

1/2 011 UNCLASSIFIED PROCESSING DATE--1156-70  
 TITLE--CRITICAL PHENOMENA OF THE SYSTEM METHYL ALKOHOL AND CYCLOHEXANE, I.,  
 COEXISTENCE CURVE -U-  
 AUTHOR--KUSKOVA, N.V., MATIZEN, E.V. K  
 COUNTRY OF INFO--USSR  
 SOURCE--IZVESTIYA SIBIRSKOGO OTOELENIYA AKADEMII NAUK SSSR, NO 2, SERIYA  
 KHIMICHESKIKH NAUK, 1970, NR 1, PP 142-144  
 DATE PUBLISHED-----70  
 SUBJECT AREAS--CHEMISTRY  
 TOPIC TAGS--METHANOL, CYCLOHEXANE, LIQUID STATE, CRITICAL POINT  
 CONTROL MARKING--NO RESTRICTIONS  
 DOCUMENT CLASS--UNCLASSIFIED  
 PROXY REEL/FRA--1984/1605 STEP NO--UR/02B9/70/000/000/0142/0144  
 CIRC ACCESSION NO--AP0100215  
 UNCLASSIFIED

272 011 UNCLASSIFIED PROCESSING DATE--115070  
CIRC ACCESSION NO--A0100215  
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. COEXISTENCE CURVE OF LIQUID PHASES  
WERE DETERMINED FOR METHYL, ALCOHOL, CYCLOHEXANE SYSTEM BY DISSAPPEARING  
MENISCUS METHOD. CRITICAL PARAMETERS WERE OBTAINED USING THE EMPIRICAL  
LAW OF RECTILINEAR DIAMETER.

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UNCLASSIFIED

USSR

BOLDYREVA, Z. V., and KUSKOVA, T. V.

"On the Question of Viscous Incompressible Flow Past a Sphere"

Vychislitel'nyye Metody i Programirovaniye (Chislennyye Metody v Mekhanike Sploshnykh Sred). XV. Sbornik Rabot Vychislitel'nykh Tsentra Moskovskogo Universiteta (Computer Methods and Programming (Numerical Methods in the Mechanics of Continua). XV. Collection of Works of Moscow University Computer Center), Moscow, Moscow University Press, 1970, 199 pp. pp 40-45

Abstract: The problem of uniform viscous incompressible flow past a sphere is considered. The fluid flow around the sphere is assumed to be axisymmetric. The problem is solved with the following boundary conditions: Conditions of attachment are given on the sphere in stream  $\Gamma_1$ , conditions of symmetry on the boundary of  $\Gamma_3$  and  $\Gamma_4$ . The condition of flow uniformity at infinity is given for sphere  $\Gamma_2$  of large radius. The approximation and

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BOLDYREVA, Z. V., and KUSKOVA, T. V., Vychislitel'nyye Metody i Programirovaniye (Chislennyye Metody v Mekhanike Sploshnykh Sred). XV. Sbornik Rabot Vychislitel'nogo Tsentra Moskovskogo Universiteta, Moscow, Moscow University Press, 1970, 199 pp, pp 40-45

stability of difference schemes is investigated using the Fourier method.  
The difference scheme

$$\begin{aligned} \zeta^{\frac{n+1}{2}} - \zeta^n &= \alpha \left( A_1 \frac{\delta^2 \zeta^{\frac{n+1}{2}}}{\delta x^2} + A_2 \frac{\delta \zeta^{\frac{n+1}{2}}}{\delta x} \right) + \\ &+ \beta \left( B_1 \frac{\delta^2 \zeta^n}{\delta y^2} + B_2 \frac{\delta \zeta^n}{\delta y} \right) + \frac{C}{2} \left[ \gamma \zeta^{\frac{n+1}{2}} + (1-\gamma) \zeta^n \right]. \\ \frac{\zeta^{\frac{n+1}{2}} - \zeta^{\frac{n+1}{2}}}{\tau} &= (1-\alpha) \left( A_1 \frac{\delta^2 \zeta^{\frac{n+1}{2}}}{\delta x^2} + A_2 \frac{\delta \zeta^{\frac{n+1}{2}}}{\delta x} \right) + \end{aligned}$$

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BOLDYREVA, Z. V., and KUSKOVA, T. V., Vychislitel'nyye Metody i Programirovaniye (Chislennyye Metody v Mekhanike Sploshnykh Sred). XV. Sbornik Rabot Vychislitel'nogo Tsentra Moskovskogo Universiteta, Moscow, Moscow University Press, 1970, 199 pp, pp 40-45

$$+ (1-\beta) \left( B_1 \frac{\partial^2 \zeta^{n+1}}{\partial y^2} + B_2 \frac{\partial^2 \zeta^{n+1}}{\partial y^2} \right) + \frac{C}{2} [V \zeta^{n+1} + (1-\gamma) \zeta^{n+1}].$$

is used in its general form to solve the problem of flow past the sphere.

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172 011

UNCLASSIFIED  
TITLE--ANTISTATIC POLY,VINYL CHLORIDE PLASTICS -U-

PROCESSING DATE--13NOV70

AUTHOR--(04)-GELFMAN, YA.A., GORBUNOVA, A.S., SHISHKINA, I.V., KUSKOVA,  
V.P.  
COUNTRY OF INFO--USSR

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SOURCE--USSR 203,138  
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRATZSY, TOVARNYE ZNAKI, 1970,  
DATE PUBLISHED--04FEB70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--POLYVINYL CHLORIDE, ANTISTATIC ADDITIVE, MONETHANOLAMINE,  
OLEIC ACID, CHEMICAL PATENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3002/1479

STEP NO--U870482/707000/00070000/0000

CIRC ACCESSION NO--AA0128878

UNCLASSIFIED

2/2 011

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AA0128878

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CAPACITY OF POLY(VINYL CHLORIDE) PLASTICS TO ACCUMULATE STATIC ELECTRICITY IS DECREASED BY THE ADDN. OF ANTISTATIC AGENTS, SUCH AS A 2:1 MIXT. OF OLEIC ACID AND ETHANOLAMINE. FACILITY: ALL UNION SCIENTIFIC RESEARCH INSTITUTE OF NEW CONSTRUCTION MATERIALS.

UNCLASSIFIED

172 017

UNCLASSIFIED

PROCESSING DATE--13NOV70

TITLE--DECREASE IN THE CAPACITY OF POLY,VINYL CHLORIDE PLASTICS TO ACCUMULATE STATIC ELECTRICITY -U-

AUTHOR-(104)-GELEMAN, YA.A., GORBUNOVA, A.A., SHISHKINA, I.V., KUSKOVA, V.P.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 263,137

REFERENCE--DTKRYTIYA, IZOBRET., PROM. OBHAZTSY, TOVARNYE ZNAKI 1970, DATE PUBLISHED--04FEB70

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SUBJECT AREAS--MATERIALS, PHYSICS

TOPIC TAGS--POLYVINYL CHLORIDE, STATIC ELECTRICITY, CHEMICAL PATENT, ANTISTATIC ADDITIVE, STYRENE, BUTADIENE, BENZENE, COPOLYMER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--J002/1407

STEP NO--0870482/70700070007000070000

CIRC ACCESSION NO--AA0128806

UNCLASSIFIED



2/2 017 UNCLASSIFIED PROCESSING DATE--13NOV70  
CIRC ACCESSION NO--AA0128806  
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CAPACITY OF POLY(VINYL  
CHLORIDE) (I) PLASTICS TO ACCUMULATE STATIC ELECTRICITY WAS DECREASED BY  
THE ADDN. OF ANTISTATIC AGENTS, SUCH AS A MIXT. OF  
STYRENE, DIVINYLBENZENE COPOLYMER WITH NR SUB4 NO SUB3, CORRESPONDING TO  
2-7 AND 0.5-3 WT. PERCENT I. FACILITY: ALL UNION SCIENTIFIC  
RESEARCH INSTITUTE OF NEW CONSTRUCTION MATERIALS.

UNCLASSIFIED

USSR

UDC 539.434.649.094.083.4

KUSLITSKIY, A. B., CHABAN, D. V., and MIKHEYEV, A. A., L'vov and Moscow

"Comparative Effect of Vacuum, Electroslag, and Electron-Beam Remeltings on the Fatigue of High-Strength Steels"

Moscow, Izvestiya Akademii Nauk SSSR Metally, No 1, Jan/Feb 74, pp 115-117

Abstract: The mechanical properties, particularly fatigue strength, of high-strength steels 30KhGSNA, EI643 a(40KhGSN3VA), and VKS-1 (42Kh2GSNFA), close in composition and structure, were studied. The steels had been originally produced by electric-arc melting and then remelted in either a vacuum-arc furnace (vacuum-arc remelting (VAR), or by the electroslag or electron-beam methods. Electroslag and electron-beam remelting were the best for achieving a high fatigue strength, with steel EI643 being the best of the three and VKS-1 the next best (82-83 kg/mm<sup>2</sup> and 73.0-73.5 kg/mm<sup>2</sup>, respectively. However, steel 30KhGSNA had the best endurance life, registering 47.4 cycles before failure (electron-beam melted) and EI643 having the lowest endurance (41.4 cycles to failure). Two figures, two tables, three bibliographic references.

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Corrosion

USSR

UDC: 620.196

MELEKHOV, P. K., ZLOTNIKOV, S. A., VASILYENKO, I. I., and ~~XXXXXXXXXX~~,  
Academy of Sciences of the Ukrainian SSR. L'viv Physicomechanical Institute

"The Effect of the Type of Nonmetallic Inclusions on the Sensitivity of 20  
Grade Steel to Corrosion Cracking"

Moscow, Zashchita Metallov, Vol 7, No 3, 1971, pp 327-329

Abstract: The authors study the effect of the type of nonmetallic inclusions (the plastic silicates, alumina, silica, and the nitrides of titanium) on resistance of grade 20 steel to corrosion cracking. Metal with the following composition of elements was used for specimens: 0.19-0.21% C, 0.21-0.23% Si, 0.35-0.36% Mn, 0.1% Cr, 0.16% Ni, 0.011-0.014% S, and 0.010-0.012% P. The metal was produced by programmed contamination in an induction furnace. The corrosion cracking tests were conducted using cylindrical specimens (heat treatment: quenching in oil at 850° with subsequent two hour tempering at 150°) in a boiling 50%  $\text{NH}_4\text{NO}_3$  solution on the Zet 3/3 testing strength machine. A test base of 50 hr. was used. The relative sensitivity of steel to corrosion cracking in an alkaline medium was also determined. It is shown that in testing specimens in air at a stretching rate in the order of  $10^{-3}$  mm/min., their

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USSR

MELEKHOV, P. K., et al., Zashchita Metallov, Vol 7, No 3, 1971, pp 327-329

plasticity remains the same as tested on standard tensile testing machines. In testing in boiling  $\text{NH}_4\text{NO}_3$ , the inclusion of titanium nitride seems least detrimental. Titanium nitride also seems to have the least harmful effect on the plasticity and strength of steel during testing in an alkaline solution. The type of nonmetallic inclusions notably affect the plasticity and strength of a metal, but not isotropy. The least harmful effect of the nitrides of titanium on the resistance of steel to corrosion cracking can be explained primarily by the fact that the nitrides of titanium are finely divided and that they are relatively uniformly distributed in a die. This results in the reduction of the local concentration of stresses in the metal. The second reason is the insignificant degree of electrochemical heterogeneity of the metal surface. The latter results in an increased incubation period for the development of corrosion cracking. Original article: two tables, two figures, and seven bibliographic entries.

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USSR

UDC 669.788+649.14.018-16

STARCHAK, V. G., Candidate of Technical Sciences, and ~~KUSLINSKIY, A. E.~~  
Candidate of Technical Sciences, L'vov Polytechnic Institute and Institute of  
Physics and Mechanics of the Academy of Sciences, USSR

"Stability of Steel 20 Against Hydrogen Introduction"

Moscow, Teploenergetika, No 2, Feb 71, pp 56-57

Abstract: The effect of the extent of pollution by nonmetallic inclusions on the stability against hydrogen introduction of standard, acid open hearth, and vacuum-arc-remelted steel 20 was experimentally investigated on flat steel specimens by a previously described method (Yu. A. Klyuchko, et al, Savodskaya Laboratoriya, No 1, 1970). Tabulated investigation results show that the vacuum-arc-remelted steel 20 possesses the highest mechanical properties. A decrease in pollution by nonmetallic inclusions was found to be an effective means for a considerable suppression of hydrogen brittleness of steel. One table, three bibliographic references.

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Mechanical Properties

USSR

UDC 620.186.11:630.14:450.123.333

KHARISH, Ye. L., ZHOSHNIKOV, S. A., YAREGA, S. Ya., and  
MIZETSKIY, V. L., Institute of Physico Mechanics, Academy of Sciences Ukrainian  
SSR

"Effect of Nonmetallic Inclusions on the Impact Strength of Low-Carbon Steel"

Moscow, Metallovedeniye, No 5, May 70, pp 58-60

Abstract: Steel 20 was melted so as to produce specific types of inclusions: lamellar (unsaturated) silicates, aluminum oxide, silicon nitride, and titanium nitrides. The chemical composition of all heats was in the following ranges (%): 0.19-0.21 C, 0.21-0.23 Si, 0.35-0.37 Mn, 0.1 Cr, 0.16 Ni, 0.001-0.0015, 0.0015-0.012 P, and less than 0.01 N. Hydrogen and oxygen content varied from 0.00010-0.00034% and 0.0048-0.022% respectively. Mechanical properties were affected only slightly by the inclusions and had the following values:  $\sigma_s$ --44-48 kg/mm<sup>2</sup>,  $\sigma_B$ --27-29 kg/mm<sup>2</sup>, elongation--33-35%, reduction in area--66-68.5%, and impact strength--11-16.5 kg/mm<sup>2</sup>. Standard impact test specimens were used for testing.

