

1/2 020

UNCLASSIFIED

PROCESSING DATE--20NOV70

TITLE--INTERACTION OF GLASS WITH HALPHOSPHATE PHOSPHORS IN THE PREPARATION OF FLUORESCENT LAMPS -U-

AUTHOR--YERASHOVA, E.M.

COUNTRY OF INFO--USSR

SOURCE--SVETOTEKNIKA 1970, 16(1), 7-9

DATE PUBLISHED-----70

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

TOPIC TAGS--FLUORESCENT LAMP, CRYSTAL PHOSPHOR, LUMINESCENT MATERIAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3003/1463

STEP NO--UR/0311/70/016/001/0007/0009

CIRC ACCESSION NO--AP0130396

UNCLASSIFIED

2/2 020

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0130396

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

ABSTRACT. THE INTERACTION OF GLASS WITH HALOPHOSPHATE PHOSPHORS IN FLUORESCENT LAMPS WAS INVESTIGATED BY USING 1 GLASS, 5 PHOSPHORS WITH DIFFERENT CONCNS. OF MN (0-2.02PERCENT), THE SAME BINDER, AND AN OPTIMAL THICKNESS OF THE LUMINESCENT LAYER. RESULTS INDICATED THAT AN INCREASE IN MN CONC. LED TO A DECREASE IN BRIGHTNESS. AN EXPLANATION WAS OFFERED THAT THIS WAS DUE TO THE FORMATION OF A CONTAMINATING LAYER BETWEEN MN AND THE NA PRIME POSITIVE IONS DIFFUSING FROM THE GLASS INTO THE PHOSPHOR. FACILITY:  
VSES. SVETOTEKH. INST., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC[537.226+537.311.33]:[537+535]

YERASOVA, H. A., KAYDANOV, V. I., NOVICHKOV, A. I., and NUROMSKIY, A. E.

"Apparatus for High-Speed Measurement of Thermoelectric Parameters of Semiconductor Materials in 150-500° K Temperature Range"

Tr. Leningr. politekhn. in-t (Works of Leningrad Polytechnic Institute), 1971, No 325, pp 10-16 (from RZh-Fizika, No 1, Jan 72, Abstract No 1Y51469 by authors)

Translation: The apparatus is intended for simultaneous determination of specific electrical and thermal conductivity and the coefficient of thermoelectromotive force in a wide temperature range. Changes have been made in the construction of the device, as compared with the "λ" calorimeter, which permit reduction to the minimum of the influence of parasitic heat exchange and contact thermal resistances. An evaluation of the errors shows that in the determination of the thermoelectric coefficient of the materials studied the error connected with the accuracy of the measurements, thermocouple calibration, and geometry of the samples does not exceed 4.5%.

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USSR

UDC 621.317.799:537.311.3

YERASOVA, N.A., MAYDANOV, V.I., NOVICHEOV, A.I., NURCHSEIY, A.B.

"Equipment For High-Speed Measurement Of the Thermoelectric Parameters Of Semiconductor Materials In The Temperature Range 150-500° K"

Tr. Leningr. politekhn. in-t (Works Of The Leningrad Polytechnical Institute), 1971, No 325, pp 10-16 (from RZh:Elektronika i yeye primeneniye, No 2, Feb 72, Abstract No 2377)

Translation: The equipment, in which a normal regime of the second kind is used, is intended for simultaneous determination of the thermal conductivity, the specific electrical conductance, and the coefficient of thermo-emf over a wide range of temperature. The error in determining the thermoelectric coefficient does not exceed 4--5 percent. 2 ill. 4 ref. Summary.

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1/2 023

UNCLASSIFIED

PROCESSING DATE--18SEP70

TITLE--EFFECT OF A BISMUTH TELLURIDE IMPURITY ON THE BAND STRUCTURE OF TIN  
TELLURIDE -U-

AUTHOR--(05)-BOROVIKOVA, R.P., DUDKIN, L.D., YERASOVA, N.A., KAZANSKAYA,  
O.A., KAYDANOV, V.I.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TEKH. POLUPROV. 1970, 4(1) 231

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--BISMUTH, ELECTRICAL CONDUCTIVITY, TIN COMPOUND, TELLURIUM  
COMPOUND, ACTIVATION ENERGY, ENERGY BAND STRUCTURE, HALL CONSTANT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1988/0578

STEP NO--UR/0449/70/004/001/0231/0231

CIRC ACCESSION NO--AP0105561

UNCLASSIFIED

272 023 UNCLASSIFIED PROCESSING DATE--18SEP70  
CIRC ACCESSION NO--AP0105561  
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TEMP. DEPENDENCE OF ELEC.  
COND.; THERMAL EMF., THE HALL CONST., AND THE TRANSVERSE NERNST  
ETTINGSHAUSEN EFFECT WAS STUDIED EXPTL. IN SN SUBI NEGATIVEX BI SUBX TE  
(0 SMALLER THAN OR EQUAL TO TIMES SMALLER THAN OR EQUAL TO 0.1) SOLID  
SOLNS. AT 80-500DEGREES K. IN COMPARISON TO PURE SNTG, A DECREASE IN  
HALL MOBILITY IS NOTICED AND A MAX. APPEARS ON THE TEMP. DEPENDENCE  
CURVE OF THE HALL CONST. THERE ARE 2 POSSIBLE EXPLANATIONS FOR THESE  
AND OTHER OBSD. CHANGES: (1) THE ADDN. OF BITE LOWERS THE ENERGY GAP  
BETWEEN REGIONS OF LIGHT AND HEAVY HOLES; (2) IMPURITY (DONOR) LEVELS OF  
BI SPLIT INTO AN IMPURITY BAND LOCATED BELOW THE VALENCE BAND. IN BOTH  
CASES, THE ADDN. OF BI HAS LITTLE INFLUENCE ON THE CONCN. OF HOLES.

UNCLASSIFIED

PROCESSING DATE--23OCT70

UNCLASSIFIED

1/2 014

TITLE--FLARE STARS IN THE PLEIADES -U-

AUTHOR--(05)-AMBARTSUMIAN, V.A., MIRZOIAN, L.V., PARSAMIAN, E.S.,  
CHAVUSHIAN, D.S., YERASTOVA, L.K.  
COUNTRY OF INFO--USSR

SOURCE--ASTROFIZIKA, VOL. 6, FEB. 1970,

DATE PUBLISHED----FEB70

SUBJECT AREAS--ASTRONOMY, ASTROPHYSICS

TOPIC TAGS--STAR, ASTRONOMIC OBSERVATORY, FLARE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAKE--2000/1770

STEP NO--UR/0388/70/006/000/0007/0030.

CIRC ACCESSION NO--AP0125386

UNCLASSIFIED

2/2 014

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0125386

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. OBSERVATIONAL DATA FOR 46 NEW FLARE STARS DISCOVERED IN THE PLEIADES DURING 1968 AND 1969 AT THE TONANTZINTLA, ASIAGO, BIURAKAN, BUDAPEST, AND ALMA ATA OBSERVATORIES. A STATISTICAL STUDY OF FLARE STARS SHOWS THAT THEIR OVERALL NUMBER IN THE PLEIADES SHOULD EXCEED 600. THE DISTRIBUTION OF FLARE STARS ACCORDING TO THE NUMBER OF OBSERVED FLARES IS WELL REPRESENTED BY THE SUM OF TWO POISSON DISTRIBUTIONS WITH DIFFERENT MEAN FREQUENCIES. ALL, OR ALMOST ALL, OF THE MEMBERS IN PLEIADES WITH VISUAL MAGNITUDES LESS THAN 13.3 ARE FLARE STARS. AT A VALUE OF 13.29, THERE IS A SHARP BORDER BETWEEN PHOTOGRAPHICALLY OBSERVABLE FLARE STARS AND NONFLARING STARS. THE MEAN FREQUENCY OF LARGE FLARES (AMPLITUDE GREATER THAN 0.6 MAGNITUDE) WAS .0001 PER HR FOR MOST STARS. FACILITY: BIURAKANSKAIA ASTROFIZICHESKAIA OBSERVATORIIA, YEREVAN, ARMENIAN SSR.

UNCLASSIFIED



USSR

UDC 621.396.6:621.318(088.8)

ARON, P. M., RYABKOVA, L. D., YERASTOVA, V. I.

"A Method of Producing Ferrite Powders"

USSR Author's Certificate No 252498, Filed 15 Jan 68, Published 13 Feb 70 (from RZh-Radiotekhnika, No 10, Oct 70, Abstract No 10V409 p)

Translation: The proposed method of producing ferrite powders by crushing a mixture of initial oxides and annealing the mixture with subsequent pulverization is distinguished by the fact that the activity of the powders is increased by adding to the mixture of initial oxides up to 5 wt.% ammonium sulfate, and annealing the mixture at the temperature of interaction between ammonium sulfate and the oxides for five hours, followed by a raise in temperature to 800-1,000°C.

