk8N10T, OT4-1Kh18N10T, Vtl4-1Kh18M10T, and AT2-Khk8kOT with niobium-copper interlayers were studied in the temperature range from -196 to +1,000°C. The influence of the dimensional factor on the effect of contact hardening of the interlayer was established. The increase in the strength of the thin copper interlayers is explained by specifics of the stress state of the metal with low yield point, located between two stronger metals. This state of the metal during deformation results in higher shear stresses, resulting from blocking of dislocations by the stronger metal at the division boundary. The use of these thin interlayers of copper and niobium, preventing the formation

1/2

USSR

IVANOV, V. YE., et al., Fizika i Khimiya Obrabotki Materialov, No 2, Mar-Apr 71, pp 101-105

of brittle compounds at the titanium-steel division boundary, allows the production of the material with high strength, good impact toughness, fatigue resistance, and satisfactory ductility.

2/2

USRR   UDC 621.791.1

IVANOV, V. YE., AMONENKO, V. M., GODIN, V. M., RYBAL'CHENKO,
N. D., TRON', A. S., and YAKUSHIN, A. F., Khar'kov

"Properties of Compounds of Ti Alloys With Steel Made in Thin
Layers"

Abstract: The strength and plastic properties of the bimetals
VT6S-1Khk8N10T, OT4-1Kh18N10T, Vt14-1Kh18M10T, and AT2-Khk8kOT
with niobium-copper interlayers were studied in the temperature
range from -196 to +1,000°C. The influence of the dimensional
factor on the effect of contact hardening of the interlayer was
established. The increase in the strength of the thin copper
interlayers is explained by specifics of the stress state of the
metal with low yield point, located between two stronger metals.
This state of the metal during deformation results in higher
shear stresses, resulting from blocking of dislocations by
the stronger metal at the division boundary. The use of these
thin interlayers of copper and niobium, preventing the formation
1/2

- 44 -

USSR

IVANOV, V. YE., et al., Fizika i Khimiya Obrabotki Materialov,
No 2, Mar-Apr 71, pp 101-105

of brittle compounds at the titanium-steel division boundary,
allows the production of the material with high strength, good
impact toughness, fatigue resistance, and satisfactory ductility.

2/2

USSR   UDC 621.791.052.001.5:669.3+669.71

TRUTNEV, V. V., Candidate of Technical Sciences, YAKUSHIN, A. F., Engineer, and YAKUSHINA, G. V., Technician

"Kinetics of Intermediate Phase Growth in Copper and Aluminum Combinations"

Abstract: Copper and aluminum combinations are interesting in that they are difficult to weld together, and formations of thermodynamically stable in- termetallic phases may occur. This article investigates the interaction of the two metals when welded. The investigation method involves plotting kinetic curves of the growth of the intermetallides during the welding process from metallographic examination of the transitional zone structure for the combination subject to isothermic processing at various temperatures. Specimens of AD1 aluminum and M1 copper, 16 mm in diameter, were cold welded. They were then subjected to isothermal processing in an atmosphere of air at a temperature range of 300-450° C maintained from 1 minute to 20 hours, and microsections bearing the intermetallic phase in the welded joint were made. A curve for the growth of intermetallic phase was plotted for each tempera- ture value.
1/1

USSR

YAKUSHIN, B. F., Candidate of Technical Sciences, Moscow Higher Technical School imeni N. E. BAUMAN

"The Reliability of Criteria and Methods of Estimating the Technological Strength of Metals during Crystallization in Welding"

Abstract: The possibility of the development of hot cracks during welding requires that the quality of the metal be estimated in relationship to the probability of their appearance, i.e., the technological strength of the metal must be estimated. One scientifically well-founded criterion of technological strength is the quantity $\mathfrak{X}_n - \alpha_w$, where α_n is the limiting rate of deformation, which when exceeded causes the appearance of cracks, and α_w is the seam shrinkage during welding. This criterion should be defined using a method with forced deformation of the metal during cooling from the operative lower boundary of the brittleness temperature range. Evaluation of the technological strength on the basis of the critical stress and time the metal spends in this brittleness range is not scientifically well founded.