It was found that the durability of longitudinal samples was better than for transverse samples and at negative temperatures the fatigue strength is greater than at room temperature. The poorest durability was found in samples which had lamellar silicate inclusions in the grain boundaries. The durability of samples

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KHARISH, Ye. L., et al., Metallovedeniye, No 5, May 70, pp 58-60

containing the other types of nonmetallic inclusions was 1.2 to 2.2 times better. Maximum durability was noted in samples containing alumina inclusions. The relatively favorable effect of these inclusions was evidently caused by the low magnitude of residual stresses developed in the steel due to comparatively small differences in the modulus of elasticity and volume coefficients of thermal expansion of the inclusions and the metallic matrix. High strength of the silica and titanium nitride inclusions and the large difference in the coefficients of expansion of these particles and the matrix cause considerable residual stresses in the inclusions and lead to earlier rupture than in samples with alumina inclusions. Anisotropy was more noticeable in transverse samples when tested at room temperature. Also, with increased stress the magnitude of anisotropy increased.

Lowering of durability in transverse specimens was caused by the presence of stringer inclusions positioned perpendicular to the direction of applied stress. At small loads, the concentration of stresses in the inclusions is less dangerous. As local stresses grow in transverse samples the yield point is reached much sooner than in longitudinal samples. At negative temperatures the steel is more brittle, but the difference in concentration of stresses in longitudinal and transverse samples becomes less significant and their durability is almost the same.

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AP0049521

AUSTRIAN SERVICE: CHEMICAL ABST. 5-70

ref. code

4R0032

102891v Studying the occlusion of hydrogen by steel under stress. Klyachko, Yu. A.; Bats, L. G.; Shturmak, Y. G.; Kuslitskiy, A. M. *Dokl. Akad. Nauk SSSR* (USSR) 1970, 238(1), 40-2 (Russ). H. when occluded by steel, reduces ductility while increasing brittleness and likelihood of corrosion cracking. Previous expts. were carried out on the H occlusion by unstressed steel and the quant. detn. of the vol. of occluded H. The present investigation used the same techniques except that the sample studied was placed in a special fixture which stressed it over radii of 60, 120 and 240 min. The length of sample exposed to cathodic polarization in 10% H<sub>2</sub>SO<sub>4</sub> at a c.d. of 0.1 A/cm<sup>2</sup> was 20 cm with the ends rendered non-conductive by a lacquer or paraffin. H content was detd. by collecting the gas evolved when the sample was anodically treated in an electrolyte comprising NaK tartrate and NaCl. Stressed samples always occluded more H than the undistorted samples, while other factors such as steel comp., production techniques, heat treatment, annealing temp., and impurities altered the abs. vol. of occluded H.

Hermann Kuretzky

REEL/FRAME  
19801384



1/2 040

UNCLASSIFIED

PROCESSING DATE--13NOV70

TITLE--EFFECT OF AQUEOUS MEDIA AND ADDITIVES OF SURFACE ACTIVE AGENTS ON THE CONTACT FATIGUE STRENGTH OF CHISEL STEEL ZOKHN3A -U-

AUTHOR--(05)--KATSOV, K.B., KUSLIISKIY, A.B., KARPENKO, G.V., SENTSOVA, E.P., DYUSUSCHE, M.ZH.

COUNTRY OF INFO--USSR

SOURCE--FIZ.-KHM. MEKH. MATER. 1970, 5(6), 757-8

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--SURFACE ACTIVE AGENT, ALLOY DESIGNATION, CHROMIUM NICKEL STEEL, ELECTROSLAG MELTING, METAL CORROSION, HYDROGEN, FATIGUE STRENGTH, METALWORKING, CUTTING TOOL/(U)ZOKHN3A CHROMIUM NICKEL STEEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1988/0636

STEP NO--UR/0369/70/005/006/0757/0758

CIRC ACCESSION NO--AP0105615

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE—13NOV70

2/2 040

CIRC ACCESSION NO--AP0105615

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TITLE STUDY WAS CARRIED OUT WITH STEEL 20KH3A MELTED ACCORDING TO 2 ALTERNATIVES: ELECTROARC AND ELECTROSLAG REMELTED. THE LATTER STEEL HAD MUCH LESS IMPURITIES THAN THE FORMER. AFTER MECH. WORKING SPECIMENS WERE SUBJECTED TO CEMENTATION IN SOLID CARBURIZER TO THE DEPTH OF CARBURIZED LAYER 1.8+2.0 MM WITH HARDNESS OF SURFACE LAYER HRC 57 AND 58 (CORE HARDNESS 36-8 HRC). C CONCN. AT A DISTANCE 0.2 MM FROM THE SURFACE WAS 0.8PERCENT; THE MICROSTRUCTURE OF CEMENTED LAYER WAS FINE ACICULAR MARTENSITE, WHILE THAT OF THE CORE WAS TROOSTITESORBITE. TESTING WAS DONE ON A SPECIAL APP. WITH AND WITHOUT ADDN. OF SURFACE ACTIVE SUBSTANCES (S.A.S.) TO THE WATER AND BY USING TAP WATER, STRATAL WATER WITH AND WITHOUT H SUB2 S. THE VERY SHARP DECREASE OF CONTACT ENDURANCE OF STEEL UNDER STUDY IN RUNNING (WASH) WATER WHOULD BE EXPLAINED NOT ONLY BY ADSORPTION EFFECT BUT ALSO BY THE CORROSION IN COMBINATION WITH HYDROGENATION OF STEEL SURFACE IN CONTACT WITH WATER. IN THIS CONNECTION, THE FAVORABLE EFFECT OF S.A.S. IS EXPLAINED BY THE FORMATION ON THE METAL SURFACE OF A POLYMOL. PROTECTIVE FILM.

UNCLASSIFIED

1/2 031 UNCLASSIFIED PROCESSING DATE--27NOV70  
TITLE--INFLUENCE OF COATINGS ON THE LOW CYCLE FATIGUE OF STRUCTURAL STEEL  
IN CORROSIVE MEDIA -U-  
AUTHOR-(04)-TKACHEV, V.I., KUSLITSKY, A.B., KRIPYAKOVICH, R.I., MIKHEYEV,  
A.A.  
COUNTRY OF INFO--USSR  
SOURCE--FIZ. KHIM. MEKHAN. MAT., 1970, 6, (2), 98  
DATE PUBLISHED-----70  
SUBJECT AREAS--MATERIALS  
TOPIC TAGS--FATIGUE STRENGTH, PROTECTIVE COATING, STRUCTURAL STEEL, SEA  
WATER CORROSION, ELECTRODEPOSITION, PHOSPHATE, CADMIUM  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3002/1830 STEP NO--UR/0369/70/006/002/0098/0078  
CIRC ACCESSION NO--AP0129198  
UNCLASSIFIED

2/2 031

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--A0129198

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE LOW CYCLE FATIGUE OF STRUCTURAL STEEL SAMPLES COATED WITH A VARIETY OF MATERIALS WAS STUDIED IN CORROSIVE MEDIA (3PERCENT NACL SOLUTION OR SIMULATED SEA WATER). OF ALL THE ELECTRODEPOSITED COATINGS STUDIED, THE MAX. FATIGUE LIFE WAS ACHIEVED FOR PHOSPHATED SAMPLES AND THE MIN. FOR Cd PLATED MATERIAL. THIS DIFFERENCE WAS ATTRIBUTED TO THE FACT THAT H PENETRATED INTO THE METAL IN THE LATTER CASE DURING ELECTRODEPOSITION.

UNCLASSIFIED

1/2 021

UNCLASSIFIED

PROCESSING DATE--27NOV70

TITLE--POSSIBLE INCREASE IN THE CONTACT DURABILITY OF DRILLING STEEL  
20KHN3A BY ADDING SURFACE ACTIVE AGENTS TO THE CLAY WASHING MORTAR -U-  
AUTHOR-(05)-KATSOV, K.B., KUSLITSKIY, A.B., KHRUNIK, S.A., IHLIOVYSEV,  
N.A., GILMAN, K.M.

COUNTRY OF INFO--USSR

SOURCE--FIZ.-KHIM. MEKH. MATER. 1970, 6(1), 102-3

DATE PUBLISHED-----70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY, MATERIALS

TOPIC TAGS--ALLOY DESIGNATION, SURFACE ACTIVE AGENT, LOW ALLOY STEEL, WELL-  
DRILLING MACHINERY, EXPLORATORY DRILLING, CLAY/1020KHN3A LOW ALLOY  
STEEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3001/0327

STEP NO--UR/0369/70/006/001/0102/0103

CIRC ACCESSION NO--AP0126033

UNCLASSIFIED

2/2 021

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0126083

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TITLE STUDY WAS CARRIED OUT ON APP. AND WITH THE METHOD AS DESCRIBED BY K. B. K. (1968). THE CLAY SUSPENSION HAD SMALLER THAN OR EQUAL TO 1PERCENT SAND, PH EQUALS 7.5, AND SP. GR. 1.16. SPECIMENS DIAM. 10 MM FROM STEEL 20KHND1 AFTER CONVENTIONAL HEAT TREATMENT (AS USED FOR OIL DRILLS) HAD HARDNESS OF SURFACE LAYER HRC 59-60. THE FOLLOWING 4 SURFACE ACTIVE MIXTS. WERE INTRODUCED AT 2PERCENT INTO THE CLAY WASHING MORTAR: (IN PARENTHESES ARE GIVEN NO. OF MILLIONS OF CYCLES UNTIL THE APPEARANCE OF PITTING CORROSION ON THE SURFACE): CLAY WASHING MROTAR ALONE (11.4), SAME PLUS 2PERCENT OXIDIZED PETROLATUM WITH ACID NO. 20 MG OF KOH (1.95), SAME PLUS 2PERCENT PETROLEUM ASPHALT WITH ACID NO. 60 MG KOH (NO PITTING AFTER 10), SAME PLUS 2PERCENT ESTERIFIED PETROLEUM ASPHALT WITH ACID NO. 15 MG KOH (NO PITTING AFTER 10), TAP WATER AS A CONTROL (0.93), MACHINE OIL AS CONTROL (11.8). THE ADDN. OF THE PETROLEUM ASPHALT ALONE OR ESTERIFIED CAN IMPROVE CONSIDERABLY THE WORK OF OIL DRILLS.  
FACILITY: FIZ.-MEKH. INST., LVQV, USSR.

UNCLASSIFIED

USSR

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UDC 539.434.539.219.1

KARPENKO, G. V., KUSLITSKIY, A. B., MEZETSKIY, V. L., ZLOTNIKOV, S. A., TRACHEV, V. I., SHIL'NIKOVA, G. K., and BEREZHKO, B. I., L'vov, Leningrad

"Effect of the Composition of Nonmetallic Inclusions on the Fatigue Limit of Steel 20"

Moscow, Izvestiya Akademii Nauk SSR, Metally, No 1, Jan-Feb 1970, pp 104-108

Abstract: Qualitative investigations were made of programmed amounts of impurities in steel. In connection with this, experiments were conducted on the formation in steel of non-metallic inclusions of a given chemical composition: plastic silicates, alumina and high-alumina aluminosilicates, semi-brittle silicates, and titanium nitrides. It is shown that the composition of non-metallic inclusions has a significant effect on the fatigue limit of the steel. Of the four types of inclusions studied, the most damaging proved to be plastic unsaturated silicates and titanium nitrides; silica inclusions were the least damaging. The principal negative role of non-metallic inclusions results in the appearance of considerable residual stresses owing to the difference in the physical properties of the inclusions and the metal matrix. These stresses are formed in the metal during unavoidable technological heating and cooling, even before external forces are applied.

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1/2 026 UNCLASSIFIED PROCESSING DATE--04DEC70  
TITLE--EFFECT OF NON METALLIC INCLUSIONS ON STRESS CONCENTRATIONS , IN  
ARMCO IRON, AS DETERMINED FROM ELECTRODE POTENTIAL MEASUREMENTS -U-  
AUTHOR--(03)-KUSLITSKIY, A.B., ZAMOSTYANIK, I.E., KARPENKO, G.Y.  
COUNTRY OF INFO--USSR  
SOURCE--FIZ. KHIM. MEKHAN. MAT., 1970, 6, (2), 95-96  
DATE PUBLISHED-----70  
SUBJECT AREAS--MATERIALS  
TOPIC TAGS--ELECTRODE POTENTIAL, IRON ALLOY, NONMETALLIC INCLUSION, STRESS  
CONCENTRATION, ELASTIC DEFORMATION  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3002/1814 STEP NO--UR/0369/70/006/002/0095/0096  
CIRC ACCESSION NO--AP0129182  
UNCLASSIFIED



2/2 026

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0129182

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF NON METALLIC INCLUSIONS, BOTH REAL AND ARTIFICIALLY SIMULATED, ON STRESS CONCENTRATIONS IN METALS (PARTICULARLY ARMCO FE) WAS STUDIED WITH SPECIAL REF. TO THE RELATION BETWEEN SUCH NON METALLIC INCLUSIONS AND THE ELECTROCHEMICAL CHARACTERISTICS OF THE METAL AS REPRESENTED BY ITS ELECTRODE POTENTIAL. THE ELECTRODE POTENTIAL WAS VERY SENSITIVE TO CHANGES IN ELASTIC STRAINS, SUCH AS ARISE IN THE NEIGHBORHOOD OF INCLUSIONS. HOWEVER, THERE WAS NO PERFECT ANALOGY BETWEEN THE EFFECTS OF INCLUSIONS AND STRESS RAISERS, SUCH AS NOTCHES, ON THE ELECTRODE POTENTIALS.