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USSR

UDC 599.323.4

YERDAKOV, L. N., GLOTOV, I. N., and NIKOLAYEV, A. S., Institute of Biology, Siberian Department, Academy of Sciences USSR, Novosibirsk

"Dynamics of the Mobility of Murine Rodents and the Effect on Mobility of Some Abiotic Factors"

Novosibirsk, Izvestiya Sibirskogo Otdeleniya Akademii Nauk SSSR, Seriya Biologicheskikh Nauk, No 10 (190), 1971, pp 161-168

Abstract: Field study of 12 species of voles mice, and other rodents (*Sicista betulina*, *Apodemus agrarius*, *Micromys minutus*, *Phodopus sungorus*, *Cricetus cricetus*, *Clethrionomys glareolus*, *Clethrionomys rutilus*, *Clethrionomys rufocanus*, *Arvicola terrestris*, *Microtus gregalis*, *Microtus agrestis*, *Microtus oeconomus*) in forest biocenoses in the northern part of the Baraba Lowland (Western Siberia). Each species develops a definite seasonal rhythm in its movements about its range, the determining factors being the local climate and ecology of the species. Species periodicity is fairly conservative and it is little affected by slight fluctuations in temperature and moisture, although it can shift in time as a result of abrupt climatic changes. Significant changes in the rhythm of rodent mobility take place only when climatic factors coincide or nearly coincide with peak activity.

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USSR

YERDAKOV, L. N., Biological Institute, Academy of Sciences USSR, Siberian Branch, Novosibirsk

"Quantitative Characteristics of the Daily Behavior Pattern of the Water Rat (*Arvicola terrestris* L.) and Common Hamster (*Cricetus cricetus* L.)"

Novosibirsk, *Izvestiya Sibirskogo Otdeleniya Akademii Nauk SSSR, Seriya Biologicheskikh Nauk*, No 10, 1972, pp 75-80

Abstract: Observation of rats and hamsters kept in open-air cages revealed that the animals perform a great number of behavioral acts daily (sleeping, eating, grooming, moving about, etc.) that follow a general pattern for each species, with some variations, depending on the age and seasonal changes in the environment. Young hamsters, for example, perform an average of 650 acts compared to 600 in the case of adults. Both rats and hamsters exhibit a persistent behavioral stereotype and individual deviations are insignificant. Thus, the average stereotype can be regarded as a species-specific characteristic.

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USSR

UDC 612.744.2+612.745

MIKHAYLOV, V. V., YERDAKOV, S. V., ABRCSINOV, V. V., SERGIYENKO, V. B.,  
Physiology Department, State Central Institute of Physical Culture, and  
Biomechanics Sector, All-Union Scientific Research Institute of Physical  
Culture, Moscow

"Energy Value of Muscular Work Under Fatigue Conditions"

Leningrad, Fiziologicheskii Zhurnal SSSR imeni I. M. Sechenov, Vol 58,  
No 9, 1972, pp 1,397-1,402

Abstract: Hypotheses regarding the mechanism of increase in the energy value of work are based on the fact that additional muscles are summoned in fatigue situations, changes in the physical properties of the muscles, and discoordination of functions. Considering the possibility of fatigue by glycolysis of respiration during muscular work and the reduction in oxygen consumption in the case of acute fatigue, a role of activation of glycolysis with low energy effect and simultaneous suppression of the highly efficient oxidative phosphorylation in the mechanism of increased expenditures during fatigue is proposed. A study was made to check the hypotheses.

Experienced bicyclists doing a variable amount of work of submaximal capacity on a bicycle ergometer were tested to determine the oxygen need

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USSR

MIKHAYLOV, V. V., et al., Fiziologicheskiy Zhurnal SSSR imeni I. M. Sechenov, Vol 58, No 9, 1972, pp 1,397-1,402

of work periods which were standard with respect to capacity and duration and also the vegetative and biometric indexes. During the fatigue period, the oxygen demand was 104-176% higher than otherwise. The phenomena of using additional muscles in the presence of fatigue not functioning previously and also discoordination of the functions were not detected in the study. An increase in work value in the case of fatigue was caused by recruiting additional motor units of the primary working muscles and also activation of glycolysis with low energy efficiency.

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USSR

UDC: 621.791.793

SIEMENOV, V. M., All-Union Scientific Research, Planning and Design Institute of Hoisting and Conveying Machinery, Loading, Unloading and Warehouse Equipment and Containers, Kramatorsk, and YEREGIN, L. P., and MALAY, A. YE., New Kramatorsk Machinery Plant imeni V. I. Lenin

"Deformations During the Electro-Slag Welding of Alloyed Grades of Steel"

Kiev, Avtomaticheskaya Svarka, No 10, Oct 73, pp 52-54

Abstract: The authors study the nature and the magnitude of the shift in edges which are to be joined in conjunction with the necessity for the electro-slag welding of large products made from the 20KhNMF, 25Kh2GMT, and 20Kh2MA high-strength grades of steel. For comparison, the authors studied deformations during the electro-slag welding of dimensionally analogous parts made from the 25GS grade steel. Marks were made along the seams and measured for changes before, during and after welding. The results show that the magnitude and the nature of the shifting of the edges are diverse during the electro-slag welding of annular and straight seams. The results provided correction factors for the erection clearances between the parts to be welded. These data may also be useful in developing the technology for the electro-slag welding of other parts. The existing data have made it possible to weld a large hydraulic press and a hammer.

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USSR

UDC 591.524.12(26):639.32

YEREKPEYEV, H. Ye. and KAZAKHBAYEV, S. K., Combined Institute of Natural Sciences, Karakalpak Branch, Academy of Sciences Ukrainian SSR

"Zooplankton of Aral Sea Spawning Grounds (Muynak, Adzhibay, and Dzhylytyrbas"

Kiev, Gidrobiologicheskii Zhurnal, No 3, 1972, pp 86-90

Abstract: The hydrological regime of the southern Aral Sea changed considerably during the last decade because of the installation of waterworks and drawing of water from the Amu-Dar'ya for agricultural purposes. Salinity increased, the area of the spawning grounds shrank, and the food supply of the main commercial fishes diminished sharply. Most of the spawning grounds in the southern Aral Sea - Muynak, Adzhibay, and Dzhylytyrbas, are located in freshwater bays. This study (made in 1968) revealed the presence of 56 species and forms on the spawning grounds. They consisted of rotifers, cladocerans, copepods, harpacticoids, and Dreissena larvae. The species composition was most varied on the Dzhylytyrbas spawning ground where 46 species (33 rotifer, 9 cladoceran, and 4 copepod) were found. The Adzhibay zooplankton was the least varied. Its 19 species included 12 rotifer, 4 cladoceran, and 4 copepod. The species poverty was due to the greater salinity of the water in this region. During the period under study, the

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USSR

YEREKEYEV, U. Ye. and KAZAKHBAYEV, S. K., *Gidrobiologicheskiy Zhurnal*, No 3, 1972, pp 86-90

dominant rotifer forms were *B. plicatilis* in Muynak and Adzhibay bays and *B. quadridentatus* and *L. bulla* in Dzhylytyrbas Bay. Among the clasocerans, *A. rectangula* and *Mesocyclops leuckarti* were dominant. The hydrological changes in Muynak Bay reduced the zooplankton abundance and especially biomass 6- to 10-fold by 1968 compared with the 1964 levels. The crustacean *Acanthocyclops viridis*, which constituted 33 to 80% of the total zooplankton biomass in 1964, disappeared 4 years later.

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USSR

UDC 53.07/.08+53.001.5

KONYUSHKOV, G. V., YEREKIN, V. M., FEDOROV, M. I.

"Effectiveness of Diffusion Joining of Metals in the Stemless Pumping of Electro-vacuum Devices"

Vakuumn. tekhnika. Nauchno-tekhn. sb. (Vacuum Technology. Scientific-Technical Collection), No. 2, Kazan', 1970, pp 117-124 (from RZh-Fizika, No 1, Jan 71, Abstract No 1A140)

Translation: To obtain a vacuum up to  $10^{-9}$  mm Hg in the working space of domestic electrovacuum devices and to maintain this vacuum during use of the device, diffusion welding of the components of the device in stemless pumping after degassing is recommended instead of sealing the stem by soldering or cold welding. Comparative characteristics of the vacuum state in samples sealed by various methods over the course of a day, week, and month, and also metallographic studies of seams obtained by the diffusion method and by soldering are given. It was shown that the sealing of metalloceramic electrovacuum devices with a diffusion joint makes it possible to obtain a quality-reliable joint in these components. Yu. N. Kogan.