1/1

USSR

ANTONOV, Ye. G., POPOV, A. S., YAKUSHIN, B. F., OSOKINA, T. N., MIKHEYEV, I. M., SMIRNOVA, Ye. I., SHPAGIN, B. V., and NIKOLAYEVA, V. S., Moscow

UDC 621.791.019

"Metallurgical Action on Seam Strength in Magnesium Alloy Welding"

Abstract: The problem considered in this paper is the metallurgical means that can be used to deal with cracks in magnesium alloy welds, specifically magnesium alloyed with zinc, and the efficiency of the means. Melts of the VMD3 series and several magnesium-zinc melts were the subjects of the experimentation; the defect of the first class of alloys is the tendency of its welds to develop heat cracks caused by the change in the lanthanum content. It was assumed in these tests that the introduction of rare earth metals into the alloys would improve their resistance to the formation of cracks since magnesium forms eutectics with these metals. A conclusion reached by the authors is that one cause of cracks forming in the welds that did not contain zirconium is the large crystalline structure of the weld metal, and that the resistance of the weld to cracks could be improved by the addition of 0.55% Zr.
1/1

Welding

USSR

UDC 621.791.011.001.5:669.721 + 669.5

ANTONOV, YE. G., Engineer, POPOV, A. S., Engineer, YAKUSHIN, B.
F., Candidate of Technical Sciences, OSOKINA, T. N., Engineer,
NIKOLAYEVA, V. S., Technician, MIKHEYEV, I. M., Engineer,
SMIRNOVA, YE. I., Engineer, SHPAGIN, B. V., Engineer, and
BABADZHANOVA, I. S., Engineer

"Effect of Rare-earth Elements on the Weldability of Magnesium-
Zinc and Magnesium-Zinc-Zirconium Alloys"

Abstract: The effect of some rare-earth metals on the weldabil-
ity of magnesium-zinc and magnesium-zinc-zirconium alloys was
studied in experimental melts. Sheets of the alloys, 2 mm thick,
were obtained by rolling on a "Duo" laboratory mill from flat
ingots cast in metal molds. Before rolling, the ingots were heat-
ed to 380-400° C (11 intermediate heats, 2-3 passes). Shrinkage
was 15-25 percent. After rolling, the sheets were annealed at
260° C for an hour. The filler wire was made of the same mate-
rial. The results indicate that rare-earth metals (neodymium,
1/2

USSR

ANTONOV, YE. G., et al., Svarochnoye Proizvodstvo, No 12, Dec 70, pp 6-8

lanthanum, mischmetal) at the rate of up to 0.6 percent by weight affect the hot-shortness of the studied alloys in different ways during welding. The most probable reason for this is the varying effect of rare-earth metals on the plasticity of the studied alloys in the region of the lower limit of the brittle temperature range, as well as the varying effect on the magnitude of the latter. The weld cracking resistance of the alloys can be increased by alloy additions of lanthanum and cerium mischmetal and the use of filler wire (2 percent Zn, 0.45 percent Zr, 3.44 percent cerium mischmetal, the rest Mg).
2/2

UDC 621.791.75.019.03

USSR

YAKUSHIN, B. F., PROKHOROV, N. N., and NOVIKOV, N. N., Moscow Higher Technical School imeni N. E. Bauman

"Machine for Determining Tendencies of Metals to Hot Cracks in Welding"

Kiev, Avtomaticheskaya Svarka, No 10, Oct 70, pp 47-49

Abstract: A description is given of the LTP1-6M testing machine, developed by the Moscow Higher Technical School imeni N. E. Bauman, to determine the resistance of metals to the formation of hot cracks during welding by the LTP method (proposed in 1949 by N. N. Prokhorov). According to this method, stresses and deformations provided from outside sources are added to the stresses and deformations arising during the welding process. The former stresses and deformations appear as a result of the machine's action. By welding a series of specimens under a constant operation mode, with only the stretching force of the machine varying, an index A is found (measured in mm/minute equal to the minimum value of the stretching speed at which hot cracks form in the seam metal or in the metal near the seam. Those alloys with maximum A have the least tendency to hot cracks during welding. The machine consists of a mechanism for gripping and deforming the specimens, a welding head, and starting and measuring electrical circuits, all mounted on the machine chassis. A photograph of the machine and other details concerning its operation are given.
1/1

USSR   UDC: 51.801

NOVIKOV, A. I., YAKUSHIN, B. V.

"Algorithm for Indexing Texts with Weighted Key Words Using Method of Semantic Filtration"

Nauch.-tekhn. Inform. Sb. Vses. In-t Nauch. i Tekhn. Inform. [Scientific and Technical Information, Collection of All-union Institute of Scientific and Technical Information], 1972, Ser 2, No 6, pp 15-20 (Translated from Referativnyy Zhurnal Kibernetika, No 11, 1972, Abstract No 11V623, by the authors)

Translation: The methods authors use to separate the main aspects of the content of a text are analyzed. Three stages of semantic filtration are described, plus the procedure for formation of fragments and construction of terminological chains within fragments. Quantitative characteristics of centers of terminological chains are developed; the sense weights of centers are calculated. An experiment is described, performed to check the algorithm. It is concluded that the operation of the algorithm can be considered effective.