UNCLASSIFIED

1/2 025 UNCLASSIFIED PROCESSING DATE--040EC70  
 TITLE--EFFECT OF THE TECHNOLOGY OF MANUFACTURING ,ALLOY, STEELS ON THE LOW  
 CYCLE FATIGUE IN VARIOUS MEDIA -U-  
 AUTHOR--(051)-KUSLITSKY, A.B., KRIPYAKEVICH, R.I., TRACHEV, V.I., KOKOTAYLO,  
 I.V., STAROVVOYTOV, YU.A. *K*  
 COUNTRY OF INFO--USSR  
 SOURCE--FIZ. KHIM. MEKHAN. MAT., 1970, 6, (2), 96-97  
 DATE PUBLISHED-----70  
 SUBJECT AREAS--MATERIALS  
 TOPIC TAGS--STEEL PRODUCTION, ALLOY MELTING, VACUUM ARC FURNACE, OPEN  
 HEARTH FURNACE, ELECTROSLAG MELTING, INDUCTION FURNACE, CHROMIUM NICKEL  
 STEEL, FATIGUE STRENGTH  
 CONTROL MARKING--NO RESTRICTIONS  
 DOCUMENT CLASS--UNCLASSIFIED  
 PROXY REEL/FRAE--3002/1829 STEP NO--UR/0369/70/006/002/0096/0097  
 CIRC ACCESSION NO--AP0129197  
 UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0129197

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF THE TECHNOLOGY OF MELTING CR,NI STEELS (OPEN HEARTH, INDUCTION MELTING, VACUUM ARC, AND ELECTROSLAG) ON THE LOW CYCLE FATIGUE OF THE CORRESPONDING GRADES IN VARIOUS WORKING MEDIA (AIR, SALT SOLUTIONS, ETC.) WAS STUDIED. IN GENERAL, VACUUM ARC AND MORE PARTICULARLY ELECTROSLAG REMELTING GREATLY INCREASED THE FATIGUE LIFE OF THESE GRADES UNDER SERVICE CONDITIONS.

UNCLASSIFIED

USSR

UDC 539.376+620.172.251.2

YERMAKOV, V. P., KUSNETSOV, A. P., Novosibirsk

"Short-Term Creep of AMg6 Alloy in Monaxial Extension"

Zhurnal Prikladnoy Mekhaniki i Tekhnicheskoy Fiziki, No 1, 1972, pp 141-145.

Abstract: A method is studied for describing creep for the case when all three stages of deformation must be considered: the unstable, stable and early accelerated stages. The results of calculation are compared with the data of experimental studies of short-term creep of AMg6-M alloy with changing loads. It is assumed that the total creep deformation is a simple sum of the contributions of the independent mechanisms and that the deformation resulting from each mechanism can be represented by the formula  $p_i =$

$= f_i(\sigma, T)t^{m_i}$ , where  $\sigma$  is the stress,  $T^{\circ}K$  is the test temperature,  $t$  is time and  $m_i$  is a constant.

1/1

USSR

LOGAK, L. G., ROZENBERG, G. I., ~~KUSNETSOV-FETISOV, L. I.~~

"Study of the Mechanism of Adsorption of Nitrogen Dioxide on Silica Gel by IR Spectroscopy. Report III. Desorption of Nitrogen Dioxide Adsorbed by Synthetic Zeolites"

Tr. Kazan. Khim.-tekhnol. In-ta [Works of Kazan Institute of Chemical Technology], No 46, 1971, pp 136-140 (Translated from Referativnyi Zhurnal, Khimiya, No 2, 1972, Abstract No 2 B1389 from the Resume).

Translation: The process of isothermal desorption of  $\text{NO}_2$  adsorbed by cylindrical granules of acid-resistant zeolites such as H-mordenite is studied. Only the first portions of adsorbate are easily removed; evacuation for two hours leaves 20-25 mg/g  $\text{NO}_2$  on the surface of the adsorbent; this figure is independent of the degree of preceding adsorption. The rate of desorption increases with dealumination of the specimens.

1/1

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USSR

UDC 528.5:531.787

KUSOV, V. S., Candidate of Technical Sciences, Moscow Institute of Geodetic, Aerial Photographic and Cartographic Engineers

"The 'Kochevnik' Microbarograph"

Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy, Geodeziya i Aerofotos"yeniya, No 1, 1972, pp 23-24

**Abstract:** Increased accuracy and automation needs have dictated the development of more effective microbarographs.

In the small-series "Kochevnik" instrument, the sensitive element consists of two groups of aneroid capsules. Deflection of the membranes by atmospheric pressure is recorded directly on the photosensitive layer of a drum, thus avoiding any electrical or photoelectrical conversions. Between the two aneroid groups is stretched a double cylindrical spring to the mid-point of which is attached a mirror, which rotates around the spring axis. The mirror-lens system makes possible transmission of images from the luminous slit-type diaphragms to the surface of the recording drum. For increased accuracy, two mirror-symmetrical curves, in addition to a curve showing temperature of the instrument, are recorded. A 1-millimeter gap between the mirror-symmetrical curves corresponds to a 0.05 mb pressure differential.

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USSR

KUSOV, V. S., Izvestiya Vysshikh Uchebnykh Zavedeniy, Geodeziya i Aerofotos"yemka, No 1, 1972, pp 23-24

Two years' service in collecting barometric leveling data for use with 1:25,000 maps has confirmed the reliability of the "Kochovsk" under year-round conditions. The instrument offers high accuracy, and is free of the limitations imposed by complex electronic equipment under field conditions.

2/2

USSR

UTX: 547.242

MIFTAKHOVA, R. G., MAKSIMENKO, S. G., and KUSOV, YU. I., Kuzan' Chemical-  
Technological Institute Imeni S. M. Kirov

"Aldoxime Esters of Alkyl- and Dialkylarsinous Acids"

Leningrad, Zhurnal Obshchey Khimii, Vol 42 (104), No 9, Sep '72, pp 1969-1972

Abstract: Aldoxime esters of alkyl- and dialkylarsinous acids were synthesized by the reaction of aldoximes (acetaldoxime, propionaldoxime, butyraldoxime) with haloarsines in presence of triethylamine. The products are colorless liquids with a sharp, unpleasant odor.

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- 10 -



USSR

UDC 542.91.547.455:547.1'118

SHIBAYEV, V. N., KUSOV, Yu. Yu., TROITSKIY, M. P., and KOCHETKOV, N. K.,  
Institute of Organic Chemistry imeni N. D. Zelinskiy, Academy of Sciences  
USSR

"Chemistry of Glycosyl Phosphates and Their Derivatives. Communication 4.  
Phosphorylation of Benzoylated Glycosylacetates of the Phosphoric Acid and  
Synthesis of  $\alpha$ - and  $\beta$ -Anomers of 4-O-Methylsulfonyl-D-galactopyranosyl  
Phosphate"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 8, Aug 73,  
pp 1862-1867

Abstract: The synthesis of  $\alpha$ - and  $\beta$ -anomers of 4-O-methylsulfonyl-D-galactopyranosyl phosphate was carried out by fusion of 1-O-acetyl-2,3,6-tri-O-benzoyl-4-O-methylsulfonyl- $\beta$ -D-galactopyranose with anhydrous  $H_3PO_4$ . During phosphorylation of glycosylacetates containing a benzoyl group at C-2, the reaction products may be predominantly  $\beta$ -anomers of glycosyl phosphates. It was shown to be possible to use ion exchange chromatography for the separation of a mixture of anomers of the shielded glycosyl phosphates.

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UDC 542.91:547.455.547.1'118

SHIBAYEV, V. N., KUSOV, YU. YU., KUCHAR, SH., and KOCHETKOV, N. K.,  
Institute of Organic Chemistry imeni N. D. Zelinskiy, Academy of  
Sciences USSR

"The Chemistry of Glycosyl Phosphates and Their Derivatives. Com-  
munication 2. The Synthesis of Deoxyglycosyl Phosphate Deriva-  
tives of 6-, 4-, and 3-Deoxy-D-Glucose"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 2,  
1973, pp 430-434

Abstract: Synthesis of deoxyglycosyl phosphate derivatives of 6-,  
4-, and 3-deoxy-D-glucose was achieved through fusion of the  $\beta$ -  
acetates of deoxysugars with anhydrous  $H_3PO_4$ . Acetylation of  
deoxysugars was attained with  $Ac_2O$  in the presence of  $AcONa$  ( $100^\circ$ ,  
2 h), and subsequent phosphorylation of the resultant  $\beta$ -tetra-  
acetates was performed with an 8-fold excess of  $H_3PO_4$  under vacuum  
at  $50^\circ$ . Deacetylation of the products with 1 N  $LiOH$  resulted in  
practically complete removal of inorganic phosphate as the lithium  
1/3

USSR

SHIBAYEV, V. N., et al., Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 2, 1973, pp 430-434

salt. The resultant  $\alpha$ - and  $\beta$ -anomers of the deoxyglycosylphosphates were resolved by chromatography on a Dowex-1x8 ( $\text{HCO}_3^-$ ) column, by elution with a linear gradient of triethylammonium bicarbonate (pH 7.5). In this manner, the respective triethylammonium salts of 3-deoxy- $\alpha$ -D-ribohexopyranosyl phosphate (I), 3-deoxy- $\beta$ -D-ribohexopyranosyl phosphate (II), 4-deoxy- $\alpha$ -D-xylohexopyranosyl phosphate (III), 4-deoxy- $\beta$ -D-xylohexopyranosyl phosphate (IV), 6-deoxy- $\alpha$ -D-glucopyranosyl phosphate (V), 6-deoxy- $\beta$ -D-glucopyranosyl phosphate (VI),  $\alpha$ -D-glucopyranosyl phosphate (VII), and  $\beta$ -D-glucopyranosyl phosphate (VIII) were synthesized from the corresponding  $\beta$ -tetraacetates (I and II from 1,2,4,6-tetra-O-acetyl-3-deoxy- $\beta$ -D-ribohexopyranose, III and IV from 1,2,3,6-tetra-O-acetyl-4-deoxy- $\beta$ -D-xylohexopyranose, V and VI from 1,2,3,4-tetra-O-acetyl-6-deoxy- $\beta$ -D-glucopyranose), and VII and VIII from 1,2,3,4,6-penta-O-acetyl- $\beta$ -D-glucopyranose. The average yield of the deoxyglycosyl phosphates ranged from 35-40%, and formation of the  $\alpha$ -anomer predominated under these conditions of phosphorylation. In the case of the D-glucopyranosyl

USSR

SHIBAYEV, V. N., et al., Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 2, 1973, pp 430-434

phosphates the ratios of  $\alpha$ - and  $\beta$ -anomer were reversed, apparently due to the shorter phosphorylation times. Optical rotatory dispersion data and  $[\alpha]_D$  values were used to evaluate the configurations about C-1. Mobilities on paper electrophoresis were identical for the deoxyglycosyl phosphates and the  $\alpha$ -D-glucopyranosyl phosphate (paper M, Leningrad Factory No. 2, 20-25 V/cm, 1 hr, 0.05 M triethylammonium bicarbonate buffer, pH 7.5), while the former showed greater mobilities on paper chromatography in two solvent systems.

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USSR

UDC 542.91:547.455:547.1'118

KOCHETKOV, N. K., SHIBAYEV, V. N., KUSOV, YU. YU., and TROITSKIY, M. F., Institute of Organic Chemistry imeni N. D. Zelinskiy, Academy of Sciences USSR

"The Chemistry of Glycosyl Phosphates and Their Derivatives. Communication I. The Synthesis of 4-Thio- $\alpha$ -D-Glucopyranosyl Phosphate"

Moscow, Izv. Akad. Nauk SSR, Ser. Khimicheskaya, No 2, 1973, pp 425-430

Abstract: This is the first reported synthesis of 4-thio- $\alpha$ -D-glucopyranosyl phosphate (I). The reaction sequences leading to the synthesis of I were as follows: 5.6 g 2,3,6-tri-O-benzoyl-4-O-methylsulfonyl- $\alpha$ -methyl-D-glucopyranoside and 4.8 g  $C_6H_5COSK$  were dissolved in 50 ml DMF and heated to 140<sup>o</sup>; the mixture was cooled, sediment removed, and the filtrate concentrated in vacuo. The resultant residue from the filtrate was dissolved in  $CHCl_3$ , filtered through a column of activated charcoal, concentrated by vacuum evaporation, and recrystallized from absolute ethanol.