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1/2 007 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--EQUILIBRIUM DISTRIBUTION OF MONO AND DIVALENT IONS IN AN ION  
EXCHANGER DILUTE AQUEOUS SOLUTIONS SYSTEM -U-  
AUTHOR--(03)-ZAGRAY, YA.M., KOGANOVSKIY, A.M., YEREMENKO, A.G.  
COUNTRY OF INFO--USSR  
SOURCE--UKR. KHIM. ZH. 1970, 36(1), 49-54.  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--ION EXCHANGER, AQUEOUS SOLUTION, ION EXCHANGE RESIN/(U)KB4 ION  
EXCHANGE RESIN, (U)KU2 ION EXCHANGE RESIN  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3002/0462 STEP NO--UR/0073/70/036/001/0049/0054  
CIRC ACCESSION NO--AP0128032  
UNCLASSIFIED

2/2 007

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0128032

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE FORMULA OF THE PREVIOUS PAPER IS MODIFIED FOR THE REPLACEMENT OF H PRIME POSITIVE OR OTHER MONOVALENT CATION BY A DIVALENT CATION (M) TO READ  $1-\lambda = \frac{\beta - C}{\beta + C}$  PLUS  $(1 - \beta C)$  MINUS  $(\beta C - 4 \beta C)$  SUBINFINITY PRIME<sup>2</sup>) C SUBM, WHERE  $\beta$  EQUALS C SUBH PRIME<sup>2</sup> -K,  $\lambda$  EQUALS THE DISTRIBUTION OF THE METAL ION BETWEEN THE RESIN AND THE SOLN.,  $\beta C$  SUBM AND  $\beta C$  SUBH ARE THE METAL ION AND H PRIME POSITIVE CONCNS. IN THE RESIN,  $\beta C$  SUBINFINITY IS EXCHANGE CAPACITY OF THE RESIN, C SUBH IS H PRIME POSITIVE CONCNS. IN THE EQUIL. SOLN., AND K IS A SELECTIVITY CONST. TABLES AND GRAPHS DEMONSTRATING THE SATISFACTORY APPLICATION OF THIS FORMULA TO THE EQUIL. BETWEEN THE H AND NA FORMS OF KU-2 WITH ZN, MG, CO, CU, AND CA IONS AND OF THE NA FORM OF KB-4 WITH THE SAME CATIONS ARE GIVEN. FACILITY: INST. KOLLOID. KHIM. KHIM. VODY, KIEV, USSR.

UNCLASSIFIED

1/2 007 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--EFFECT OF BACKGROUND (SODIUM CHLORIDE CONCENTRATION) ON THE EXTENT  
OF EXCHANGE CAPACITY UTILIZATION IN KU-2 AND KB-4 CATION EXCHANGERS -U-  
AUTHOR--(03)-ZAGRAI, YA.M., KOGANOVSKIY, A.M., YEREMENKO, A.G.

COUNTRY OF INFO--USSR

SOURCE--UKR. KHIM. ZH. 1970, 36(2), 161-3

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CATION EXCHANGE RESIN, SODIUM CHLORIDE, ZINC/(U)KUZ ION  
EXCHANGE RESIN, (U)KB4 ION EXCHANGE RESIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1999/1848

STEP NO--UR/0073/70/036/002/0161/0163

CIRC ACCESSION NO--AP0123637

UNCLASSIFIED

2/2 007

UNCLASSIFIED

PROCESSING DATE—23OCT70

CIRC ACCESSION NO--AP0123637

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TABLES AND GRAPHS ARE GIVEN FOR THE EXCHANGE OF ZN PRIME<sup>2</sup> POSITIVE WITH THE NA FORMS OF KU-2 AND KB-4 IN THE PRESENCE OF 0-180 G PER L. NA<sub>2</sub>CO<sub>3</sub>. THE VALUE OF THE LIMITING COEFF. OF DISTRIBUTION FALLS RAPIDLY WITH NA<sub>2</sub>CO<sub>3</sub> CONC. THE LIMITING COEFF. OF SELECTIVITY IS PRACTICALLY CONST. AS IS THE EXCHANGE CAPACITY OF THE RESIN. FACILITY: INST. KOLLOID. KHIM. KHIM. VODY, KIEV, USSR.

UNCLASSIFIED

USSR

UDC 621.791.052:539.433

NIKONOV, I. P., OSTROV, D. D., and YEREMENKO, A. U.

"Vibration Strength of Welded Joints of Transformer Steel"

Moscow, Svarochnoye Proizvodstvo, No 2, Feb 70, pp 27-28

Abstract: A test procedure and results from the vibration testing of welded joints made of transformer steel are presented. It is shown that the presence of a weld does not lower the vibration strength of the sample. In addition to comparing the vibration strength of the basic metal and welded joints, the effect of the silicon content in the steel is also noted. Samples 150 x 20 x 0.5 mm cut with and across the rolling direction were used.

The test results showed that the vibration strength of the welded joints and basic metals depends on the silicon content and on the welding direction of the sheet (the strength across the fiber is greater than along it). Fracture of the samples with a weld always took place in the basic metal near the weld-affected zone. The vibration strength of welded joints made of transformer steel in the case of three-phase arc welding with nonconsumable electrodes in argon in the section including the weld and weld-affected zone is appreciably higher than the vibration strength of the welded steel. The vibration strength of the basic metal and welded joints of transformer steel increases with an increase in silicon content,

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USSR

NIKONOV, I. P., et al., Svarochnoye Proizvodstvo, No 2, Feb 70, pp 27-28

and vice versa. The tests were run so that the samples underwent 360,000 vibrations per hour.

- END -

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CSO: 1842

2/2

USSR

UDC 51

YEREMENKO, B. A., VALOVOY, B. N., YARMILKO, V. G., TAVARTKILADZE, YA. N.,  
GARHARIYA, K. T.

"Control Algorithms for the Diffusion Process of Sugar Beet Production"

V sb. Prom. kibernetika, (Industrial Cybernetics -- collection of works), Kiev,  
1971, pp 256-260 (from RZh-Kibernetika, No 9, Sep 72, Abstract No 9V551)

No Abstract

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USSR

YEREMENKO, I. A.

UDC 539.3

"Approximate Calculation of a Closed Cylindrical Shell"

Tr. Novocherkas. politekhn. in-ta (Works of Novocherkassk Polytechnical Institute),  
1971, No. 232, pp 135-142 (From RZh-Mekhanika, No 3, Mar 72, Abstract No 3V211)

Translation: The calculation of long cylindrical shells of arbitrary closed profile acted on by distributed surface loads of arbitrary form is discussed. At the ends the shell may rest on diaphragms that are flexible from their plane or can be rigidly fastened. The calculation method proposed is a development of a calculation method proposed by V. E. Vlasov for an open circular shell; the hypothesis of straight normals is assumed, the ratio of the thickness of the radius is assumed to be small in comparison with unity and the tangential stresses are considered to be constant over the thickness of the shell. The contour of a transverse section of the shell is considered to be nondeformable in its plane. The error of the solution under these initial hypotheses is analyzed for a particular law of change in the load in a longitudinal direction. V. S. Khar'kov.

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USSR

UDC 542.91:547.416

GAFUROV, R. G., SOGOMONYAN, YE. M., and YEREMENKO, L. T., Institute of Chemical Physics, Academy of Sciences USSR

"Synthesis of Nitroalkyl-N-nitrosoamines"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 11, Nov 71, pp 2606-2608

**Abstract:** The authors studied the N-nitrosation of different Mannich bases -- nitroalkane derivatives -- with nitrous acid and its acid halides. N-Nitrosoamines are obtained by the action of an  $\text{NaNO}_2$  solution in concentrated  $\text{H}_2\text{SO}_4$  on nitroalkylamines. N-Nitrosoamines counter synthesis is effected by the fluorination of the dipotassium salt of 3-nitroso-1,1,5,5-tetranitro-3-azapentane. Nitrosyl fluoride is an excellent N-nitrosating agent towards amines, forming the corresponding N-nitrosoamines. Nitrosyl chloride energetically nitrosates Mannich bases, but does not react with weakly basic amines in nonpolar organic solvents. All the resultant N-nitrosoamines are smoothly converted to N-nitroamines by the action of concentrated nitric acid, but are not oxidized by trifluoroacetic acid. However, N-nitrosoamines are readily converted to N-nitroamines if the reaction medium contains concentrated  $\text{H}_2\text{SO}_4$  along with the trifluoroacetic acid.

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1/2 019

UNCLASSIFIED

PROCESSING DATE--23OCT70

TITLE--NEW REACTION FOR THE PREPARATION OF PEROXIDES OF  
POLYNITROCARBOXYLIC ACIDS -U-

AUTHOR--(03) YEREMENKO, L.T., NATSIBULLIN, F.YA., TROFIMOVA, G.P.

COUNTRY OF INFO--USSR

YEREMENKO, L.T.