1/1

6509

USSR   UDC 547.26'118

MARCHENKO, V. A., YAKUSHIN, F. S., TSVETKOV, YE. N., KABACHNIK, M. I., and
SHATENSHTEYN, A. I.

"Effect of Solvating Organophosphorus Additives on the Kinetics of Protophilic
Deutero Metabolism"

Abstract: A study was made of the kinetics of the reaction of deuterohydrogen
metabolism of 9-D-fluorene with tertiarybutyl alcohol catalyzed with tertiary
lithium butylate in the presence of additives of organophosphorus compounds
with different substitutions on the phosphorus atom.
    An analysis of the relation between the enthalpy and entropy of the
activation of the reaction indicates the presence of two reaction series
corresponding to different mechanisms of solvation of the alcoholate cation
by additives with one and two electron donor centers. The efficiency of the
organophosphorus compounds as sulfating agents in the given reaction depends
to a great extent on the spatial factors. A linear relation was found between
the values of lg k (25°) and the values of H defined for the same solutions
with which the kinetic measurements were performed. The indicator was CH-
acid similar with respect to structure to the substrate of the deutero-
hydrogen exchange reaction.
1/1

Organometallic Compounds

USSR   UDC 541.127:546.11.02:547.1'13'118

YAKUSHIN, F. S., SETKINA, V. N., KISLYAKOVA, N. V., KURSANOV, D. N., and
SHATENSHTEYN, A. I., Physico-Chemical Institute imeni L. YA. Karpov, and
Institute of Metallorganic Compounds, Academy of Sciences USSR

"Kinetic Isotope Effect of Hydrogen Exchange in Cyclopentadienylmanganeset-
ricarbonyl and Cyclopentadienylmanganesedicarbonyltriphenyl phosphine"

Abstract: Experimental results are reported on the determination of the kinetic
isotope effect (KIE) of hydrogen exchange in cyclopentadienylmanganesetri-
carbonyl (CMT) and cyclopentadienylmanganesedicarbonyltriphenyl phosphine
(CMDP). In many reactions CMT behaves like benzene. Introduction of an alkyl
group lowers the exchange rate of hydrogen. Determinations of KIE of hydrogen
exchange with acids were carried out under similar conditons for CMT, CMDP,
benzene derivatives and ferrocene, and it was shown that both in the CMT and
CMDP it occurs by the same mechanism as in case of aromatic compounds. On the
other hand, hydrogen isotope exchange if AMT catalyzed by basic agents has a
protophilic mechanism, analogously to ferrocene, the slowest step being the
breaking of the C-H bond by the base.

1/1

YAKUSHIN, M. I.

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Disc '/2-

53

The solution is applicable to a variety of physical problems which can be described by parabolic equations with movable boundaries. Extension of the solution to more complex bodies (an ellipsoid, a paraboloid, and a hyperboloid) is planned.

Georg, E. B., Yu. K. Rulev, G. F. Sipachev, and M. I. Yakushin. Experimental study of ablation boundary layer in specimens under simultaneous action of convective and radiative heat fluxes. MZhiG, no. 2, 1972, 25-29.

The ablation boundary layer in asbestos-reinforced plastic cylindrical specimens with a spherically blunted nose was studied in an air plasma jet produced by a high-frequency electrodeless discharge. The discharge generated a 37 mm diameter plasma jet at 1 kg/cm^2 pressure with Reynolds number of 100 and a 30 m/sec velocity. The plasma, boundary layer, and specimen emission spectra were recorded simultaneously on a photographic plate by means of an optical system including an ISP-51 prismatic spectrograph. Plasma jet interaction with the studied material was recorded by motion picture camera at a speed of one frame/second. A sharp boundary was detected between the specimen and the boundary layer. The visible emission spectrum of the latter exhibited characteristic lines of the elementary constituents of the original material. The boundary layer emission intensity in the 3838-6483Å spectral range was comparable to or higher than that of the plasma. The temperature profile across the boundary layer (Fig. 1) was determined near the

1/2   013   UNCLASSIFIED   PROCESSING DATE--30OCT70
TITLE--HYDROGENATION OF SUCCINIMIDE TO 2-PYRROLIDINONE. I. SOLVENT EFFECT
ON THE CATALYTIC REDUCTION OF SUCCINIMIDE -U-
AUTHOR-(03)-YEVGRASHIN, V.M., IOFFE, I.I., YAKUSHKIN, M.I.