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USSR

KOCHETKOV, N. K., et al., Izv. Akad. Nauk SSR, Ser. Khimicheskaya, No 2, 1973, pp 425-430

Three and eight tenths g (64%) of 2,3,6-tri-O-benzoyl-4-thio-4-S-benzoyl- $\alpha$ -methyl-D-glucopyranoside (II) were obtained. The structure of II was confirmed by IR spectra. Subsequently, 1 g II was treated with 50% HBr in glacial AcOH (20 ml); the suspension was stirred for 24 h at 20°, poured into 20 ml of glacial AcOH, and extracted three times with 50 ml  $\text{CHCl}_3$ . The extract was washed with  $\text{NaHCO}_3$ , ice water, dried over  $\text{MgSO}_4$ , concentrated by evaporation, and yielded 0.95 g of 2,3,6-tri-O-benzoyl-4-thio-4-S-benzoyl- $\alpha$ -D-glucopyranosyl bromide (III). Five tenths g of the chromatographically homogenous III was dissolved in 10 ml  $\text{CHCl}_3$  (alcohol free), and 0.5 g  $\text{AgOAc}$  added. The suspension was stirred 24 h, filtered through celite, concentrated by evaporation, and the residue recrystallized from abs. ethanol to yield 0.32 g (64.5%) 1-O-acetyl-2,3,6-tri-O-benzoyl-4-thio-4-S-benzoyl- $\beta$ -D-glucopyranose (IV) [m.p. 129-132°,  $[\alpha]_D^{20} + 56.5^\circ$ ]. IR and PMR spectra confirmed IV. 0.2 g IV were then phosphorylated with 0.21 g crystalline  $\text{H}_3\text{PO}_4$  in vacuum for 3 h at 50°, the mixture cooled,

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USSR

KOCHETKOV, N. K., et al., Izv. Akad. Nauk SSR, Ser. Khimicheskaya, No 2, 1973, pp 425-430

5 g crushed ice added, and extracted with  $\text{CHCl}_3$  containing 0.8 ml trioctylamine. The  $\text{CHCl}_3$  extract was concentrated by evaporation, applied to a Dower-1x4 ( $\text{HCO}_3^-$ ) column, and eluted with a linear gradient (0.1-0.5 M) of a water-methanol solution of triethylammonium bicarbonate. Fractions containing organic phosphorus were pooled, concentrated by evaporation, and yielded 7.9 g (3.1%) of 2,3,6-tri-O-benzoyl-4-thio-4-S-benzoyl- $\alpha$ -D-glucopyranosyl phosphate as the triethylammonium salt (V). Finally, 2.29 g of V was debenzoylated with 3 ml  $\text{CH}_3\text{ONa}$  in argon saturated methanol for 48 hr at  $0^\circ$ . The mixture was filtered through a Dowex-50 column ( $\text{H}^+$ ), the eluate neutralized with 5%  $\text{NH}_4\text{OH}$ , evaporated, dissolved in cold water, washed with ether, and rapidly evaporated to dryness. I was obtained in a yield of 1.83 g (79%);  $[\alpha]_D^{20} + 60.5^\circ$ .

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USSR

UDC 547.851

ZHIBAYEV, V. N., ~~IBRAHIMOV, M. M.~~ and KUCHENKOV, N. K. (Corresponding Member of the USSR Academy of Sciences), Institute of Organic Chemistry named N. D. Zelinskiy, USSR Academy of Sciences, Moscow

"A New Synthesis of  $\alpha$ -D-Glucopyranosylphosphate-6- $^{32}$ P"

Moscow, Doklady Akademii Nauk SSSR, Vol 203, No 3, 1972, pp 628-631

Abstract: Tagged derivatives of the glycosylphosphates are widely used in the study of hydrocarbon metabolism and the mechanisms of fermentation reactions. Synthesis of tagged glycosylphosphates at this time is realized either through fermentation or with chemical methods involving phosphorylation of already tagged derivatives of the monosaccharides or of those with specifically positioned tags. But these methods offer serious difficulty both in procedure and in getting an adequate supply of initial material. Considering their experience on the modification of  $\alpha$ -D-glucopyranosylphosphate, the authors developed a convenient method of obtaining the 6-tritiated derivative of this compound, the radioactive tag being introduced in the last stage of synthesis.  $^{32}$ P was chosen as the natural radioactive source for this purpose. A convenient method of obtaining the tagged compound in question can evidently be adapted to use with other glycosylphosphates as initial material.



1/2 020 UNCLASSIFIED PROCESSING DATE--3006170

TITLE--ANALOGS OF CARBOHYDRATE METABOLISM COENZYMES. IN SYNTHESIS OF  
 URIDINE 5 PRIME, -4, DEOXY, D, XYLO, HEXOSYL PYROPHOSPHATE -U-

AUTHOR--(04)--KOCHETKOV, N.K., BUDOVSKIY, E.I., SHIBAYEV, V.N., KUSOV,  
 YU.YU.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (2), 40--11

DATE PUBLISHED--70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--COENZYME, CARBOHYDRATE METABOLISM, CHEMICAL SYNTHESIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/0430 STEP NO--UR/0052/70/0001/002/0404/0611

CIRC ACCESSION NO--AP0128001

UNCLASSIFIED

2/2 020

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0128001

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ME ALPHA-D, GALACTOSIDE IN PYRIDINE TREATED WITH BZCL AT MINUS 40DEGREES, THEN WARMED TO ROOM TEMP. GAVE 68PERCENT 2,3,6-TRIBENZOATE, M. 137-8DEGREES WHICH WITH MESD SUB2 CL IN PYRIDINE GAVE ME 2,3,6,TRI,O,BENZOYL,4, O,(METHYLSULFONYL),ALPHA,D,GALACTOPYRANOSIDE, M. 141.5-43DEGREES, WHICH WITH KSCN IN DMF 2 DAYS AT 140DEGREES GAVE 65.6PERCENT ME 2,3,6,TRI,O,BENZOYL,4,DEOXY,4,THIOCYANO,ALPHA,D,GLUCOPYRANOSIDE, M. 192-2.5DEGREES, WHICH INHOT ETCH WITH RANEY N133 HR THEN TREATED WITH ME, ONA,MEOH AND KEPT 15 HR GAVE 77PERCENT ME 4,DEOXY,ALPHA,D,XYLO, HEXOPYRANOSIDE, M. 88-9.5DEGREES, WHICH HEATED INTH DOWEX-50 RESIN IN H FORM IN H SUB2 O 8.5 HR GAVE 61PERCENT 4,DEOXY,D,XYLO,HEXOSE, M. 125-7DEGREES. TREATING 4,DEOXY,D,XYLO,HEXOPYRANOSE IN PYRIDINE WITH AC SUB2 O IN CHCL SUB3 AT 0-4DEGREES 43 HR GAVE 1,2,3,6-TETRA,D,ACETHL,4,DEOXY, D,XYLO,HEXOPYRANOSE, M. 105-7DEGREES, WHICH IN ACOH AT 0DEGREES WITH 40PERCENT HBR IN ACOH GAVE IN 3 HR AT ROOM TEMP. 96PERCENT 2,3,6,TRI,O,ACETYL, 3,DEOXY,ALPHA,D,XYLO,HEXOPYRANOSYL BROMIDE, A SYRUP, WHICH WITH (PHO) SUB2 PO SUB2 AG IN C SUB6 H SUB6 REFLUXED 2 DAYS IN THE DARK GAVE 42PERCENT SYRUPY DIPHENYL PHOSPHATE, WHICH WAS DIRECTLY HYDROGENATED OVER PT IN MEOH TO 4,DEOXY,ALPHA,D,XYLO,HEXOPYRANOSYL PHOSPHATE, ISOLATED AS THE NH SUB4 SALT AND THE ET SUB3 H SALT. THE LATTER WITH URIDINE 5 PRIME,PHOSPHOMORPHOLIDE ET SUB3 N SALT IN ME SUB2 SO,C SUB6 H SUB6 W HR AT 60DEGREES GAVE PURE URIDINE 5 PRIME,(4,DEOXY,D,XYLO,HEXOPYRANOSYLPYROPHOSPHATE) (I), A NEW ANALOG OF "UDPG." G. M. KOSULAPOFF. FACILITY: INST. ORG. KHIM. IM. ZELINSKOGO, MOSCOW, USSR.

UNCLASSIFIED

AA0051762

K

UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent,

2/70

237220 FAST OPERATING D.C. CIRCUIT BREAKER. Thin partitions (16) arranged in "V" configuration assist in extinguishing the arc and in the disposal of gases. Also a magnetic field generated by magnet (8) blows the arc away. The moving contact (4) is driven by a magnet (10) and it meets the fixed contact (7) mounted on the insulating plate (6).

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6.12.65 as 1041576/24-7. A.M. KUSSUL et al. V.I. LENIN "URALELEKTROTYAZHMASH" WORKS, (26.6.69) Bul 8/12.2.69. Class 21c. Int.Cl. H 02c.

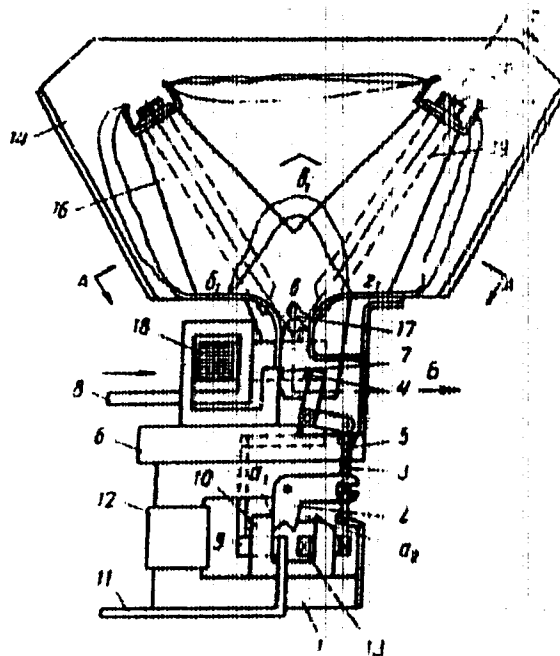
AUTHORS: ~~Kussul~~ A. M.; Skurygin, L. K.; Rylov, G. A.  
Ordena Trudovogo Krasnogo Znameni Zavod "Uralelektrotiyazhmash"  
im. V. I. Lenina

at

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19820102

AA0051762



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19820103

USSR

UDC 621.438

KUSTAREV, YU. S.

"Characteristics of the Grids of Slotted Profiles of Controlled Nozzle Devices of Axial Turbines"

Moscow, Izvestiya vysshikh uchebnykh zavedeniy, Mashinostroyeniye, No. 12, 1971, pp 88-92

Abstract: Tests of slotted grids over a wide range of angles of setting of the rotating blades as applied to operating conditions in transportation gas turbine engines were conducted at Moscow Automechanics Institute in the Laboratory of Automobile Gas-Turbine Engines in order to determine the aerodynamic effectiveness of slotted profiles. Graphs are given showing the characteristics of slotted grids in thrust and transition regimes, the effect of the slit enclosure on profile losses in the grid of the controlled nozzle device, the distribution of pressure over profiles of the device and the characteristics of slotted lattices in braking regimes. It was established from the studies that the aerodynamic characteristics of correctly selected slotted profiles over a wide range of angles of setting of the rotating blades practically coincide

Card 1/2

USSR

KUJSTAREV, YU. S., Izvestiya vysshikh uchebnykh zavedeniy, Mashinostroyeniye,  
No. 12, 1971, pp 88-92

with the characteristics of unslotted grids. It is concluded that considering the structural advantages, the slotted profiles are very promising for application in the controlled nozzle device of a transportation gas turbine engine.

Card 2/2

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Pathology

6

USSR

UDC 616.981.553-092.9

MATKOVSKIY, V. S., TSYBULYAK, G. N., ZUBIK, T. M., ZHUK, L. N., AKIMOV, G. A.,  
GAREMIN, Ye. M., GOGLOZHA, R. L., KUSTOV, N. A., PASHKOVSKIY, E. V., and  
TIKOFEYEV, V. V., Chair of Infectious Diseases, Chair of Military Field Surgery,  
and Chair of Nervous Diseases, Military Medical Academy named S. M. Kirov,  
Leningrad

"The Pathophysiology of Experimental Botulism"

Moscow, Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya, No 3, 1971,  
pp 16-19

Abstract: A study was carried out of the disturbance of external respiration, gas content and acid-base state of blood, and of hemodynamic shifts with severe experimental intoxication with botulinus toxin. Fifty dogs were intoxicated with type A botulinus toxin. At the time of administration and at the peak of intoxication, the gas content of arterial and venous blood, hemoglobin, hematocrit, specific weight of blood and plasma, and content of sodium, potassium, lactic and pyruvic acid were determined. External respiration was studied by means of a type T35 spirometabolograph and circulation by the modified mechanical cardiographic method. Biocurrents of the cerebral cortex were recorded on a four-channel electroencephalograph. At the peak of

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MATKOVSKIY, V. S., et al, Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya, No 3, 1971, pp 16-19

intoxication, a reduction of per minute respiration with a resulting lowered level of oxyhemoglobin in arterial blood, and respiratory acidosis were noted. EKG data revealed predominantly hypoxic shifts in the myocardium, and the EEG data -- inhibitory processes in the cerebral cortex. Intensified cardiac activity served as a compensatory mechanism for respiratory insufficiency. The secondary shifts in the function of organs and systems in connection with disturbances of a metabolic and functional nature played a vital role in the pathogenesis of botulinus intoxication. Morphological shifts in the CNS were apparently caused largely by disturbances in the microcirculation and were reversible. In treating severe botulinus intoxication, special attention should be paid to timely correction of external respiratory insufficiency, with artificial ventilation of lungs most expedient.