Y

SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (3), 630-3

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ORGANIC PEROXIDE, ORGANIC NITRO COMPOUND, CARBOXYLIC ACID,  
FLUORINATED ORGANIC COMPOUND, BROMINATED ORGANIC COMPOUND, CHEMICAL  
SYNTHESIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/0735

STEP NO--UR/0062/70/000/003/0630/0633

CIRC ACCESSION NO--APO124405

UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0124405

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TO 0.1 MOLE POLYNITROCARBOXYLIC  
 ACID IN H SUB2 O WAS ADDED AT 18-20DEGREES 0.055 MOLE 10PERCENT K SUB2  
 CO SUB3 OR KOH AND AFTER 30 MIN THE HOMOGENEOUS SOLN. OF THE K SALT WAS  
 DILD. AND TREATED AT 1-30DEGREES WITH F DILD. WITH N IN 1:30 RATIO. THE  
 DECOLORIZED SOLN. DEPOSITED 69-80PERCENT THE FOLLOWING (RCH SUB2 CH SUB2  
 CO SUB2) SUB2 (R SHOWN): MEC(NO SUB2) SUB2, M. 88.5DEGREES; (O SUB2 N)  
 SUB3 C, M. 114DEGREES; CF(NO SUB2) SUB2, M. 89.5DEGREES; CCL(NO SUB2)  
 SUB2, M. 94DEGREES; AND CBR(NO SUB2) SUB2, M. 69DEGREES. RCO SUB2 F WAS  
 THE LIKELY INTERMEDIATE IN THE REACTION. FACILITY: INST. KHIM.  
 FIZ., MOSCOW, USSR.

UNCLASSIFIED

1/2 011 UNCLASSIFIED PROCESSING DATE--11SEP70  
TITLE--NEW VARIATION FOR WAGNER'S OXIDATION OF UNSATURATED COMPOUNDS -U-  
AUTHOR--YEREMENKO, L.T., KOROLEV, A.M. ~~SECRET~~ Y  
COUNTRY OF INFO--USSR  
SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (1), 147-9  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--ISOMER, OXIDATION, NITRATE ESTER, GLYCEROL  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1987/1070 STEP NO--UR/0062/70/000/001/0147/0149  
CIRC ACCESSION NO--AP0104468  
UNCLASSIFIED

2/2 011

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0104468

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TO 10 G CIS,2,BUTENE,1,4,DIOL  
DINITRATE IN AQ. ME SUB2 CO WAS ADDED AT 15DEGREES OVER 1 HR 8.9 G POWD.  
KMNO SUB4 TO YIELD 80PERCENT MESO,ERYTHRITOL 1,4,DINITRATE, M.  
91-1.5DEGREES. THE TRANS ISOMER SIMILARLY GAVE 77.5PERCENT  
DL,ERYTHRITOL 1,4,DINITRATE, M. 80-1DEGREES, WHILE 1,BUTENE,3,4,DIOL  
DINITRATE GAVE 73PERCENT MIXED ISOMERS OF ERYTHRITOL 1,2, DINITRATE, N  
PRIMEZ SUBDDEGREES 1.4818, WHICH ON KEEPING GAVE DL,ERYTHRITOL  
1,2,DINITRATE (THREO ISOMER), M. 46-7DEGREES, AND THE LIQ.  
MESO,ERYTHRITOL 1,2,DINITRATE (ERYTHRO ISOMER). ALLYL NITRATE OXIDIZED  
AS ABOVE TO 76PERCENT GLYCERYL 1,NITRATE, M. 57-8DEGREES.

UNCLASSIFIED

1/2 019 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--SYNTHESIS OF POLYNITROAZOALKANOLS AND SOME OF THEIR DERIVATIVES -U-  
AUTHOR--(03)-YEREMENKO, L.T., GAFUROV, R.G., KOREPIN, A.G.  
COUNTRY OF INFO--USSR  
SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (2), 445-7  
DATE PUBLISHED--70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--ORGANIC NITRO COMPOUND, AZO COMPOUND, FLUORINATED ORGANIC  
COMPOUND, ORGANIC SYNTHESIS  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--2000/0743 STEP NO--UR/0062/70/000/002/0445/0447  
CIRC ACCESSION NO--AP0124413  
UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0124413

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. KEEPING 12 ML 40PERCENT FORMALIN WITH 17 G 1,FLUORO,1,1,4,TRINITRO,4,AZABUTANE 3 HR AT 40DEGREES AND PH 6-7 (WITH ADDED NA SUB2 CO SUB3), THEN 24 HR AT 15-20DEGREES, GAVE, AFTER ACIDIFICATION TO PH 2-3, 96PERCENT (O SUB2 N) SUB2 CFCH SUB2 CH SUB2 N(ND SUB2)CH SUB2 OH (I), M. 37-8DEGREES. SIMILARLY WAS PREPD. 48PERCENT C(ND SUB2) SUB3 CH SUB2 N(ND SUB2)CH SUB2 OH (II), DECOMP. 75-6DEGREES, AND 95PERCENT (O SUB2 N) SUB3 C(CH SUB2) SUB2 N(ND SUB2)CH SUB2 OH, M. 78-9DEGREES. I AND ACCL-ALCL SUB3 4 HR AT 50DEGREES GAVE 92PERCENT RN(ND SUB2)CH SUB2 CL (R EQUALS CF(ND SUB2) SUB2 CH SUB2 CH SUB2), M. 44-5DEGREES. SIMILARLY WAS PREPD. 92PERCENT OF THE ANALOG WITH R EQUALS FC(ND SUB2) SUB2 CH SUB2, M. 62-3DEGREES; 93PERCENT R EQUALS (O SUB2 N) SUB3 CCH SUB2 CH SUB2 (III), M. 68-9DEGREES; AND 93PERCENT R EQUALS (O SUB2 N) SUB3 CCH SUB2, M. 55-6DEGREES. II KEPT 2 DAYS IN ACCL GAVE 100PERCENT RN(ND SUB2)CH SUB2 OAC (R EQUALS (O SUB2 N) SUB3 CCH SUB2), M. 74-5DEGREES. III IN MECN TREATED WITH AGNO SUB3 0.5 HR GAVE 87PERCENT RN(ND SUB2)CH SUB2 OND SUB2 (R EQUALS (O SUB2 N) SUB3 CCH SUB2 CH SUB2), M. 97-8DEGREES. SIMILARLY WAS PREPD. THE ANALOG WITH R EQUALS (O SUB2 N) SUB3 CCH SUB2, M. 41-2DEGREES. FACILITY: INST. FIZ., MOSCOW, USSR.

UNCLASSIFIED



1/2 026 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--REACTION OF TRINITROMETHANE WITH KETENES -U-  
AUTHOR-(02)-YEREMENKO, L.T., GRIGOS, V.I.  
COUNTRY OF INFO--USSR  
SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (3), 674-5  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--NITROMETHANE, KETONE, IR SPECTRUM, NMR SPECTRUM  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1999/1787 STEP NO--UR/0062/T0/000/003/0674/0675  
CIRC ACCESSION NO--AP0123584  
UNCLASSIFIED

2/2 026

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0123584

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PASSING CH SUB2:CO 2 HR INTO 29.6 G. (O SUB2 N) SUB3 CH IN ET SUB2 O AT 0-5DEGREES GAVE AFTER AN AQ. TREATMENT 34PERCENT RED (O SUB2 N) SUB3 CCME SUB2 QAC, B SUBO.5 3R.8DEGREES, N PRIME20 SUBD 1.4512, D PRIME20 1,3680, ALSO PREPD. IN 23PERCENT YIELD IN ME SUB2 CO UNDER SIMILAR CONDITIONS. TREATING 10 G CH SUB2:CMEOAC WITH 15 G (O SUB2 N) SUB3 CH IN ET SUB2 O WITH A TRACE OF BF SUB3 TIMES ET SUB2 O AND REFLUXING 3 HR GAVE 7.2 SAME PRODUCT, WHOSE IR AND NMR SPECTRAL CURVES WERE SHOWN. FACILITY: INST. KHIM. FIZ., MOSCOW, USSR.

UNCLASSIFIED

1/2 020

UNCLASSIFIED

PROCESSING DATE--23OCT70

TITLE--NITRATION OF PENTAERYTHRITOL BY USING THE NITRIC ACID, SULFURIC ACID, AND WATER SYSTEM -U-

AUTHOR--(04)-YEREMENKO, L.T., PARUSHKOVA, R.P., PORYADKOVA, M.A., STOTSKAYA, N.H.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (1), 134-40

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--PENTAERYTHRITOL, NITRIC ACID, SULFURIC ACID, CHEMICAL KINETICS, NITRATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1984/1670

STEP NO--UR/0062/70/000/001/0134/0140

CIRC ACCESSION NO--AP0100274

UNCLASSIFIED

2/2 020 UNCLASSIFIED PROCESSING DATE--23OCT70  
CIRC ACCESSION NO--AP0100274  
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. KINETIC DATA ON NITRATION OF  
PENTAERYTHRITOL BY AQ. HNO SUB3-H SUB2 SO SUB4 (RESULTS SHOWN  
GRAPHICALLY VARIOUS CONCNS. OF REACTANTS) SHOWED THAT THE O-NITRATION OF  
THE ALC. OCCURS THROUGH REACTION, NOT OF THE NITRONIUM ION, BUT,  
EVIDENTLY, A MOL. OF FREE AND UNIONIZED HNO SUB3.