COUNTRY OF INFO--USSR

SOURCE--KHIM. GETEROTSIKL. SOEDIN. 1970, (3), 355-8

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CATALYTIC HYDROGENATION, NICKEL, DIOXANE, BUTANOL, SUCCINIC
ACID, AMIDE, SOLVENT ACTION, PYRROLIDINE, KETONE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/0981   STEP NO--UR/0409/70/000/003/0355/0358

CIRC ACCESSION NO--AP0124640
                    UNCLASSIFIED

2/2   013
CIRC ACCESSION NO—AP0124640
ABSTRACT/EXTRACT—(U) GP-0- ABSTRACT. THE TITLE COMPD. (I) WAS
HYDROGENATED AT 230DEGREES-200 ATM WITH 1:6:0.1 I SOLVENT RANEY NI. THE
HIGHEST CONVERSIONS WERE OBTAINED IN DIOXANE (60.5PERCENT) AND IN BUOH
(56.8PERCENT) AFTER 120 MIN.   FACILITY: VSES. NAUCH.-ISSLED.
INST. NEFTEKHIM. PROTSESS., LENINGRAD, USSR.

UNCLASSIFIED

YAKUSHIN, V. I.

JRRS 60634
27 November 1973

NUMERICAL STUDY OF THE FLOW OF A LIQUID-METAL IN MAGNETODYNAMIC PUMPS

[Abstract of a Paper by R. V. Birikh, V. A. Brinkman, G. L. Burdo, R. N. Gorn,
V. P. Polishchuk, V. I. Yakushin Given at a Magnetohydrodynamic Conference,
pp 121-122]

In order to determine the optimal parameters of the structural design of
a magnetohydrodynamic pump, it is necessary to have a concept of the nature of
movement of the liquid-metal in the zone of effect of the electromagnetic forces.
This movement is described by the system of equations of magnetic hydrodynamics.
The solution of this system for regions of complex configuration even by numer-
ical methods presents significant difficulties. However, in a number of cases
of interest for practical applications, it is possible to introduce some simpli-
fying assumptions.

If the distributions of the magnetic and electric fields are caused only
by external sources and do not depend on the movement of the liquid (the induc-
tionless approximation), then the problem can be reduced to the solution of the
equations of ordinary hydrodynamics in the given nonuniform force field.

In this approximation a study has been made of the two-dimensional move-
ment of a viscous incompressible liquid in a cross core with a linear decrease
in amplitude of the force with respect to both coordinates. The finite-
difference equations written for the current and vorticity functions were
solved by the iteration method with a successive lower relaxation on a computer.

The nonuniform force distribution in the lateral channel (pocket) leads
to the occurrence of turbulence in it. Depending on the force distribution in
the core and also the parameters characterizing its configuration, the turbu-
lence in the pocket will to a greater or lesser degree affect the movement of
the liquid in the central channel, that is, the pump parameters.

A study was made of the dependence of these parameters (the magnitude of
the head dp and the drag ξ) on the flow rate of the liquid through the trans-
verse cross section of the central channel (the Reynolds number Re) and the
force distribution in the core.

- 35 -

USSR

UDC 621.313.39:538.4

BURDE, G. I., GORN, R. K., YAKUSHIN, V. I.

"Movement of Liquid in MHD-pump with Cross-Shaped Active Zone"

Abstract: The method of finite differences is used to study the motion of a viscous, incompressible fluid in the cross-shaped active zone of an MHD pump. It is assumed that the distribution of the magnetic and electrical fields results only from external sources and is independent of the motion of the liquid (induction-free approximation). In this case, the problem is reduced to solution of equations of ordinary hydrodynamics in a fixed, heterogeneous force field. The finite-difference equations written for the current function and velocity vortex are solved by an iteration method with sequential lower relaxation. The dependence of head and hydraulic resistance factor on fluid flow rate and the distribution of forces in the active zone are studied. A picture of the flow lines with various values of force in the active zone is presented, as well as graphs of the values of head and hydraulic resistance as functions of Reynolds number.

1/1

- 193 -

USSR

UDC 669.14.018.48.004.12:669.018.262

YAKUSHIN, V. I., CHIZHOVA, V. YA., RAKEVICH, S. Z., and PETROV, I. N.