2/2

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1/2 008 UNCLASSIFIED PROCESSING DATE--09DEC70  
TITLE--THE TREATMENT OF OXYGEN DEFICIENCY IN GRAVE MECHANIC INJURIES --U-  
AUTHOR--(02)-KLSTOV, N.A., TSYBULYAK, G.M.  
COUNTRY OF INFO--USSR *K*  
SOURCE--VESTNIK KHIRURGII IMENI I. I. GREKOVA, 1970, VOL 104, NR 5, PP  
99-103  
DATE PUBLISHED-----70  
  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--INJURY, OXYGEN THERAPY, ARTIFICIAL RESPIRATION  
  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1990/0580 STEP NO--UR/0589/70/104/005/0099/0103  
CIRC ACCESSION NO--AP0108795  
UNCLASSIFIED

2/2 008

UNCLASSIFIED

PROCESSING DATE--09DCT70

CIRC ACCESSION NO--AP0103795

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN THE PAPER AN ANALYSIS OF THE CAUSES OF OXYGEN DEFICIENCY AND ITS MANIFESTATIONS IN PATIENTS WITH GRAVE INJURIES IS PRESENTED. SOME RECOMMENDATIONS IN TREATMENT OF THIS COMPLICATION AND A COMPARATIVE ESTIMATION OF SEPARATE THERAPEUTIC METHODS ARE GIVEN, AND INDICATIONS TO USING ARTIFICIAL VENTILATION OF THE LUNG IN SUCH PATIENTS ARE DESCRIBE. FACILITY: KAFEDRY VOYENNO POLEVCOY KHIRURGII VOYENNO-MEDITSINSKOY ORDENA LENINA DRASNOZNAMEENNOY AKADEMII IM. S. M. KIROVA.

UNCLASSIFIED

USSR

UDC 621.372.54

DERZHANSKIY, F.B., KUSTOV, G.V.

"Investigation Of One Method Of Realization Of Linear Quadrupoles Of The Second Order"

Elektrosvyaz', No 5, May 1972, pp 54-57

Abstract: The paper describes a method for realization of linear electrical circuits as parametric devices. The method arises directly from the theory of the solution of differential equations and makes it possible to construct systems with stable characteristics for which the frequency standard of contemporary generators of harmonic oscillations is used. It is possible to extend the method described to the problem of constructing a wide class of linear quadrupoles: resonators, systems of different filters, matched filters for signals of more complex forms than a segment of a harmonic oscillation, and others. The method makes it possible to use standard integral microcircuits produced by the electronics industry, during development of the principal functional units of contemporary communication systems. 3 figs. 3 ref. Received, 23 October 1970.

1/1

Semiconductors and Transistors

USSR

UDC 621.315.592

KUSTOV, V.G., ORLOV, V.P., PRESNOV, V.A., and AZIKOV, B.S.

"Spectral Photosensitivity of Nonuniform Semiconductors"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 4, No 4, 1970, pp 669-672

Abstract: This paper considers the problem of the proper approach to the question of semiconductors with nonuniform distribution of recombination parameters over the crystal volume. In deriving the basic relationships for this situation, the authors assume that there is a clearly expressed monopolar photoconductivity in which monopolar diffusion does not play an important part in the formation of the photoconductivity spectrum. Since there is no bipolar diffusion, the diffusion and drift process limited to the surface are negligibly small. They assume further that the specimen under consideration has a laminar nonuniformity in the direction of generation, with each layer having a specified relaxation time for nonequilibrium majority carriers and a specified absorption factor. The results of computations made from an equation they derive are compared with the experimentally obtained photoconductivity spectrum for GaAs at 77° K; the two are found to agree. The authors conclude that for specimens less than 0.01 cm thick, the probability of the formation of clearly expressed nonlinearities in the photoconductivity spectrum is to level non-

KUSTOV, V. V.

JPRS 57517  
15 MAR 72

- 1 -

SPACE BIOLOGY

UIC 012.133-06:612.771

EFFECT OF THERM-DAT CONFINEMENT OF PETS IN AN ATMOSPHERE WITH AN INCREASED OXYGEN CONTENT ON THE ELIMINATION OF SOME GASEOUS PRODUCTS OF VITAL FUNCTIONS  
Article by V. V. KUSTOV, B. I. Abidin, N. I. Belkin, L. T. Fedotunova, and  
I. A. Levayeva, Moscow, Kozmicheskaya Sioniya I Meditsina, Sushan, Vol 1,  
No 5, September-October 1971, translated for publication in December 1972,  
pp 1-51

Abstract: Experiments on white male rats have shown that 10-day exposure of the animals to a hyperoxic atmosphere (170-140 mm Hg) produces an insignificant effect on the intensity of carbon monoxide elimination, increases ammonia elimination and decreases elimination of ketones and aldehydes.

The possibility of contamination of the artificial atmosphere in tightly sealed, small-volume chambers by the gaseous products of animal vital functions has led to a series of investigations devoted to a study of the influence of physical, chemical and other environmental factors on the intensity of their formation and elimination from the body into the surrounding medium (V. V. Kustov, L. A. Glubov; T. S. Kolesova, et al.).

This communication presents data on the influence exerted on these processes by the prolonged continuous presence of animals in an artificial atmosphere with an increased oxygen content.

The experiments were performed on white male rats weighing 200-300 g. The experimental animals were kept for 10 days in a pressurized chamber with a volume of 0.186 m<sup>3</sup>. The oxygen concentration in the chamber air was maintained automatically at the level . 45% (320-340 mm Hg). Carbon dioxide in the atmosphere was maintained at the level 0.3-0.5% by means of continuous pumping of chamber air through a chemical absorbent with its subsequent return to the chamber. After the animals had been confined in this chamber for 24 hours, 15 and 30 days they were transferred to a chamber with lower volume (0.093 m<sup>3</sup>) equipped with a heat-regulating system. The oxygen and carbon dioxide concentrations in the atmosphere of this chamber were maintained by the method described above at the same level as in the chamber

USSR

UDC 615.916:264-31.06:617.001.28-092.9

KISTOV, V. V., TIUNOV, L. A., VASIL'YEV, G. A., KEYMER, S. A., and IVANOVA,  
F. A., Moscow

"Combined Effects of Carbon Monoxide and Ionizing Radiation in a Chronic Experiment"

Moscow, Gigiyena Truda i Professional'nyye Zabolevaniya, No 5, 1971, pp 36-38

Abstract: Exposure of rats to carbon monoxide (0.012 mg/L) for 85 days inhibited the animals' growth, increased their resistance to hypoxia, and decreased the weight of the lungs and liver. Exposure of other rats to the same amount of CO and ionizing radiation (0.05 rem/day) for the same length of time had no effect on the animals' growth or resistance to hypoxia, but it decreased the weight not only of the lungs and liver but of the testes as well. In a second experiment, exposure of rats to ionizing radiation but at a lower dose of CO (0.005 mg/L) did not have any specific adverse effects, for in hematologic, biochemical, and morphologic respects the experimental animals virtually indistinguishable from the controls.

P/P

USSR

UDC 577.1:615.7/9

KUSTOV, V. V., MIKHAYLOV, V. I., and PODDUBNAYA, I. T.

"Some Peculiarities of the Biological Effect of Gaseous Toxic Substances Released Into the Atmosphere From Urine and Feces"

V sb. Probl. kosmich. biol. (Problems in Space Biology -- Collection of Works), Vol 16, Moscow, "Nauka" (Science), 1971, pp 164-170 (Russian) (from RZh-Biologicheskaya Khimiya, No 20, 25 Oct 71, Abstract No R0F1686 from summary)

Translation: Male mice underwent poisoning for two hours by gas released from urine and feces, fresh or stored for 10 days. On conclusion of poisoning a determination was made of blood cholinesterase (ChE) and catalase activity and carboxy-Hb and acetylcholine content of the blood. On the basis of changes in the acetylcholine-ChE system a conclusion was drawn regarding the general toxic effect of the gaseous substances released from fresh and stored urine and feces.

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USSR

UDC 577.1:612.12-015

PODDUBNAYA, L. T., ROGAȚINA, L. N., KUSTOV, V. V., and MIKHAYLOV, V. I.

"Effect of Chemical Preservative Agent on Rate of Emission of Certain Gaseous Toxic Substances From Stored Units"

V sb. Probl. kosmich. biol. (Problems in Space Biology -- Collection of Works), Vol 16, Moscow, "Nauka" (Science), 1971, pp 170-173 (Russian) (from RZh-Biologicheskaya Khimiya, No 19, 10 Oct 71, Abstract No 19F1534 from summary)

Translation: A study was made of the effect of a chemical preservative of the phenol class on the rate of gas emissions from stored urine. It was established that addition of the preservative lessens the input into the air of substances of the ammonia, ketone, fatty-acid and nitrogen-oxide group. The emission of carbon monoxide and organic compounds, as determined cumulatively according to carbon, does not vary.

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- 67 -



USSR

UDC 577.1:615.7/9

KOLOSOVA, T. S., TIUNOV, L. A., KUSTOV, V. V., IVANOVA, L. V., VASIL'EV, G. A.  
LEMESH, G. A., and AKHMATOVA, N. A.

"Toxic Effect of Gaseous Products of the Organism's Vital Activity"

Vizb: Probl. kosmich. biol. (Problems in Space Biology -- Collection of Works),  
Vol. 16, Moscow, "Nauka," (Science), 1971, pp 182-190 (Russian) (from RZh-  
Biologicheskaya Khimiya, No 20, 25 Oct 71, Abstract No 20F1687 from summary)

Translation: Rats were kept for 26 days in metal airtight chambers with  
automatic O<sub>2</sub> supply and CO<sub>2</sub> excess removal. It was established that the  
complex of gaseous substances given off by the organism causes lung tissue  
damage and anemia, increases oxygen consumption and the weight of the  
thyroid gland, and alters blood catalase activity.

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- 7π -

USSR

UDC 621.315.592:535.34

KUSTOV, YE.F., BARANOV, M.N.

"Absorption And Luminescence Spectra Of An Ion Of Neodymium In Single Crystals Of Calcium Scandate"

Tr. Mosk. energ. in-ta (Works Of The Moscow Power Institute), 1972, Issue 96, pp 97-100 (from RZh:Elektrotehnika i energika, No 6, June 1972, Abstract No 5896)

Translation: The paper considers the absorption and luminescence spectra of a neodymium (Nd) ion in a single crystal of  $\text{CaSc}_2\text{O}_4$  synthesized by the critical zone melting method. The concentration of Nd ions amounted to  $3 \times 10^{20} \text{ cm}^{-3}$ . The absorption spectrum of the ion in a single crystal consists of a number of intense structural bands, and the luminescence spectrum of a number of closely located narrow lines. The most intense luminescent line has a wavelength of 1.0744 micron. The complexity of the absorption and luminescence spectra is accounted for by the low local symmetry of the crystalline field in which the  $\text{Nd}^{3+}$  ion is found, as well as the replacement by a Nd ion of the two-valence calcium ion. 4 ill. 2 ref. V.I. Telyatnikov.

1/1

USSR

UDC: 681.325.3

KUSTOV, Ye. S., ROMANTSOV, V. D., ROMASHKAN, V. S., TONKAL', A. Ye.

"Voltage-Code Converter"

Pribory i Sistemy Avtomatiki. Resp. Mezhd. Nauchno-Tekhn. Sb. [Automation Devices and Systems. Republic Interdepartmental Scientific-Technical Collection], No 13, 1970, pp 88-94 (Translated from Referatsionnyy Zhurnal Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 10, 1970, Abstract No 108273, by T. D.)

Translation: A dc voltage-to-binary 10-digit code converter is described. The converter is built of semiconductor devices and operates by digit-by-digit comparison. The principal error of the converter is not over  $\pm 0.25\%$ , the input impedance is 2 kohm, the speed is 2000 conversions per second, the voltage measurement range is 0-10 v. The converter uses "Mir-3" potential modules. The principal non-standard units of the converter determining its accuracy are made of high-stability elements. The compensator uses a wire-wound resistor of manganin microwire, silicon transistors, and silicon diodes. A potential type null-balance device with a sensitivity of  $\pm 3 \mu\text{V}$  is used. Six illustrations; two biblio. refs.

1/1

Superalloys

USSR

UDC 546.77'21+546.78'21+546.623'21+  
+546.832'21+546.74'21

TIMOFEYEVA, Ye. N., ~~KUSTOV, Yu. A.~~ BERESTEN', N. Ye., ROMANOVICH, I. V.

"Interaction of  $\text{MoO}_3$  and  $\text{WO}_3$  with  $\text{NiO}$ ,  $\text{Al}_2\text{O}_3$ ,  $\text{HfO}_2$  and  $\text{ZrO}_2$  in Metal Ceramic  
Production of Nickel Alloys"

Moscow, Neorganicheskiye Materialy, Vol 8, No 10, Oct 72, p 1,872.

Abstract: This work presents the results of a study of the interaction of molybdenum and tungsten trioxides with the oxides of nickel, aluminum, hafnium and zirconium. The initial products used were mixtures of oxide powders with particle dimensions less than  $0.1 \mu$ . The powders were heated in air at 400, 600, 800 and  $1,000^\circ\text{C}$  for 25 hours to establish the degree of sublimation and nature of interaction, then were subjected to reducing annealing in hydrogen at  $800-1,000^\circ\text{C}$  for two hours. X-ray analysis showed a phase identical to the known compound  $\text{NiMo}_4$ . Nickel tungstenate and molybdate fuse incongruently. They apparently practically do not dissociate in air right up to the melting point. The presence of the oxides of high temperature modifications of aluminum, hafnium and zirconium does not reduce the rate or degree of sublimation of molybdenum trioxide and tungsten tri-  
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UDC 546.77'21+546.78'21+546.623'21+546.832'21+  
+546.74'21

TIMOFEYEVA, Ye. N., KUSTOV, Yu. A., BERESTEN', N. Ye., ROMANOVICH, I. V.,  
Moscow, Neorganicheskiye Materialy, Vol 8, No 10, Oct 78, p 1,872.

oxide. The presence of nickel molybdate or tungstenate does not influence the kinetics of reduction; the entire quantity of alloying elements enters the solid solution in the stage of reduction of the mixture of oxides.