UNCLASSIFIED

1/2 018 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--SYNTHESIS OF BIS,2,FLUORO,2,2DINITROETHYL,AMINE AND  
TRIS,2,FLUORO,2,2,DINITROETHYL AMINE -U-  
AUTHOR--(04)-GAFUROV, F.G., SVIRIDOV, S.I., NATSIBULLIN, F.YA., YEREMENKO,  
L.T.  
COUNTRY OF INFO--USSR  
SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (2), 383-7  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY, PROPULSION AND FUELS  
TOPIC TAGS--CHEMICAL SYNTHESIS, FLUORINATED ORGANIC COMPOUND, AMINE,  
FLUORONITRO COMPOUND, AMMONIUM SALT, CHEMICAL DECOMPOSITION  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1997/0822 STEP NO--UR/0062/70/000/002/0383/0387  
CIRC ACCESSION NO--AP0119726  
UNCLASSIFIED

2/2 018

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0119726

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ADDING 39.8 G ((O SUB2 N) SUB2 CH SUB2 CH SUB2) NH AS THE DI,K SALT TO 200 G HNO SUB3 (D. 1.5) AND 50 G H SUB2 SO SUB4 (D. 1.84) AT NEGATIVES TO NEGATIVE 10 DEGREES, FOLLOWED AT 0-5 DEGREES BY 850 G H SUB2 SO SUB4, AND KEEPING THE MIXT. 1 HR GAVE A PPT., WHICH AFTER BEING WASHED WITH H SUB2 SO SUB4 OF GRADUALLY DECREASING CONC. (FINALLY 5 PERCENT) YIELDED O SUB2 NN(CH SUB2 CH(NO SUB2) SUB2) SUB2, DECOMP. 100-1 DEGREES, WHICH IN MEQH WITH ALC. KOH 0.5 HR GAVE THE DI,K SALT, DECOMP. 128 DEGREES; DI,NA SALT, PREPD. SIMILARLY, DECOMP. 121 DEGREES; DI,NH SUB4 SALT DECOMP. 99 DEGREES. THE DI,NA SALT IN H SUB2 O TREATED AT 0-5 DEGREES WITH F DILD. WITH 20 PARTS N GAVE 45 PERCENT O SUB2 NN(CH SUB2 CF(NO SUB2) SUB2) SUB2 (I), M. 86 DEGREES. I FORMED FROM THE DI,NH SUB4 SALT IN 40 PERCENT YIELD AND FROM THE DI,K SALT IN 44 PERCENT YIELD. TO 15.4 G CH(NO SUB2) SUB2 CH SUB2 OH IN H SUB2 O WAS ADDED, AT 50 DEGREES OVER 4 HR, 34 ML 5 PERCENT NH SUB4 OH AT PH 7.5-8 TO YIELD NH(CH SUB2 CF(NO SUB2) SUB2) SUB2, M. 42-3 DEGREES, WHICH IN CONCD. H SUB2 SO SUB4 WITH HNO SUB3 (D. 1.5) AT ROOM TEMP. 2 HR GAVE 70 PERCENT I. AW. SOLN. OF ((O SUB2 N) SUB2 CKCH SUB2) SUB2 NCH SUB2 CH(NO SUB2) SUB2 TREATED WITH F,N GAVE 75 PERCENT (CF(NO SUB2) SUB2 CH SUB2) SUB3 N, M. 76 DEGREES. FACILITY: INST. KHIM. FIZ., MOSCOW, USSR.

UNCLASSIFIED

Genetics

USSR

KONONOVA, S. D., KOROLEV, A. M., YEREMENKO, L. T., and GUMANOV, L. L.,  
Institute of Chemical Physics, Academy of Sciences USSR

"Mutagenic Effects of Primary Alkyl Nitrates"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Biologicheskaya, No 5, Sep/Oct  
71, pp 762-763

Abstract: The mutagenic effects of methyl nitrate, ethyl nitrate, propyl nitrate, and butyl nitrate on the bacteriophage T4B *E. coli* were investigated by keeping the bacteriophage in 0.084 M solutions of the alkyl nitrates with a 0.2 M carbonate buffer at 27°C for up to 48 hours under constant stirring. The results were expressed as the number of r-mutations observed per 1,000 plaques. After 24 hours of exposure, the number of mutations was 5.6 in methyl nitrate, 0.4 in ethyl nitrate, 0.06 in propyl nitrate, 0.1 in butyl nitrate, and 0.1 in control tests. After 48 hours of exposure, methyl nitrate induced 14.5 mutations, thus considerably exceeding the mutagenic effect of N-nitroso-N-methylurea. The relative rates with which methyl, ethyl, and propyl nitrates entered nucleophilic reactions were calculated to be 9.1:1:0.1. It is concluded that these substances induce mutations by alkylating DNA molecules. The mutagenic effect decreases with increasing size of the alkyl in the alkyl nitrate, because the induced

USSR

KONONOVA, S. D., et al., Izvestiya Akademii Nauk SSSR, Seriya Biologicheskaya,  
No 5, Sep/Oct 71, pp 762-763

negative charge on the alpha carbon atom increases, preventing the radical  
from approaching the nucleophilic reagent.

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1/3 018 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--SYNTHESIS OF PRIMARY N,FLUORODINITROALKYL N,NITRAMINES -U-  
AUTHOR-(03)-GAFUROV, R.G., KOREPIN, A.G., YEREMENKO, I.T.  
COUNTRY OF INFO--USSR  
SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (2), 442-3  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--CHEMICAL SYNTHESIS, FLUORINATED ORGANIC COMPOUND, AMINE,  
FLUORONITRO COMPOUND, CHEMICAL DECOMPOSITION  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1997/0848 STEP NO--UR/0062/70/000/002/0442/0443  
CIRC ACCESSION NO--AP0119752  
UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--30OCT70

2/3 018

CIRC ACCESSION NO--AP0119752

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

ABSTRACT. ADDG. SLOWLY 7.5 ML HNO SUB3 (D. 1.51) TO 2.1 G FC(NO SUB2) SUB2 (CH SUB2) SUB2 NHAC IN AC SUB2 O AT 0DEGREES AND KEEPING 5 HR AT 15DEGREES GAVE 76PERCENT FC(NO SUB2) SUB2 (CH SUB2) SUB2 N (NO SUB2) AC (IA), M. 63-4PERCENT. KI AND (O SUB2 N) SUB3 CCH SUB2 NHAC IN 12 HR IN 85PERCENT MEQH GAVE 97PERCENT ACNHCH SUB2 (NO SUB2) SUB2 K (I), DECOMP. 226DEGREES, WHICH, SUSPENDED IN H SUB2 O AT 0DEGREES AND TREATED 3 HR WITH 1:45F, N, GAVE 92.8PERCENT FC(NO SUB2) SUB2 NEGATIVE CH SUB2 NHAC (II), M. 57-8DEGREES, WHILE REACTION OF THE K SALT WITH AQ. H SUB2 SO SUB4 AT PH 2 AT 0DEGREES GAVE HC (NO SUB2) SUB2 CH SUB2 NHAC (III). M. 58-9DEGREES. I AND BR, CH SUB2 CL SUB2 GAVE KBR AND 100DEGREES BRC (NO SUB2) SUB2 CH SUB2 NHAC, M. 111-12DEGREES. NITRATION IN AC SUB2 O OF II GAVE IN 10 HR 46PERCENT FC (NO SUB2) 2 NEGATIVE CH SUB2 N (NO SUB2) AC, M. 36.5-7.5DEGREES. SIMILARLY, III GAVE 45PERCENT HC (NO SUB2) SUB2 CH SUB2 N (NO SUB2) AC, M. 73-4DEGREES. IA AND 12PERCENT NH SUB4 OH AT 0DEGREES UNTIL DISSOLVED, THEN TREATED WITH HCl TO PH 3 GAVE 96PERCENT RNHNO SUB2 (R EQUALS CF (NO SUB2) SUB2 (CH SUB2) SUB2), M. 56-7DEGREES. SIMILARLY WAS PREPD. 62PERCENT FC (NO SUB2) SUB2 CH SUB2 ANALOG, DECOMP. 30DEGREES, WHICH WAS UNSTABLE IN STORAGE. THE LATTER KEPT WITH 27PERCENT FORMALIN 6 HR AT 0-5DEGREES GAVE 82PERCENT 1,FLUORO,1,1,3,TRINITRO,3,AZA,4,BUTANOL, M. 56-7DEGREES.