"Quality of Non-Aging Type 08Yu Steel Produced in a Dual-Bath Steelmaking Furnace"

Translation: The possibility is demonstrated of producing low-carbon non-aging type-08Yu steel in a dual-bath steelmaking furnace. The technology differs significantly from the ordinary open-hearth process.
     It is characterized by high rates of oxidation during the finishing period, from 0.60 to 1.35%/hr (averaging about 1.00%/hr). Due to the rapid nature of the process, the period of pure bubbling is absent in the production of non-aging steel.
     One distinguishing feature of melts in the dual-bath furnace is the increased degree of oxidation of the final slag.
     The yield of rollable steel and the quality of end products are practically the same as for steel of the same type produced in open-hearth furnaces without blowing of oxygen through the bath.

1/1

- 26 -

USSR

UDC 669.183.218.5

TRUVETSKOV, K. M., TARASOV, V. M., KONOVALOV, I. M., MOKRUSHIN, K. D., TAT'YANSHCHIKOV, A. G., and YAKUSHIN, V. I.

"Operation of a Dual Bath Steel Melting Furnace at the Cherepovetsk Metallurgical Plant"

Proisvodstvo Chernykh Metallov (Production of Ferrous Metals - Collection of Works), No 75 Metallurgiya Press 1970, pp 56-68

Translation: The operating indicators of a dual bath steelmaking furnace for 1968 are analyzed. The productivity of the dual bath furnace was 1.024 million tons. The technology of melting of steel in the dual bath furnace has a number of specifics in the mode of carbon oxidation, steel heating, and desulfuration and dephosphoration of the metal. Over 60% high-quality structural steel is produced by the furnace. The quality of the metal is equal to that of open-hearth steel. 8 figures; 3 tables; 5 biblio. refs.

1/1

- 25 -

USSR   UDC 669.183.218.5

TRUBETSKOV, K. M., TARASOV, V. M., ALYMOV, A. A., MOKRUSHIN,
K. D., TAT'YANSHCHIKOV, A. G., CHIZHOVA, V. YA., and YAKUSHIN, V.I.

"Material Balance of the Process in Dual=Bath and Open-Hearth Furnaces"

Proizvodstvo Chernykh Metallov [Production of Ferrous Metals--Collection of
Works], No 75, Metallurgiya Press, 1970, pp 68-73

Translation: A method of determining the yield of usable steel and consumption
of metal charge is studied, as well as the methodology of experimental melts
with material balance. Data are presented on the consumption of iron in dual-
bath and open-hearth furnaces operating with intensive blowing of the bath with
oxygen. The yield of iron in a dual-bath furnace is 93.6%, in an open-hearth
furnace--93.5%. 2 tables; 3 biblio. refs.

1/1

7

USSR   UDC 669.183.218.5

TRUBETSKOV, K. M., TARASOV, V. M., ALYMOV, A. A., MOKRUSHIN,
K. D., TAT'YANSHCHIKOV, A. G., CHIZHOVA, V. YA., and YAKUSHIN, V.I.

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1/1

USSR   UDC 669.183.218.5

TRUVETSKOV, K. M., TARASOV, V. M., KONOVALOV, I. M., MOKRUSHIN,
K. D., TAT'YANSHCHIKOV, A. G., and YAKUSHIN, V. I.

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specifics in the mode of carbon oxidation, steel heating, and
desulfuration and dephosphoration of the metal. Over 60% high-
quality structural steel is produced by the furnace. The quality
of the metal is equal to that of open-hearth steel. 8 figures;
3 tables; 5 biblio. refs.

1/1

- 25 -

UDC 669.14.018.48.004.12:669.
018.262

USSR

YAKUSHIN, V. I., CHIZHOVA, V. YA., RAKEVICH, S. Z., and PETROV, I. N.

"Quality of Non-Aging Type 08Yu Steel Produced in a Dual-Bath Steelmaking Furnace"

Proizvodstvo Chernykh Metallov [Production of Ferrous Metals--Collection of Works], No 75, Metallurgiya Press, 1970, pp 74-77

Translation: The possibility is demonstrated of producing low-carbon non-aging type-08Yu steel in a dual-bath steelmaking furnace. The technology differs significantly from the ordinary open-hearth process.

It is characterized by high rates of oxidation during the finishing period, from 0.60 to 1.35%/hr (averaging about 1.00%/hr). Due to the rapid nature of the process, the period of pure bubbling is absent in the production of non-aging steel.