2/2

172 046 UNCLASSIFIED PROCESSING DATE--04DEC70  
 TITLE--EFFECT OF CHEMICAL KINETICS ON THE COMBUSTION RATES OF A FUEL PLATE  
 IN A TURBULENT OXIDIZER FLOW -U-  
 AUTHOR--(02)-KUSTOV, YU.A., RYBANIN, S.S.  
 COUNTRY OF INFO--USSR  
 SOURCE--FIZIKA GORENIIA I VZRYVA, VOL. 6, MAR. 1970, P. 54-54  
 DATE PUBLISHED-----70  
 SUBJECT AREAS--PROPULSION AND FUELS  
 TOPIC TAGS--COMBUSTION RATE, CHEMICAL REACTION KINETICS, TURBULENT FLOW,  
 BOUNDARY LAYER  
 CONTROL MARKING--NO RESTRICTIONS  
 DOCUMENT CLASS--UNCLASSIFIED  
 PROXY FICHE NO----FD70/605017/E11 STEP NO--UR/0414/70/006/000/0054/0064  
 CIRC ACCESSION NO--AP0140762  
 UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--06 DEC 70

2/2 046

CIRC ACCESSION NO--AP0140762

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

ABSTRACT. THEORETICAL STUDY OF THE EFFECT OF THE OXIDIZER FLOW DENSITY AND PRESSURE ON THE COMBUSTION RATES OF SHEETS OF FUEL IN A TURBULENT OXIDIZER FLOW. THE STUDY ASSUMES AN IDEALIZED BURNING PROCESS IN A TURBULENT BOUNDARY LAYER DURING WHICH VAPORIZED FUEL MOVES INTO THE BOUNDARY LAYER TO REACT WITH THE OXIDIZER. EQUATIONS OF CONSERVATION OF MASS, MOTION AND ENERGY IN THE BOUNDARY LAYER AND A DIFFUSION EQUATION ARE DERIVED AND ANALYZED. CURVES ARE PLOTTED TO SHOW THE DYNAMICS OF COMBUSTION RATES ALONG THE LENGTH OF FUEL SHEETS VS THE PARAMETERS OF THE COMBUSTION PROCESS.

UNCLASSIFIED

Acc. Nr:

AP0034210

Abstracting Service:

CHEMICAL ABST. 4-70

Ref. Code:

11A 0079

K

71266p Complexes of silver(I) with 5-fluorouracil. Gel'man, M. I.; ~~Evstov, N. A.~~ (USSR). Zh. Neorg. Khim. 1970. 15(1), 42-8 (Russ).  $Ag_2(Fu-H)$ ,  $K_2[Ag_2(Fu)_2(Fu-H)]$ , and  $K[Ag(Fu)_2]$  form by a reaction of  $AgNO_3$  with 5-fluorouracil (FuH) (Fu and Fu-H are -1 and -2 anions, resp.), depending on initial concn. of the reagents. The instability const. of  $K[Ag(Fu)_2]$ , detd. potentiometrically, is 8.18.

HMTR -

7

REEL/FRAME

19710863



USSR

UDC: 541.49:546.57

GEL'FMAN, M.I., and KUSTOVA, N.A.

## "Complex Compounds of Silver (I) With 5-Fluorouracyl"

Moscow, Zhurnal Neorganicheskoy Khimii, Vol 15, No 1, 1970, pp 92-96

Abstract: A study was made of the synthesis and physicochemical properties of complexes of silver with 5-fluorouracyl. Potentiometric studies of solutions containing silver nitrate and 5-fluorouracyl were undertaken to discover optimal conditions for conducting the syntheses. Preliminary experiments showed that electrode poisoning does not occur in the presence of 5-fluorouracyl. The reaction of silver nitrate with 5-fluorouracyl, depending on the ratio of the reagents present, leads to the formation of complexes as follows:  $Ag_2(FU-H) / FU =$  fluorouracyl,  $K_2[Ag_2FU_2(FU-H)]$ ,  $K[AgFU_2]$  HFU is a neutral molecule, but  $FU^-$  and  $(FU-H)^{2-}$  are products of the cleavage of one and two protons. The total instability constant of the complex  $K[AgFU_2]$  was determined by potentiometer using a silver electrode.

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21

USSR

K  
UDC 621.317.332.6

KUSTOVSKAYA, V. N., NIZHENSKIY, A. D., SKRIPNIK, YU. A., TSAREVA, N. M.

"Procedure for Measuring the Frequency Errors of Voltage Dividers in a Broad Frequency Range"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraboty, Tovarnyye Znaki.  
No 17, 12 May 70, Pp 54, Patent No 270879, Filed 6 Nov 67

Translation: This Author's Certificate introduces a procedure for measuring the frequency errors of voltage dividers in a broad frequency range based on measuring the difference of the division coefficients of the voltage divider on two frequencies by comparing two voltages. In order to improve accuracy, voltages of the first and second frequency with equal amplitude are fed to the input of the investigated divider in turn with low commutation frequency. With a division coefficient equal to one, the output voltages of the investigated divider are rectified and amplified, the commutation frequency voltage is separated (synchronously detected) and measured; the second frequency voltage amplitude is varied to disappearance of the commutation frequency voltage, and with the division coefficient of the investigated divider, the separated commutation frequency voltage is measured the amplitude of which is proportional to the frequency error of the divider.

1/1

KUSTRICH, V.A

Medical Service

30: Military Medical  
1200 1473  
120066L  
100 616.935-081955/139  
Senior Lieutenant of the Medical Service, V.A. Kustrich. Our experience in the work of prevention of acute infectious diseases.

An epidemic of acute dysentery occurred in 1967 at an inhabited locality situated upstream from the point on the river where our unit was stationed. The cases of dysentery developed among our service personnel. Most of the patients in the locality were of the colic type, situated on the river banks. The water supply for the unit was provided by two wells situated 12 to 20 meters from the river, and 15 meters deep.

To prevent the introduction and a further spread of the infection among the military personnel of our unit, a plan was drawn up and carried out in practice. This plan involved a number of measures to be taken and included close contact with the local health authorities, who supplied us with daily figures as to the incidence of the disease among the civilian population. By order of the garrison command, all military personnel was forbidden to visit the locality in question or to bathe in the river. Discussions were held with the military personnel and members of their families as to the prophylactic measures to be observed. This was done with the assistance of the Department of Sanitation and Hygiene. An instruction sheet was prepared, approved by the commander of the unit, explaining the significance of the measures to be observed. Special attention was devoted to the importance of early identification of patients with acute stomach disorders. This was accomplished by daily questioning of the entire personnel as to the state of their health. A medical notebook was maintained by each battalion of the unit. Not clearing of the harbor was maintained by such battalions. Residents, farmers, woodcutters, woodsmen and the boys of the village were acquainted with a 50-percent solution of chlorine hypochlorite. Patients found in the entrance to the village, contacted with a 5-percent solution of iodine.

At the medical center, a medical stand employed a list of all individuals who had been ill. In the winter quarters of the unit, patients affected by acute infectious diseases were promptly put in isolation and sent to the hospital. Special attention was given to the fact that during evacuation operations the maintenance of sanitation, hygiene and discipline was of the utmost importance. Military personnel in the vicinity of the unit were forbidden to bathe in the river. Drinking water was supplied from the well with a 50-percent solution of chlorine hypochlorite. Special attention was directed to the quality of water distribution. Special attention was directed to the quality of water distribution. Special attention was directed to the quality of water distribution. Special attention was directed to the quality of water distribution.

At the same time, the military personnel were advised to abstain from drinking water from the river. Special attention was directed to the quality of water distribution. Special attention was directed to the quality of water distribution. Special attention was directed to the quality of water distribution.

Special attention was directed to the quality of water distribution. Special attention was directed to the quality of water distribution. Special attention was directed to the quality of water distribution. Special attention was directed to the quality of water distribution.

Received in April 1968.

USSR

UDC 632.951:634.11

VUKOLOV, A. G., and KUTSENOGIY, K. P., Institute of Chemical Kinetics and Combustion, Siberian Branch, Academy of Sciences USSR

"Theoretical Basis for the Utilization of Insecticidal Aerosols in Pest Control"

Novosibirsk, Sibirskiy Vestnik Sel'skokhozyaystvennoy Nauki, No 2 (14), Mar-Apr 73, pp 29-33

Abstract: Using the example of monodispersive aerosol particles, an analysis has been carried out for the probability of death of pests sensitive to these chemical agents. It has been established that a satisfactory death rate of the pests is always dependent on the overdosage of chemical poison which is related to the ratio of drop size ( $d$ ) to the lethal diameter ( $d_p$ ). Lethal diameter is defined as the diameter of the drop which contains a lethal dose for a particular species. If  $d < (d_p)$ , then the overdosage is lowered with decreased drop size. Because of this, it is recommended to use fine aerosol particles.

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1/2 008 UNCLASSIFIED PROCESSING DATE--16 OCT 70  
TITLE--CONCERNING MORE PRECISE SOLUTION OF PROBLEMS OF LINEAR PROGRAMMING  
IN METHOD OF FUNCTIONS OF FINE -U-  
AUTHOR--KUTANOV, A.T.  
COUNTRY OF INFO--USSR *K*  
SOURCE--AVTOMATIKA I TELEMEXHANIKA, 1970, NR 4, PP 127-132  
DATE PUBLISHED-----70  
SUBJECT AREAS--MATHEMATICAL SCIENCES  
TOPIC TAGS--LINEAR PROGRAMMING, AUTOMATIC CONTROL THEORY  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1996/1728 STEP NO--UR/0103/70/000/004/0127/0132  
CIRC ACCESSION NO--AP0116706

2/2 008

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0118706

ABSTRACT/EXTRACT--(U) GP-Q- ABSTRACT. THERE ARE CONSIDERED THE METHODS OF A MORE PRECISE SOLUTION OF THE PROBLEM OF LINEAR PROGRAMMING REDUCED TO THE MINIMIZATION OF THE AUXILIARY CONVEX FUNCTION. THESE METHODS ARE CONSTRUCTED ON THE BASIS OF THE OBTAINED ESTIMATIONS OF THE OPTIMAL VALUE OF THE PURPOSE FUNCTION OF THE INITIAL PROBLEM WITH THE POINT OF THE MINIMUM OF THE AUXILIARY CONVEX FUNCTION AT A FIXED VALUE OF THE PARAMETER.

1/2 026 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--CHROMIUM NICKEL OXIDE CATALYST PREPARATION CONDITIONS -0-  
AUTHOR--(03)-KUTANOV, I.P., YERMOLENKO, YE.N., PROROKOVICH, A.A.  
COUNTRY OF INFO--USSR  
SOURCE--VESTSI AKAD. NAVUK BELARUS. SSR, SER. KHIM. NAVUK 1970, (2), 124-7  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--THERMAL ANALYSIS, X RAY STUDY, CHROMIUM OXIDE, NICKEL OXIDE,  
HEAT EFFECT, CATALYST  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FAME--2000/2028 STEP NO--08704197707000/00270124/0127  
CIRC ACCESSION NO--AP0125616  
UNCLASSIFIED

2/2 026

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0125615

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THREE SAMPLES OF MIXED CR(OH) SUB3, NI(OH) SUB2 CATALYSTS WERE EXAM. BY DTA AND X RAY ANAL. A MECH. MIXT. OF WET HYDROXIDES AND A MECH. MIXT. OF DRY HYDROXIDES EXHIBITED IDENTICAL DTA PATTERNS WITH 2 ENDOTHERMAL EFFECTS, ONE BEGINNING AT 70DEGREES WITH A MAX. AT 140DEGREES CORRESPONDING TO THE DESCRIPTION OF FREE OR ADSORBED H SUB2 O AND THE OTHER LESS PROMOUNCED BEGINNING AT 210DEGREES WITH A MAX. AT 250DEGREES CORRESPONDING TO THE EVOLUTION OF H SUB2 O FORMED FROM OH GROUPS. AN EXOTHERMAL EFFECT BEGINNING AT 320DEGREES WITH A MAX. AT 340DEGREES IS DUE TO THE CRYSTN. AND PARTIAL OXIDN. OF CR SUB2 O SUB3. A FINAL WEAK ENDOTHERMAL EFFECT WAS OBSD. AT 600DEGREES CORRESPONDING TO THE DESCRIPTION OF O, WHICH WAS ADSORBED DURING THE EXOTHERMAL EFFECT AT 340DEGREES. SAMPLES HEATED IN VACUUM DID NOT EXHIBIT THIS EFFECT. THE DTA DIAGRAM OF THE CATALYST PREPD. BY SIMULTANEOUSLY COPPTG. THE HYDROXIDES FROM NITRATE SOLNS. WITH NH SUB3 DIFFERS FROM THE DESCRIBED PATTERN BY A SHARP SEPR. OF THE 1ST 2 ENDOTHERMAL EFFECTS; THE 2ND ONE IS WELL DEVELOPED AND MUCH DEEPER WITH A MAX. AT 200DEGREES. X RAY POWDER PATTERNS OF ALL SAMPLES AT SMALLER THAN 350DEGREES SHOWED AN AMORPHOUS PATTERN. FOR SAMPLES HEATED TO 340DEGREES, THEY WERE ALL IDENTICAL WITH MAX. AT 2.17, 2.49, 2.67, AND 3.64 ANGSTROM. AT 600DEGREES THEY CONTAINED ADDNL. MAX. AT 2.08, 2.51, AND 2.95 ANGSTROM. FACILITY: INST. FIZ. DRG. KHIM., MINSK, USSR.