UNCLASSIFIED

3/3 018

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0119752

ABSTRACT/EXTRACT--THUS, IF THE R GROUP IN RNHAC HAS A STRONG I EFFECT, THE DEGREE OF AMMONIZATION OF THE N ATOM BECOMES HIGH ENOUGH TO LOWER ITS REACTIVITY WITH ELECTROPHILIC AGENTS, WHILE INTRODUCTION OF F INTO THE ADJACENT POSITION LOWERS THE I EFFECT OF R, MAKING POSSIBLE N, NITRATION.

FACILITY: INST. KHIM. FIZ., MOSCOW, USSR.

UNCLASSIFIED

1/2 007 UNCLASSIFIED PROCESSING DATE--16OCT70  
TITLE--PLATINUM MONOCARBONYL -L-  
AUTHOR--(03)-RACHKOVSKAYA, L.N., YEREMENKO, N.K., MATVEYEV, K.I.  
COUNTRY OF INFO--USSR  
SOURCE--DOKL. AKAD. NAUK SSSR 1970, 190(6), 1396-8  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--PLATINUM COMPOUND, CARBONYL COMPOUND, CHLORINE, COMPLEX  
COMPOUND  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1995/1592 STEP NO--UR/0020/70/190/006/1396/1398  
CIRC ACCESSION NO--AT0117000  
UNCLASSIFIED

2/2 007

CIRC ACCESSION NO--AT0117000

UNCLASSIFIED

PROCESSING DATE--16OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PT MONOCARBONYL IS PREPD. IN THE SOLID STATE AND ITS COMPN. AND PROPERTIES ARE STUDIED BY MEANS OF IR ANAL. THE COMPN. OF THE COMPD. IS  $PT(CO)(HCL) SUB2$ . IN SOLN. THIS COMPD. ADDS A 3RD MOL. OF HCL AND IS CONVERTED TO THE ACID  $HPTCO(HCL) SUB2 CL$ . THE CL NEGATIVE IN THE COMPLEX ARE NOT EQUIV. AND THE H HAVE A HYDRIDE CHARACTER.

FACILITY: INST. KATAL., NOVOSIBIRSK, USSR.

UNCLASSIFIED

USSR

UDC 632.95.028

SLESAREV, V. N., and YEREMENKO, N. S., Western Kazakhstan Agricultural Institute

"Aftereffects of Various Doses of Simazine Under the Conditions of Western Kazakhstan"

Moscow, Khimiya v Sel'skom Khozyaystve, No 9, 1971, pp 53-55

Abstract: The results of experiments performed in 1966-1969 on the Frunzen-skoye experimental farm of the Western Kazakhstan Agricultural Institute (Ural Oblast) to determine the aftereffects of various doses of simazine are reported. The soil in the test area was dark chestnut, clay loamy with a humus accumulative horizon of 35-40 cm and a humus content of 2.77%. The aftereffects of simazine applied to millet, corn and spring wheat were studied in the presence of weeds calculated to reduce the spring wheat harvest by 16%, the barley harvest by 13%, the millet harvest by 58% and the corn harvest by 73% without the application of herbicides.

Under the given conditions, simazine in doses of 2, 3 and 4 kg/hectare kills weeds for 2 to 3 years. In increased amounts, perennial weeds were killed even in the fourth year after injection. The greatest increase in millet  
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USSR

SLESAREV, V. N., and YEREMENKO, N. S., *Khimiya v Sel'skom Khozyaystve*, No 9, 1971, pp 53-55

grain harvest was obtained with doses of 3 and 4 kg/hectare. The corn fields were most responsive to being cleared of weeds by simazine. When applying simazine in the amount of 1 kg/hectare, the corn yield increased by 21.8% by comparison with the control, and when applying 4 kg/hectare, by 97.6%. The spring wheat sown as an indicator in the third year suffered noticeably from the simazine. No noticeable effect on the wheat was observed in the fourth year, but weeds were still killed.

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- 65 -

USSR

UDC 621.314.58(083.8)

YEREMENKO, V.G. [Mosk. enorg. in-t--Moscow Power Institute]

"Frequency Converter With Direct Coupling And Artificial Switching"

USSR Author's Certificate No 269287, filed 21 Jan 69, published 16 July 70  
(From RZh--Elektronika i yeye primeneniye, No 3, March 1971, Abstract No 38576P)

Translation: A device for artificial [iskusstvennyy] switching contains commutating capacitors located between two harmoniously connected thyristor rectifier bridges, one of which is connected to the input of the frequency converter and the other to the output. It is proposed to connect a thyristor in parallel with the first bridge, and a choke coil in parallel with the second. A variant circuit is presented with bridges using semiconductor diodes and two thyristors in the circuits of the commutating capacitors. 2 ill. A.S.

1/1



Thermomechanical Treatment

USSR

KIDIN, I. N., LIZUNOV, V. I., BELYAVSKAYA, V. M., and YEREMENKO, V. I., Moscow Institute of Steel and Alloys

"Study of the Mechanism of Hardening of Wire by Electrothermomechanical Treatment"

Moscow, IVUZ Chernaya Metallurgiya, No 3, 1971, pp 129-132.

Abstract: The influence of electrothermal and electrothermomechanical treatment on the structure and properties of wire made of type 60 steel was studied. The electrothermomechanical treatment was found to produce a higher tensile strength (130 kg/mm<sup>2</sup>) while retaining a high level of ductility. Electrothermal treatment produced a tensile strength of 126 kg/mm<sup>2</sup>, while ordinary patenting resulted in a strength of 117 kg/mm<sup>2</sup>. Electrothermal and electrothermomechanical treatment significantly improve the structure.

1/1

USSR

UDC 621.396.961

BELENKIY, Ya. Ye., YEREMENKO, V. K., SPEKTOR, Yu. I.

"Error in Determining the Velocity Vector of Moving Objects in the Case of Two-Point Direction Finding by the Doppler Effect"

Otbor i peredacha inform. Resp. mezhved. sb. (Information Sorting and Transmission. Republic Interdepartmental Collection), 1970, vyp. 24, pp 130-125 (from RZh-Radiotekhnika, No 8, Aug 70, Abstract No 8G6)

Translation: This article contains an investigation of the problem of calculating the error in determination of velocity by the Doppler effect in the case of two-point direction finding with respect to a target. It is demonstrated graphically that when determining the velocity with a given error, doubling the measurement error of the angular coordinate leads to a sharp decrease in the region in which the radiated target is located. There are three illustrations and a two-entry bibliography.

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USSR

UDC 669.295.5'23

YENEMENKO, V. N. and SHTEPA, T. D., Institute of Problems of Material Science, Academy of Sciences Ukrainian SSR

"Phase Diagram of Titanium-Palladium Systems"

Kiev, Poroshkovaya metallurgiya, No 3, 1972, pp 75-81

Abstract: The inconsistency of earlier versions of the phase diagram for titanium-palladium systems with their x-ray data prompted the plotting of a new phase diagram as well as a detailed study of alloys of this system involving metallographic, x-ray diffraction, and differential thermal analyses. According to the new phase diagram, titanium is shown to form with palladium intermediate phases based on  $Ti_4Pd$ ,  $Ti_2Pd$ ,  $TiPd$ ,  $Ti_2Pd_3$ ,  $TiPd_2$ , and  $TiPd_3$  compounds. In contrast to other reference data, it is shown that the  $Ti_4Pd$  phase is formed at about 600°C;  $Ti_2Pd$  appears as a result of the ordering of the beta-solid solution; the phase  $TiPd$  has a congruent melting point and  $TiPd_2$  is formed by the peritectic reaction at 1400°C. (3 illustrations, 2 tables, 12 bibliographic references)

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USSR

YEREMENKO, V. N., Editor in Chief

Fizicheskaya Khimiya Poverkhnostnykh Yavleniy v rasplavakh (Physical Chemistry of Surface Phenomena in Melts), Kiev, "Naukova dumka" Press, 1971, 296 p., illustrations, tables, bibliographic references

Translation of Annotation: The book is a collection of articles on recent research results on the theory of surface phenomena in melts, the development of experimental methods for studying free surface energy, wetting and the kinetics of spreading. Included are new and reliable experimental data on free surface energy and the temperature coefficient of surface energy of pure metals, as well as data on two- and multicomponent melts, metals, silicates, oxides, and salts at high temperatures. The role of surface phenomena in technological processes of powder metallurgy, electrometallurgy, and other related sectors is discussed. The collection is intended for engineering and technical personnel and instructors of higher educational institutions.

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USSR

YEREMENKO, V. N., Fizicheskaya khimiya poverkhnostnykh yavleniy v rasplavakh, Kiev, "Naukova dumka" Press, 1971.

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## USSR

YEREMENKO, V. N., Fizicheskaya khimiya poverkhnostnykh yavleniy v rasplavakh, Kiev, "Naukova dumka" Press, 1971.