One distinguishing feature of melts in the dual-bath furnace is the increased degree of oxidation of the final slag.

The yield of rollable steel and the quality of end products are practically the same as for steel of the same type produced in open-hearth furnaces without blowing of oxygen through the bath.

1/1

- 26 -

1/2   026   UNCLASSIFIED   PROCESSING DATE--30OCT70
TITLE--THE X RAY DIAGNOSIS OF TUMORS OF THE SMALL INTESTINE -U-

AUTHOR-(03)-TRETYAKOVA, T.A., BRAYTSEVA, N.N., YAKUSHIN, V.I.

COUNTRY OF INFO--USSR

SOURCE--KLINICHESKAYA MEDITSINA, 1970, VOL 48, NR 6, PP 91-95

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--SMALL INTESTINE, TUMOR, X RAY, DIAGNOSTIC METHODS, BARIUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/1792   STEP NO--UR/0497/70/048/006/0091/0095

CIRC ACCESSION NO--AP0129160
                        UNCLASSIFIED

2/2   026
CIRC ACCESSION NO--AP0129160
ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT.   IN OBSCURE GASTROINTESTINAL
HEMORRHAGES X RAY INVESTIGATION OF THE SMALL INTESTINE IS ALWAYS
RECOMMENDED.   THE FOLLOWING TECHNIQUE OF INVESTIGATION IS PROPOSED:
AFTER THE INTAKE OF A BARIUM MEDIUM THE PATIENTS ARE GIVEN A GLASS OF
COLD WATER, WHICH IS A PECULIAR "ACCELERATOR" FOR THE RAPID FILLING OF
THE ENTIRE SMALL INTESTINE.   THEN THE PATIENTS ARE FED, CAUSING A
GASTROILIAC REFLEX (AFTER YU. N. SOKOLOV), THIS ALSO BEING CONDUCIVE TO
AN ACCELERATED MOVEMENT OF THE CONTRAST MEDIUM ALONG THE LOOP OF THE
SMALL INTESTINE.   THUS, FOR A PERIOD OF ONE TO TWO HOURS THE
ROENTGENOLOGIST COULD STUDY THE ENTIRE SMALL INTESTINE AND TO DETECT
EXISTING ORGANIC CHANGES.   WITH THE AID OF THIS TECHNIQUE FOR A PERIOD
OF FOUR YEARS IN 12 PATIENTS THE AUTHORS REVEALED TUMORS OF THE SMALL
INTESTINE (7 BENIGN AND 5 MALIGNANT).   OPERATIVE TREATMENT WAS PERFORMED
IN 11 PATIENTS; 8 OF THEM ARE ALIVE.   FACILITY: KAFEDRA
KLINICHESKOY RENTGENOLOGII I 1-YA KAFEDRA KHIRURGII TSENTRAL'NOGO
INSTITUTA USOVERSHENSTVOVANIYA VRACHEY NA BAZE MOSKOVSKOY KLINICHESKOY
BOL'NITSY IM. BOTKINA.

USSR

UDC 539.5

DANYUSHCHENKOV, I. A., IVASHCHENKO, R. K., MIL'MAN, YU. V.,
TREFILOV, V. I., YAKUSHINA, A. I., Kiev

"Influence of Structure and Testing Conditions on the Mechanical
Properties of Low-alloyed Molybdenum"

Abstract: A correlation is established between the mechanical
characteristics produced in testing of type TSM-2A sheet molyb-
denum with various structural states in extension and flexure.
It is demonstrated that the ratio of these characteristics de-
creases slightly as the deformation rate is increased. The
plasticity characteristics are independent of the deformation
rate if the test temperature is much higher than the temperature
of transition to the brittle state, and decrease rapidly as the
deformation rate increases if the test temperature is near the
temperature of transition to the brittle state.

1/1

USSR   UDC 621.791.052.001.5:669.3+669.71

TRUTNEV, V. V., Candidate of Technical Sciences, YAKUSHIN, A. F., Engineer, and YAKUSHINA, G. V., Technician

"Kinetics of Intermediate Phase Growth in Copper and Aluminum Combinations"

Abstract: Copper and aluminum combinations are interesting in that they are difficult to weld together, and formations of thermodynamically stable in- termetallic phases may occur. This article investigates the interaction of the two metals when welded. The investigation method involves plotting kinetic curves of the growth of the intermetallides during the welding process from metallographic examination of the transitional zone structure for the combination subject to isothermic processing at various temperatures. Specimens of AD1 aluminum and M1 copper, 16 mm in diameter, were cold welded. They were then subjected to isothermal processing in an atmosphere of air at a temperature range of 300-450° C maintained from 1 minute to 20 hours, and microsections bearing the intermetallic phase in the welded joint were made. A curve for the growth of intermetallic phase was plotted for each tempera- ture value.
1/1

Antennas

UDC: 621.396.677.833(088.8)

USSR

YAKUSHKIN, L. B.