UNCLASSIFIED



1/2 026

UNCLASSIFIED

PROCESSING DATE--20NOV70

TITLE--INFLUENCE OF INTRINSIC CONDUCTIVITY ON THE THERMOELECTRONIC PROPERTIES OF BI SUB2 TE SUB2 X SE SUB2 SOLID SOLUTIONS -G

AUTHOR--(C4)-GULTSHAN, P.M., IKONNIKOVA, G.N., KUTASNY, V.A., SHAPIRO, E.Kh.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TVERE. TELA 1970, 12(5), 1402-9

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--INTRINSIC SEMICONDUCTOR, SEMICONDUCTOR CONDUCTIVITY, SOLID SOLUTION, THERMAL EMF, FORBIDDEN ZONE WIDTH, FERMI LEVEL, ELECTRON MOBILITY, BISMUTH COMPOUND, TELLURIDE, SELENIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--300470888

STEP NO--UR701817707012700571402/1409

CIRC ACCESSION NO--AP0131475

UNCLASSIFIED

2/2 026

UNCLASSIFIED

PROCESSING DATE--2005070

CIRC ACCESSION NO--AP0131475

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. IN TERMS OF THE MODEL IN WHICH THE THERMOELEC. FIGURE OF MERIT, Z, IN THE PRESENCE OF INTRINSIC COND. IS DESCRIBED BY A REDUCED WIDTH OF THE FORBIDDEN BAND,  $\eta$ ,  $\epsilon$ , THE POSITION OF THE ELECTRON FERM. LEVEL, AND THE MATERIAL PARAMETERS  $\beta$  AND  $\gamma$  ( $\beta$  IS SIMILAR TO CONST. T PRIMES OVER 2 (M SUBM PRIME B OVER 2 MU SUBCN OVER X SUBP;  $\gamma$  EQUALS (NO SUBOP OVER MU SUBON) (M SUBP OVER M SUBN) PRIMES OVER 2 WHERE M SUBA, MU SUBON, M SUBP, AND MU SUBOP ARE THE EFFECTIVE MASSES AND MOBILITIES OF ELECTRONS AND HOLES, RESP., AND X SUBP IS THE THERMAL COND. OF THE CRYSTAL LATTICE), CALCUL. WAS CARRIED OUT FOR A SERIES OF VALUES,  $\beta$ ,  $\eta$ ,  $\epsilon$ , AND  $\gamma$ . THE SELECTION OF THE CHOSEN VALUES OF  $\eta$ ,  $\epsilon$ ,  $\beta$ , AND  $\gamma$  INCLUDED EXPTL. VALUES OF THESE PARAMETERS OBTD. IN THE INVESTIGATED SYSTEM OF THE SOLID SOLNS. BI SUB2 TE SUB3-X SE SUBX. FOR X IS GREATER THAN 0.3 (FOR SOLID SOLNS. WITH THE WIDTH OF THE FORBIDDEN BAND  $\epsilon$  SUB2 IS GREATER THAN 0.2 (V,  $\eta$   $\epsilon$  EQUALS 7.8), THE EFFECT OF INTRINSIC COND. ON Z CAN BE NEGLECTD. DUE TO THIS EFFECT, VARIATION OF  $\gamma$  WITH Z IS PRACTICALLY ABSENT, HOWEVER, FOR BI SUB2 TE SUB3, Z IS ONLY SLIGHTLY SENSITIVE TO VARIATIONS IN  $\gamma$ . DEVIATIONS IN  $\gamma$  BY AS MUCH AS 30PERCENT LEAD TO VARIATION IN Z OF 3.5PERCENT. VALUES WERE OBTD. OF THERMAL EMF. AND ELEC. COND. FOR MAX. VALUES OF Z FOR ALL INVESTIGATED COMPS. OF THE SYSTEM BI SUB2 TE SUB3-X SE SUBX. FACILITY: INST. POLYGRAPY., Leningrad, USSR.

UNCLASSIFIED

Higher Algebra & Geometry and Topology

USSR

UDC 513.88

KUTATELADZE, S. S., Institute of Mathematics, Siberian Department of the Academy of Sciences USSR

"Supremal Generators and the Convergence of Nonexpanding Operators"

Moscow, Matematicheskkiye Zametki, Vol 13, No 1, Jan 73, pp 53-65

Abstract: M. A. KRASNOSEL'SKIY and YE. A. LIFSHITS found that the effect of the convergence of some sequences of positive operators being defined by their convergence on subspaces also takes place for some other operators. YU. A. SHASHKIN obtained the first general results in this direction for nonexpanding operators in spaces of continuous functions. The present article sets forth an elementary construction which makes it possible to obtain various results of this sort, based on the supremal generator concept. The results are of a local character: i.e., necessary and sufficient attributes are established for those functions for which there is convergence of the sequence under study, provided that its convergence is on a given subspace (open). The results of earlier articles by the author and A. M. RUBIKOV ("Supremal Generators and the Convergence of Sequences of Operators," "Some Classes of H-Convex Functions and Sets") and B. Z. VULIKH's terminology are used.

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USSR

UDC 532.593:532.529

KUTATELADZE, S. S., Associate Member of the Academy of Sciences of the USSR,  
BURDUKOV, A. P., KUZNETSOV, V. V., NAKORYAKOV, V. Ye., POKUSAYEV, B. G.,  
SHREYBER, I. R., Institute of Thermal Physics, Siberian Department of the  
Academy of Sciences of the USSR, Novosibirsk

"Concerning the Structure of a Weak Shock Wave in a Gas-Liquid Medium"

Moscow, Doklady Akademii Nauk SSSR, Vol 207, No 2, 1972, pp 313-315

Abstract: Experiments were done as a qualitative check on theoretical concepts of a shock wave propagating in a liquid containing gas bubbles. The piezoelectric method of measurement was used to investigate the structure of the shock wave front. The LKh509 pressure gauge was used with frequency independence from 20 to 50 kHz and sensitivity of 0.3 V/bar. Nitrogen was blown into the liquid through a porous plate at the lower end of a transparent plastic tube 6 cm in diameter and 100 cm long. Signals from pressure gauges on the inner walls of the tube were sent to a cathode-ray oscilloscope. It was found that increasing the intensity of the shock wave increases the frequency and relative amplitude of oscillations in the shock wave front. Reducing the bubble diameter increases the frequency and reduces the ampli-

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USSR

KUTATELADZE, S. S. et al., Doklady Akademii Nauk SSSR, Vol 207, No 2, 1973, pp 313-315

tude of oscillations in the shock wave front. Pressure oscillograms of the shock wave front in a gas-liquid mixture with artificially increased viscosity show a monotonic pressure profile, which confirms the theoretical conclusion of a nonoscillating process in this case.

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USSR

UDC 535.327

KUTATELADZE, S. S., Corresponding Member of the Academy of Sciences USSR, and  
AVALIANI, D. I., Institute of Thermophysics of the Siberian Department of the  
Academy of Sciences USSR, Novosibirsk, and Georgian Polytechnic Institute  
Imeni V. I. Lenin, Tbilisi

"Passage of Light Through a Turbulent Fluid"

Moscow, Doklady Akademii Nauk SSSR, Vol 206, No 2, 1972, pp 311-312

Abstract: In turbulent fluid flow density fluctuations appear which are re-  
lated to temperature and pressure fluctuations, which in turn are due to  
velocity fluctuations:

$$\rho' \approx \frac{\partial \rho}{\partial T} T' + \frac{\partial \rho}{\partial p} p'$$

$$p' \approx \bar{\rho} \bar{u} u', \quad T' \approx \frac{Lu'}{\#} \text{grad } \bar{T}$$

1/4

USSR

KUTATELADZE, S. S., and AVALLANI, D. I., Doklady Akademii Nauk SSSR, Vol 206, No 2, 1972, pp 311-312

The refractive index is related to the density of the medium by the Lorentz-Lorenz formula

$$\frac{n^2 - 1}{n^2 + 2} = c\rho,$$

Given  $n' \ll n$ , it follows from (2) that

$$n' \approx \frac{(n^2 - 1)(n^2 + 2)\rho'}{3n\rho},$$

$$\overline{n'n'} \approx \left(\frac{n^2 - 1}{3\rho}\right)^2 (n^2 + 2)\overline{\rho'\rho'}.$$

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USSR

KUTATELADZE, S. S., and AVALIANI, D. I., Doklady Akademii Nauk SSSR, Vol 206, No 2, 1972, pp 311-312

As can be seen, the mean-square deviation of the refractive index is non-zero. For isothermal flow it follows from (1) and (3) that

$$\overline{u' n'^2} \approx n(n^2 - 1) \frac{\partial n}{\partial p} \bar{u} \overline{u' u'}$$

i.e., the mean-square deviation of the refractive index has the order of the Mach number

$$M^2 = \frac{\partial n}{\partial p} \bar{u}^2.$$

3/4



USSR

KUTATELADZE, S. S., and AVALIANI, D. I., Doklady Akademii Nauk SSSR, Vol 206, No 2, 1972, pp 311-312

The above formulas make it possible to evaluate the order of magnitudes and structure of the dependence of light scattering by turbulent fluctuations in a medium on the medium's physical properties and hydrodynamic parameters.

The authors, in conjunction with G. G. VLASENKO, staged experiments on an ITR-1 interferometer, in one of whose cuvettes ( $l = 250$  mm,  $d = 10$  mm) was placed motionless distilled water ( $t = 20^{\circ}$  C), while the same water flowed under turbulent conditions through the second cuvette. The results are in agreement with formula (4) qualitatively and as to order of magnitudes.

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USSR

UIC 535.327

KITATELADZE, S. S., Corresponding Member of the Academy of Sciences USSR, and  
AVALIANI, D. I., Institute of Thermophysics of the Siberian Department of the  
Academy of Sciences USSR, Novosibirsk, and Georgian Polytechnic Institute  
imeni V. I. Lenin, Tbilisi

"Passage of Light Through a Turbulent Fluid"

Moscow, Doklady Akademii Nauk SSSR, Vol 206, No 2, 1972, pp 311-312

Abstract: In turbulent fluid flow density fluctuations appear which are re-  
lated to temperature and pressure fluctuations, which in turn are due to  
velocity fluctuations:

$$\rho' \approx \frac{\partial \rho}{\partial T} T' + \frac{\partial \rho}{\partial p} p'$$

$$p' \approx \bar{\rho} \bar{u} u', \quad T' \approx \frac{L u'}{\delta} \text{grad } T$$

USSR

KUTATELADZE, S. S., and AVALIANI, D. I., Doklady Akademii Nauk SSSR, Vol 206, No 2, 1972, pp 311-312

The refractive index is related to the density of the medium by the Lorentz-Lorenz formula

$$\frac{n^2 - 1}{n^2 + 2} = c\rho,$$

Given  $n' \ll n$ , it follows from (2) that

$$n' \approx \frac{(n^2 - 1)(n^2 + 2)\rho'}{3n\rho},$$
$$\overline{n'n'} \approx \left(\frac{n^2 - 1}{3\rho}\right)^2 (n^2 + 2)\overline{\rho'\rho'}.$$

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USSR

KUTATELADZE, S. S., and AVALIANI, D. I., Doklady Akademii Nauk SSSR, Vol 206, No 2, 1972, pp 311-312

As can be seen, the mean-square deviation of the refractive index is non-zero. For isothermal flow it follows from (1) and (2) that

$$\sqrt{\overline{n'n'}} \approx n(n^2 - 1) \frac{\partial n}{\partial p} \bar{u} \sqrt{\overline{u'u'}}$$

i.e., the mean-square deviation of the refractive index has the order of the Mach number

$$M^2 = \frac{\partial p}{\partial \rho} \bar{u}^2.$$

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USSR

KUFATELADZE, S. S., and AVALIANI, D. I., Doklady Akademii Nauk SSSR, Vol 206, No 2, 1972, pp 311-312

The above formulas make it possible to evaluate the order of magnitudes and structure of the dependence of light scattering by turbulent fluctuations in a medium on the medium's physical properties and hydrodynamic parameters.

The authors, in conjunction with G. G. VLASENKO, staged experiments on an ITR-1 interferometer, in one of whose cuvettes ( $l = 250$  mm,  $d = 10$  mm) was placed motionless distilled water ( $t = 20^{\circ}$  C), while the same water flowed under turbulent conditions through the second cuvette. The results are in agreement with formula (4) qualitatively and as to order of magnitudes.

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USSR

UDC: 536.212.2

KUTATELADZE, S. S., Corresponding Member of the USSR Academy of Sciences; RUBTSOV, N. A.; and VERTE, A. E.

"Nonstationary Interaction of Thermal Radiation and the Surface of Pure Metals"

Doklady Akademii Nauk SSSR, vol 206, No 1, 1972, pp 71-73

Abstract: Two pieces of experimental equipment for verifying the experimentally demonstrated temperature anomaly in the surface layers of metals subjected to sudden heating by a constant-density thermal flux are described. This anomaly is here defined as the deviation between the experimentally determined temperature of the surface and the theoretically determined value as obtained through the solution of the equation of thermoconductivity with limiting conditions of the second kind. One of these devices realizes the sudden heating, under vacuum conditions of  $6 \cdot 10^{-5}$  to  $5 \cdot 10^{-6}$  mm Hg, while the other realizes the heating in air. The densities of the absorbed heat fluxes were varied from  $5 \cdot 10^3$  to  $6 \cdot 10^4$  w/m<sup>2</sup> and from  $3 \cdot 10^3$  to  $5 \cdot 10^4$  for the two devices respectively. From their work with this equipment, the authors conclude that the anomaly is confirmed and that its dimensions are determined by the state of the surface and the microstructure

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USSR

KUTATELADZE, S. S., et al, Doklady Akademii Nauk SSSR, vol 206,  
No 1, 1972, pp 71-73

of the metal. They are members of the Institute of Thermal  
Physics, Siberian Division of the USSR Academy of Sciences, at  
Novosibirsk.