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## USSR

- YEREMENKO, V. N., Fizicheskaya khimiya poverkhnostnykh yavleniy v rasplavakh, Kiev, "Naukova dumka" Press, 1971.
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USSR

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A. I. Sotnikov, A. A. Plyshevskiy, O. A. Yesin and L. N. Barmin. Capacity of the Double Layer at the Oxide Melt Boundary With Liquid Ferrosilicium and Ferrophosphorus

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UDC 669.28.051

USSR

YEREMENKO, V. N., LISTOVNICHIIY, V. YE., OPALOVSKIY, A. A., and FEDOROV, V. YE.

"Physicochemical Investigation of the System Molybdenum-Sulfur"

V sb. Khal'kogenidy (Chalcogenides--collection of works), Vyp 2, Kiev,  
"Naukova Dumka", 1970, pp 92-97 (from RZH-Metallurgiya, No 11, Nov 70,  
Abstract No 11G181)

Translation: A physicochemical investigation is conducted of the system Mo-S by the methods of thermography, radiography, metallography, dilatometry, and resistometry. It is established that in the region of concentration up to 26 wt. % S, a two-phase field of crystallization of Mo + Mo<sub>2</sub>S<sub>3</sub> with a 1540° temperature of the "solidus" line is realized. 2 ill., 2 tables.

S. Krivonosova

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UDC 621.791.011.543.621.546.72

USSR

YEREMENKO, V. N., LESNIK, N. D., and NATANZON, YA. V., Institute of Problems of Material Science, Academy of Sciences UkrSSR, and Ryabov, V. R., Institute of Electric Welding imeni YE. O. Paton, Academy of Sciences

"Interaction of Aluminum With Iron Suitable for Welding Conditions"

Kiev, Avtomaticheskaya Svarka, No 4, Apr 71, pp 14-16

Abstract: A general-purpose model for welding of dissimilar metals, developed by the Institute of Metallurgy imeni A. A. Baykov, proposes two stages: formation of contact between the adjacent surfaces and formation of a strong metallic bond between the metals being joined. The authors undertook solving of the problem of welding steel with aluminum alloys considering the interaction of iron and molten aluminum. In this study the first step was spreading of molten aluminum on the iron surface; the second step involved formation of a substrate of intermetallic phases at the iron-aluminum interface; in the third step there occurred dissolution of these phases in the melt of aluminum. Kinetics of molten aluminum wetting on the iron surface was studied and the ratio of growth rates and dissolution of boundary phases was determined. In all cases for the dissolution of iron in molten aluminum a substrate of intermetallides was observed composed for  $0(\text{FeAl}_2)$ - and  $n(\text{Fe}_2\text{Al}_5)$ -phases. It was concluded that it is impossible to weld iron with aluminum without the formation of intermetallic substrates.

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UDC 621.721.541.121

USSR

YEREMENKO, V. N. and VELIKANOVA, T. YA., Institute of Problems of Material Science, Academy of Sciences Ukrainian SSR

"Phase Equilibria in the Molybdenum-Titanium Carbide-Titanium Region of the Ternary System Molybdenum-Titanium-Carbon. Communication 2"

Kiev, Poroshkovaya Metallurgiya, No 9, Sep 70, pp 57-61

Abstract: Use has been made of metallography and x-ray phase analysis of hardened alloys to study phase equilibria at 1400°C in the Mo-Ti-C system. It is shown that the direction of conoids in the two-phase ( $\delta+\beta$ ) region which is formed by cubic carbide and metallic solid solutions is parallel to the quasi-binary Mo-TiC section of the Mo-Ti-C ternary system over a wide range of compositions of carbide and metallic phases and does not depend on temperature (from the solidus surface). The distribution coefficient of components in the  $\delta+\beta$  two-phase region at the solidus surface ( $K=34\pm 8$ ) within 20 to 58 at.% of titanium contents along the section of 20 at.% has

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USSR

YEREMENKO, V. N., and VELIKANOVA, T. YA., Poroshkovaya Metallur-  
giya, No 9, Sep 70, pp 57-61

been calculated. Polythermal sections of the Mo-TiC-Ti system with 20 and 30 at.% C have been plotted. It was found that the boundary of the homogeneity region of the  $\delta$ -phase in the Mo-TiC section over the 1700°C region lies at 46 at.% Ti and 46 at.% C; the boundary of the homogeneity region in the 1400°C is at 46.5 at.% Ti and 46.5 at.% C.

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Titanium

UDC: 669.295.5'232

USSR

YEREMENKO, V. N., and SHEPA, T. D., Kiev

"Phase Diagram of the Titanium-Iridium System"

Moscow, Izvestiya Akademii Nauk SSSR, Metally, no 6, Nov-Dec 70, pp 198-203

Abstract: The experimental homogeneous alloys (47 formulations over the entire range of concentrations) were made from titanium iodide and pure iridium powder. The alloys were studied by metallography, x-ray diffraction, and differential thermal analyses. Measurements were made of the temperatures of the beginning of melting as well as of the phase micro-hardness of the alloys. The obtained data were used as a basis for plotting the phase diagram of the Ti-Ir system showing solidus temperatures, single-phase alloys, two-phase alloys,  $\beta$ -phase transformations, on quenching, and thermal analysis. It has been shown that the phase with a CsCl-like structure, which was revealed in alloys with 30-40 at.% Ir and was found to be stable down to room temperature, is a high-temperature modification of a Ti-Ir-base phase stabilized with an excess content of titanium.

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UDC: 621.791.856.3.011

USSR

RABKIN, D. M., and RYABOV, V. R.; Institute of Electric Welding imeni Ye O. Paton, Academy of Sciences Ukrainian SSR; YEREMENKO, V. N., LESNIK, H. D., and PESTUN, T. S.; Institute of Problems of Material Science, Academy of Sciences Ukrainian SSR

"Surface Phenomena in Welding Aluminum Directly to Armco Iron"

Kiev, Avtomaticheskaya Svarka, No 11, Nov 70, pp 20-23

Abstract: The behavior of liquid aluminum with respect to solid iron is of great theoretical interest for a number of metallurgical processes. This study concerns the effect of temperature-time conditions on the spreading of aluminum over iron and the intermetallide phases  $Fe_3Al$ ,  $Fe_2Al_5$ ,  $FeAl_3$ . The kinetics of spreading was analyzed in vacuum ( $1-3 \cdot 10^{-5}$  mm Hg at maximum temperatures of the experiment) using filming and telescopic lens photography for recording the process. Use was made of AV-000 (99.99% Al) and armco iron. Considered were the possible mechanism for contact interaction of liquid aluminum with iron and the conditions for producing welded joints of

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USSR

RABKIN, D. M., et al, Avtomaticheskaya Svarka, No 11, Nov 70, pp 20-23

iron with aluminum with a minimum interlayer of brittle intermediate phases. Wetting was found to improve with temperature. Quality welding of armco iron with aluminum is achieved by minimum contacting time of iron with its melts and high dissolution rate of iron in aluminum.

USSR

UDC 621.762.5.001

YEREMENKO. V. N.

"Surface Phenomena and Their Role in the Process of Liquid Phase Sintering and Soaking of Porous Bodies With Liquid Metals"

Sovrem. probl. poroshk. metallurgii [Modern Problems of Powder Metallurgy -- collection of works], Kiev, Nauk. dumka Press, 1970, pp 101-121, (Translated from Referativnyy Zhurnal-Metallurgiya, No. 1, 1971, Abstract No.1 G423 by the author).

Translation: The processes occurring during sintering in the presence of the liquid phase are analyzed. The regularities involved in the change of capillary forces for particles of various form are studied. A theoretical analysis is presented of the conditions of spontaneous penetration of the solid by a liquid, the kinetics of the process, and also solution of a number of technological problems on the basis of the regularities produced. 14 figures; 3 tables; 36 biblio. refs.

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USSR

~~YEREMENKO, V. N.~~, ~~BUYANOV, YU. I.~~, and PANCHENKO, N. M., Institute for Problems of Material Science, Academy of Sciences Ukrainian SSR

"Structure of Polythermal and Isothermal Sections of the System Titanium--Copper--Silver; Report 2"

Kiev, Poroshkovaya Metallurgiya, No 5, May 70, pp 73-78

Abstract: Thermal and x-ray phase analyses were conducted of the structure of three polythermal sections of the phase diagram of the titanium -- copper -- silver system: at 5 at% Ag, at 60 at% Ag, and the radial section TiAg (Eta) -- Cu. Based on the structure of the polythermal sections and liquidus surface, isothermal sections were plotted of the titanium -- copper -- silver system at 1300, 1005, 960, and 900°C. The scheme of processes occurring in the titanium -- copper -- silver ternary system and its binary systems is given. Data on the structure and some phase properties of the titanium -- copper and titanium -- silver systems are presented in a table. The phase diagram of the copper -- silver system is related to the simple eutectic type with limited solubility of the components in the solid state. The scheme of monovariant and nonvariant equilibria for the titanium -- copper -- silver system is presented. The temperatures of nonvariant conversions were defined more precisely, and it was shown that the phase  $Ti_2Cu_3$  (Eta) forms

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YEREMENKO, V. N., et al., Poroshkovaya Metallurgiya, No 5, May 70, pp 73-78

at 890°C according to the peritectic reaction  $L + \text{Ti}_3\text{Cu}_4$  (Epsilon)  $\rightleftharpoons$   $\text{Ti}_2\text{Cu}_3$  (Theta) and decomposes at about 800°C according to the eutectoid reaction  $\text{Ti}_2\text{Cu}_3$  (Theta)  $\rightleftharpoons$   $\text{Ti}_3\text{Cu}_4$  (Epsilon) +  $\text{TiCu}_4$  (Xi).