"A Device for Rocking the Auxiliary Mirror of a Two-Mirror Antenna"

USSR Author's Certificate No 266865, filed 29 Aug 68, published 15 Jul 70
(from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1B104 P)

Translation: The proposed device contains a rocking mechanism equipped
with a stand, connecting rod and rocker arm. To improve the operating
precision of the device, the rocking mechanism is a five-link device equipped
with two identical drive cranks. Two illustrations.

1/1

UDC 620.179.16

USSR

ASKAROV, M. A., YAKUSHKO, G. YE., BEZHANOV, R. A.

"An Ultrasonic Defectoscope for the Automatic Monitoring of Large-Diameter Pipes"

Translation: In the article is described an ultrasonic defecto-scope for the automatic monitoring of large-diameter (up to 219 mm) pipes with a wall thickness from 6 to 20 mm, intended for the detection of defects (cracks, pits, foliations, etc.) with dimensions in excess of 2-3 mm. The device has chambers with seeking heads, self-adjusting along the pipe surface; acoustic contact is created by a liquid fed into the chambers, and the de-fect is registered by an automatic monitor. Note is taken of the high resolving power of the seeking heads, which are provided with

1/2

ASKAROV, M. A., et al, Trudy Tbilisskogo Nauchno-Issledovetel'-
skogo Elektrotekhnicheskogo Instituta, No 5, 1970, pp 81-85
(from Referativnyy Zhurnal, Metrologiya i Izmeritel'naya
Tekhnika, No 7, 1970, Abstract No 7.32.972)

cylindrical lenses, the focal lines of which are mutually per-
pendicular. The permissible monitoring speed is up to 28 m/min.
4 figures.

2/2

USSR

ASKAROV, M. A., et al, Trudy Tbilisskogo Nauchno-Issledovetel'-

USSR

GUDZ, E.S., MARONCHUK, I.YE., SHERSTYAKOV, A.P., YAKUSHOVA, N.A.

UDC 535.376:621.382

"Electroluminescent Screen Of Matrix Type, Emissive In Visible Region Of Spectrum (Short Report)"

Elektron. tekhnika. Nauch.-tekhn. sb. Poluprovodn. pribory (Electronics Tech-nology. Scientific-Technical Collection. Semiconductor Devices), 1972, Issue 4(68), pp 120-122 (from RZh:Elektronika i yeye primeneniye, No 11, Nov 1972, Abstract No 11B352)

Translation: The report concerns the creation of a flat electroluminescent screen of the matrix type based on solid solutions of $GaAs_xP_{1-x}$ and $Ga_xAl_{1-x}As$ [sic]. The technology of the production of screens based on epitaxial building-up is considered. Summary.

1/1

- 115 -

USSR

YAKUTAVICHENE, D. A., CHESNULYAVICHUTE, G. V., SHYAUCHUKENIYENE, V. I.,
MACHULITE, Yu. A.

"Using the Razdan-3 Digital Computer to Keep a Running Account of the
Progress and Distribution of Stipends Among Students at Kaunas Polytech-
nical Institute"

V sb. Vychisl. tekhn. T. 2 (Computer Technology. Vol 2--collection of
works), Kaunas, 1971, pp 558-565 (from RZh-Kibernetika, No 1, Jan 72,
Abstract No 1V1059)

Translation: A solution is found for the problem of keeping a running
account of exams at Kaunas Polytechnical Institute. The purpose of the
work is to catalog the results of a test session in the profile of groups
and summaries which generalize the results of the session in the profile
of groups, courses, faculties, and in addition to send out to the deans
catalogs of the distribution of stipends by groups, and as a final result
of this distribution to transmit pay records of the stipends by groups
for the entire coming semester. Authors' resumé.