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USSR

UDC: 512.25/.26+519.3:330.115

KUTATELADZE, S. S.

"General Solution of a Plane Isoperimetric Problem"

V sb. Optimal'n. planirovaniye (Optimum Planning--collection of works), vyp. 17, Novosibirsk, 1970, pp 149-152 (from RZh-Kibernetika, No 12, Dec 71, Abstract No 12V814)

Translation: A plane isoperimetric problem is defined as the problem of maximizing the area of a plane convex figure in the case of spatially linear convex sets of limitations (restrictions on mixed areas and reference distances of the unknown figure). This problem was considered in RZhMet, 1970, 11B715 as a special case of a general quasiconcave isoperimetric problem. In the same paper, optimality criteria are found for problems of this type. Although these optimality characteristics are simplified in the plane problem, nevertheless they do not give any algorithm for finding the solution. B. S. Mityagin called the author's attention to the circumstance that the solution of the plane problem probably lies in a cone (with respect to Minkowski operations) stretched over the figures which define the limitations. This means in particular that such problems are finite-dimensional problems in quadratic programming, i. e. they may

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USSR

KUTATELADZE, S. S., Optimal'n. planirovaniye, vyp. 17, Novosibirsk, 1970,  
pp 149-152

be solved in a finite number of steps. It is shown that this fact ac-  
tually holds for a plane isoperimetric problem. Introduction.

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USSR

UDC: 512.25/.26+519.3:330.115

KUTATELADZE, S. S., RUBINOV, A. M.

"On the Theory of Structural Duality of Functions and Sets"

V sb. Optimal'n. planirovaniye (Optimum Planning--collection of works),  
vyp. 17, Novosibirsk, 1970, pp 96-144 (from RZh-Kibernetika, No 12, Dec  
71, Abstract No 12V812)

Translation: A detailed exposition of the authors' results (DAN SSSR,  
1971, v. 197, No 6, p. 1261; RZhKibernet, 1971, 12V811). §1.  $H$ -convex  
functions and sets (Minkowski-Fenchel' scheme). §2. Adjoint functions  
(Fenchel'-Moro-Rokafeller theory). §3. Polars to the cones of  $H$ -convex  
functions. Historical and literary commentaries. Bibliography of 62  
titles.

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USSR

UDC:620.195.01

TIMONOVA, M. A., KUTAYTSEVA, A. I., ORZNEKHOVSKAYA, L. B., and  
KABANOVA, T. S.

"The Problem of the Contact Corrosion of Magnesium Alloys"

Moscow, Zashchita Metallov, Vol 10, No 1, Jan-Feb 74, pp 53-57

Abstract: Magnesium alloy specimens consisting of discs 20 mm in diameter with a central aperture were tested by full immersion in a 5% solution of sodium chloride and in a tropical climate chamber. The specimens were tested in contact with several types of steel, aluminum and copper alloys. The strongest contact corrosion was observed with steel. The chemical composition of the steels tested had practically no influence on the depth and radius of corrosion. Bronze causes stronger corrosion than brass. Contact corrosion depends on the chemical composition of the magnesium alloys, which can be explained by the different degree of difference effect. The use of stannate, zinc, cadmium and chrome coatings helped to reduce corrosion for type-20 steel, while anodizing in chromic acid was most effective for D16 alloy. Under the tropical climate conditions, the contact corrosion caused by type-20 steel is significantly reduced by cadmium and zinc coatings, while that caused by D16 alloy is reduced by an anodic oxide coating.

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USSR

UDC 669.71.017:539.3/5.01

KUTAYTSEVA, Ye. I., FILIPPOVA, Z. G., and BOROVCH, S. A.

"The Effect of Thermomechanical Processing on Properties of the V96ts Alloy"  
Metallovedeniye Splavov Legkikh Metallov-Sbornik, Moscow, "Nauka", 1970,  
pp 29-33, resume

Translation: The effect of thermomechanical processing on the properties of  
the V96ts high-strength alloy was investigated. A positive effect of the  
plastic deformation on the mechanical properties of the alloy was established.  
Three figures, two tables.

1/1

UNCLASSIFIED  
 TITLE--<sup>021</sup>THE CLASSIFICATION OF REMOTE SEQUELAE OF INFECTIOUS HEPATITIS -U-  
 AUTHOR--(03)-FARBER, N.A., ALFINYAN, V.M., KUTCHAK, S.N.  
 COUNTRY OF INFO--USSR  
 SOURCE--KLINICHESKAYA MEDITSINA, 1970, VOL 48, NR 6, PP 63-70  
 DATE PUBLISHED-----70  
 SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
 TOPIC TAGS--HEPATITIS, VIRUS DISEASE, BIOPSY, LIVER, DIAGNOSTIC MEDICINE  
 CONTROL MARKING--NO RESTRICTIONS  
 DOCUMENT CLASS--UNCLASSIFIED  
 PROXY REEL/FRAME--3005/1473  
 CIRC ACCESSION NO--AP0133409  
 STEP NO--UR/0497/70/019/006/0063/0070  
 UNCLASSIFIED

272 021

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0133409

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PAPER IS CONCERNED WITH THE RESULTS OF A DETAILED CLINICO BIOCHEMICAL EXAMINATION OF 690 PATIENTS WITH ACUTE VIRAL HEPATITIS AND IN THE RESTORATIVE PERIOD: 64 CONVALESCENTS UNDERWENT ASPIRATION BIOPSY OF THE LIVER. AN ANALYSIS OF CLINICO MORPHOLOGICAL CORRELATIONS MAKES IT POSSIBLE TO DEFINE THE CLASSIFICATION AND DIFFERENTIAL DIAGNOSIS OF THE REMOTE SEQUELAE. IN ADULTS VIRAL HEPATITIS TERMINATES BY COMPLETE RECOVERY IN 69.1 PERCENT OF CASES, DIFFERENT RESIDUAL MANIFESTATIONS ARE RECORDED IN 15.7PERCENT, INFLAMMATORY LESIONS OF THE BILIARY TRACT, IN 11.5PERCENT OF CONVALESCENTS; CHRONIC HEPATITIS DEVELOPS IN 3.2PERCENT AND CIRRHOSIS OF THE LIVER, IN 0.5PERCENT OF PATIENTS. FACILITY: KLINICHESKY OTDEL INSTITUTA VIRUSOLOGII IM IVANOVSKOGO AMN SSSR I MOISKOVSAYA GORODSKAYA KLINICHESKOGO INFEKTSIONNAYA BOL'NITSA NO 82.

UNCLASSIFIED

1/2 012 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--A NEW INJECTABLE MEDICINAL FORM OF ETHOXIDE --U--  
AUTHOR--(G4)--PERSHIN, G.N., ZYKOVA, T.V., SHAROVA, S.M., KUTCHAK, S.N.  
COUNTRY OF INFO--USSR  
SOURCE--FARMAKOL. TOKSIKOL. (MOSCOW) 1970, 33(1), 101-5  
DATE PUBLISHED--70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--TUBERCULOSIS, ANTITUBERCULAR DRUG, MOUSE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1994/1159 STEP NO--UR/0390/70/033/001/0101/0105  
CIRC ACCESSION NO--AP0115178  
UNCLASSIFIED

2/2 012

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0115178

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ETHOXIDE (4, 4 PRIME DIETHOXYDITHIOCARBANTILIDE) IN OIL AND H SUB2 O SUSPENSIONS ADMINISTERED I.M. TO MICE WAS 10 FOLD MORE EFFECTIVE THERAPEUTICALLY THAN WHEN ADMINISTERED ORALLY. THE INOCULATION INDEX FOR TUBERCULOSIS BACILLI FROM THE LUNGS OF MICE INJECTED I.M. WITH ETHOXIDE SUSPENSION ONCE A WEEK AT 80 OR 40 MG WAS HALF THAT IN CONTROLS OR IN MICE RECEIVING ETHOXIDE DAILY ORALLY. ETHOXIDE IN A 20PERCENT H SUB2 O AND 20PERCENT OIL SUSPENSION HAD NO OVERALL TOXIC OR LOCAL IRRITATING ACTION. AQ. SUSPENSIONS CAUSED MORE GRADUAL AND MORE ABUNDANT DEVELOPMENT OF CONNECTIVE TISSUE, BUT OIL SUSPENSIONS FACILITATED DEPOSITION AND CAUSED LESS SIGNIFICANT REACTIVE CHANGES IN THE DEVELOPING GRANULOCYtic TISSUE. AT 20PERCENT OIL SUSPENSION OF ETHOXIDE IS RECOMMENDED FOR CLIN. STUDIES ON TUBERCULOSIS PATIENTS. FACILITY: LAB. KHIMOTER, INFEKTS. ZABOL., VSES. NAUCH.-ISSLED. KHIM FARM INST. IM. ORDZHONIKIDZE, MOSCOW, USSR.

UNCLASSIFIED



PROCESSING DATE--30OCT70

UNCLASSIFIED

2/2 009  
CIRC ACCESSION NO--AP0129244  
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. AMINAZINE (CHLORPROMAZINE) INDUCED JAUNDICE WAS STUDIED IN 31 CASES. THE PAPER GIVES A CHARACTERISTICS OF ITS CLINICAL PICTURE, THE RESULTS OF BIOCHEMICAL AND MORPHOLOGICAL (ILLUMINATION AND ELECTRON MICROSCOPY) INVESTIGATIONS. AMINAZINE JAUNDICE DEVELOPS ACCORDING TO THE FORM OF INTRAHEPATIC CHOLESTASIS ACCOMPANIED BY ITCHING, INCREASED ACTIVITY OF ALKALINE PHOSPHATASE AND THE BLOOD SERUM CHOLESTEROL LEVEL. THE ACTIVITY OF FRUCTOSE BOND AND FRUCTOSE DIPHOSPHATE ALDOLASES, ASPARTATE AND ALANINE AMINOTRANSFERASES AUGMENT INSIGNIFICANTLY OR DO NOT CHANGE. PRECIPITATION TESTS, MERCURIC CHLORIDE AND THYMOL, REMAIN NORMAL. THERE IS A MODERATE OR SIGNIFICANT RISE OF THE LEUKOCYTE AND EOSINOPHIL COUNT AND ACCELERATION OF ESR. UPON MORPHOLOGICAL STUDY THERE IS OBSERVED AN INTRAHEPATIC CHOLESTASIS WITHOUT DISORDER OF THE LIVER STRUCTURE AND OBVIOUS CHANGES OF ITS PARENCHYMA AND PORTAL FIELDS. AS A RULE, AMINAZINE INDUCED JAUNDICE OCCURS ON THE 2ND-5TH WEEK FROM THE ADMINISTRATION OF THE PREPARATION AND DOES NOT APPEAR IN PERSONS PROTRACTEDLY USING THE DRUG. CLINICAL DATA, ALONG WITH THE RESULTS OF LABORATORY AND MORPHOLOGICAL INVESTIGATIONS, MAY SERVE AS A RELIABLE BASIS FOR THE DIAGNOSIS OF AMINAZINE JAUNDICE AND ITS DIFFERENTIATION FROM VIRAL HEPATITIS (BOTKIN'S DISEASE).

FACILITY: KLINICHESKIY OTDEL INSTITUTA VIRUSOLOGII IM IVANOVSKOGO AMN SSSR NA BAZE GORODSKOY KLINICHESKOY INFEKTSIONNOY BOL'NITSY NO 82, MOSKVA.

UNCLASSIFIED

USSR

UDC 678.674-419:677.521:667.622.3]01:53

REVENKO, Z. G., KUTEPOV, D. F.

"Effect of Pigments on the Properties of PN-1 Polyester Resin and Fiberglass Based on It"

Moscow, *Plasticheskiye Massy*, No 1, 1973, pp 57-58

Abstract: A study was made to determine the effect of certain light and dark weather-resistant organic pigments on the strength characteristics of PN-1 polyester resin and fiberglass based on it. The maximum strength of the PN-1 polyester resin and the fiberglass was reached for a pigment content of 1-2%. Graphs are presented for the ultimate bending strength and specific impact toughness of polyester fiberglass as a function of the pigment content.

Data are also given for the adsorption of polyethyleneglycol maleate resin on some organic pigments. The chemical adsorption is higher for three of the pigments than for the other three which leads to an increase in the strength indexes of the PN-1 resin and the fiberglass based on it and painted by these pigments.

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1/2 020 UNCLASSIFIED PROCESSING DATE--27NOV70  
TITLE--SYNTHESIS AND STUDY OF POLYAMINES CONTAINING S-TRIAZINE RINGS --U-  
AUTHOR--(02)-KUTEPOV, D.F., KOGAN, N.N. **K**  
COUNTRY OF INFO--USSR  
SOURCE--VYSOKOMOL. SOEDIN., SER. B 1970, 12(5), 344-7  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--POLYAMINE, TRIAZINE, POLYCONDENSATION, POLYMER, CHEMICAL  
SYNTHESIS  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3007/0982 STEP NO--UR/0450/70/012/005/0344/0347  
CIRC ACCESSION NO--AP0136412  
UNCLASSIFIED