1/1

USSR

UDC 617-001.34-057:622.367.7(571.56)

IVANOV, P. I., MARKOV, V. I., and YAKUTIN, P. G., Yakutsk University and Republic Sanitary-Epidemiological Station

"Vibration Disease Among Phlogopite Miners in the Northern Latitudes"

Moscow, Gigiyena Truda i Professional'nyye Zabolevaniya, No 2, 1970, pp 46-47

Abstract: Phlogopite mica is mined in the Aldan region of the Yakutsk ASSR, where the winter lasts 7-8 months and the temperature often drops to $-50°$ C. Extreme dustiness, drafts, low temperatures, and noise are occupational hazards of the miners. Few cases of vibration disease were reported prior to 1965, when the PR-24L drill was introduced, after which the incidence of the disease rapidly increased. Now banned, this high-speed drill (5800 strokes per minute) has to be held close to the chest and abdomen. It has both local and general effects, as shown by the sharp rise in number of cases of hypertension that followed its introduction. In a nearby plant where the workers are also subjected to low ambient temperatures but not to noise, dust, or vibration, the incidence of peripheral nervous disorders is almost the same as in the mica mines, but hypertension is 2.7 times less frequent and heart disease 20 times less frequent.
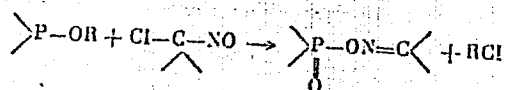
1/1

- 62 -

USSR

MALEKIN, S. I., YAKUTIN, V. I., SOKALSKIY, M. A., KRUGLYAK, YU. L., and
MARTYNOV, I. V.

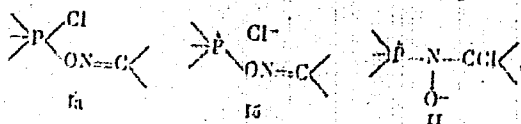"Information on the Mechanism of the Reaction of α-Chloronitrosoalkanes With
Trivalent Phosphorous Compounds"

Abstract: The general reaction for these systems is:

$$\text{>P—OR} + \text{Cl—C—NO} \rightarrow \text{>P—ON=C<} + \text{RCl}$$

The intermediate (II) may be obtained via two pathways: either through a species
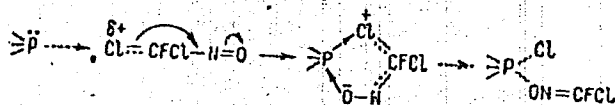containing a five-coordinate neutral P(Ia) or through one

$$\text{>P<}\begin{smallmatrix}\text{Cl}\\ \text{ON=C<}\end{smallmatrix} \qquad \text{>P<}\begin{smallmatrix}\text{Cl}^-\\ \text{ON=C<}\end{smallmatrix} \qquad \text{>P—N—CC<}$$
$$\qquad \text{Ia} \qquad\qquad \text{Ib} \qquad\qquad \text{II}$$

containing a four-coordinate positive P(Ib). Examination of IR spectra in the

1/2

USSR

region of C=N and N=O vibrations and of the NMR spectra of P^{31} and F^{19}, the pathway through Ia was confirmed. Thus the nucleophilic attack by the trivalent phosphorous on the positively charged chlorine atom of the dichlorofluoronitroso-methane probably occurs with a cooperative transfer of an electron to the oxygen of the nitrosyl group breaking the Cl-C bond as shown below:

2/2

USSR

YAKUTINA, O. A., RATOVSKIY, G. V., TIMOKHIN, B. V., and FROLOV, Yu. L.,
Irkut State University and Irkut Institute of Organic Chemistry, Siberian
Branch, Academy of Sciences USSR

"Spectral Evidence for the Reaction of Trivalent Phosphorus With Unsaturated
Systems. I. Ultraviolet and Raman Spectra of Phenyldialkylphosphines"

Abstract: The donor and the acceptor characteristics of phosphorus reactions
with phenyl radicals were made by measuring the integrated intensity of bonds
in the 1000 to 1600 cm^{-1} range of the Raman spectra and the UV spectra in the
neighborhood of 220-280 mm. Both $p_\pi - p_\pi$ and $p_\pi - d_\pi$ interactions occurred. The
introduction of the dialkylphosphine into a compound containing a benzene ring
increased the integrated intensity at 1600 cm^{-1} (I_{1600}^∞) five times. Parasub-
stitution of chlorine increased I_{1600}^∞ more than that of the methoxy group. The
methoxy group had a greater influence on the I_{1600}^∞ of triphenylphosphine than
on the phenyldialkylphosphine. The UV spectra of phenyldialkylphosphines in
the 260 mm region indicate that phosphorus tends to share its unshared electron
during electronic excitation. Spectra in the 220-230 mm region in acid solu-
tions indicate a transfer of charge to the vacant P orbitals.
1/1