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UNCLASSIFIED

PROCESSING DATE--18SEP70

1/2 025

TITLE--UPPER LIMIT OF THE HOMOGENEITY REGION OF (Ti, MO) AND C SUB1 MINUS X SOLID SOLUTIONS -U-

AUTHOR--(03)-YEREMENKO, V.N., VELIKANOVA, T.YA., SHABANOVA, S.V.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, NEORG. MATER. 1970, 6(1) 6-10

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TOPIC TAGS--SOLID SOLUTION, MOLYBDENUM COMPOUND, TITANIUM COMPOUND, CARBIDE, GRAPHITE

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CTRC ACCESSION NO--AP0054945  
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THE UPPER LIMIT OF THE HOMOGENEITY REGION OF (TI, MO) C SUB1 MINUS X SOLID SOLNS. IN THE MO,TI,C SYSTEM WAS DETD. ALLOYS WERE INVESTIGATED, THE COMPS. OF WHICH FALL INTO THE COEXISTENCE REGION OF GRAPHITE AND THE CARBIDE PHASES AND IN THE MOC SUBO.SUB64 MINUS TIC SECTION OF THE PHASE DIAGRAM. THE ALLOYS TO BE STUDIED WERE PREPD. BY ARC MELTING IN A PROTECTIVE AR ATM. AND WERE ANNEALED IN VACUO IN GRAPHITE CONTAINERS. THE INITIAL MATERIALS WERE 99.7PERCENT MO POWDER, TIC (CONTG. 18.7PERCENT COMBINED C AND 0.4PERCENT FREE C), AND SPECTRALLY PURE GRAPHITE. X RAY PHASE, MICROSCOPIC, AND CHEM. ANAL. METHODS WERE USED. THE PHASE COMPN. OF THE ALLOYS AT THE SURFACE OF THE SOLY. OF C IN CARBIDE PHASES OF THE MO,TI,C SYSTEM WAS INVESTIGATED. BY EXTRAPOLATING THE CONC. DEPENDENCE OF THE LATTICE PARAMETERS OF THE CUBIC SOLID SOLNS. (TI,MO) C SUB1 MINUSX TO 0PERCENT TI, THE VALUE FOR THE LATTICE PARAMETERS OF THE CUBIC ALPHA-MINUS MOC SUB1 MINUSX WAS 4.266 KX AT 40 AT. PERCENTC, AND 4.243 KX AT 38 AT. PERCENTC.

UNCLASSIFIED

1/2 026 UNCLASSIFIED PROCESSING DATE--18SEP70  
TITLE--LOW TEMPERATURE MODIFICATION OF THE LOWER MOLYBDENUM CARBIDE -U-  
AUTHOR--(04)-YEREMENKO, V.N., VELIKANOVA, T.YA., LISTOVNICKIY, V.YE.,  
KOMAROVA, S.A.  
COUNTRY OF INFO--USSR  
SOURCE--IZV. AKAD. NAUK SSSR, NEORG. MATER. 1970, 6(1), 11-14  
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TOPIC TAGS--MOLYBDENUM COMPOUND, CARBIDE, X RAY DIFFRACTION, CRYSTAL  
STRUCTURE, THERMAL EFFECT, ELECTRIC RESISTIVITY, THERMOGRAPHIC ANALYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
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PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0054947

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THERMOGRAPHIC AND X RAY DIFFRACTION METHODS WERE USED. DURING X RAY DIFFRACTION INVESTIGATION OF MO-C ALLOYS, CAST AND ANNEALED IS GREATER THAN 1200DEGREES (WITH C CONTENT 12.538 AT. PERCENT AT IS LESS THAN 1634DEGREES AND UP TO 50 AT. PERCENT C AT LOWER TEMPS.), ONLY THE PSEUDOHXAGONAL LATTICE WAS OBSD. FOR THE MO SUBC-BASED PHASE, WITH THE PARAMETERS: ALPHA EQUALS 2.993, C EQUALS 4.739 KX, AND C-A EQUALS 1.58 (AT 31 AT. PERCENT C); AND ALPHA EQUALS 3.015, C EQUALS 4.739 KX, AND C-A EQUALS 1.57 (AT 33.75 AT PERCENT C). A PHASE TRANSITION WAS OBSD. AT 1170 PLUS OR MINUS 13DEGREES IN THE LOWER MO CARBIDE MO SUB2 C, ACCOMPANIED BY AN EXOTHERMAL EFFECT (DURING COOLING) WITH A SIGNIFICANT TEMP. HYSTERESIS. A DECREASE IN THE SYMMETRY OF THE CRYST. LATTICE, I.E. RHOMBOHEDRAL DISTORTION OF THE ORTHORHOMBIC MO SUB2 C STRUCTURE, IS OBSD. THE MO CARBIDES STUDIED HAD THE COMPNS. OF MOC SUB0.48 AND MOC SUB0.51, RESP. EXPTS. WERE PERFORMED RELATIVE TO THE MEASUREMENT OF SP. ELEC. RESISTIVITY OF MOC SUB0.48 AS DEPENDENT ON THE QUENCHING TEMP. WITHIN THE TRANSITION TEMP. RANGE. THE ELEC. RESISTIVITY OF THE ALLOY QUENCHED FROM 1400DEGREES DOES NOT DIFFER FROM THE ELEC. RESISTIVITY OF THE CAST ALLOY. WITH DECREASED QUENCHING TEMP. THE ELEC. RESISTIVITY DECREASES TO 1050DEGREES, WHERE UPON IT REMAINS UNCHANGED. THE DEPENDENCE OF THE P VALUE ON THE QUENCHING TEMP. OF THE SAMPLE CAN BE ASSOCD. WITH THE CHANGE IN ITS CRYST. STRUCTURE. AN-ADDNL. THERMAL EFFECT WAS OBSD. AT 1634DEGREES.

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 TITLE--MECHANISMS OF ERBIUM THERMAL CONDUCTIVITY --U-  
 AUTHOR--(03)-NIKOLSKIY, G.S., ZVYAGINA, N.M., YEREMENKO, V.V.  
 COUNTRY OF INFO--USSR  
 SOURCE--FIZ. TVERD. TELA 1970, 12(4), 1275-7  
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 TOPIC TAGS--ERBIUM ALLOY, THERMAL CONDUCTIVITY, MAGNETIC FIELD, RARE EARTH METAL, YTTRIUM ALLOY, MAGNETORESISTANCE, CURIE POINT, SPIN WAVE SPECTRUM, MAGNETIC STRUCTURE  
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PROCESSING DATE--20NDV70

CIRC ACCESSION NO--A0126229

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE BEHAVIOR OF THERMAL RESISTIVITY OF ER IN A MAGNETIC FIELD IN THE NEIGHBORHOOD OF THE CURIE POINT WAS INVESTIGATED. ISOTHERMS ARE GIVEN OF THE MAGNETORESISTANCE EFFECT IN ER. THE EFFECT OF A MAGNETIC FIELD ON ELEC. RESISTANCE IN GENERAL AFFECTS THE CONDUCTION ELECTRON DOMAIN BOUNDARIES, AND THE ENERGY SPECTRA OF CONDUCTION ELECTRONS AND SPIN WAVES. THE EFFECT OF A MAGNETIC FIELD ON THE ENERGY SPECTRA OF CONDUCTION ELECTRONS CAN BE REALIZED BY MEANS OF THE ACTION OF THE MAGNETIC STRUCTURE AND PRIMARILY ON ITS PERIODICITY. THE EFFECT OF THE MAGNETIC FIELD IS IMPORTANT ONLY ON THE SPIN WAVE SPECTRUM. SPLITTING OF THIS SPECTRUM DUE TO STRONG ANISOTROPY IS SUFFICIENTLY LARGE TO PREVENT EXCITATION OF THE SPIN WAVES AT LOW TEMPS. WITH THE TRANSITION INTO THE ANTIFERROMAGNETIC STATE, THE SPECTRUM OF THE SPIN WAVES CHANGES IN SUCH A WAY THAT A BRANCH APPEARS WHICH DESCRIBES VIBRATIONS OF MAGNETIC MOMENTS, THE FREQUENCIES OF WHICH ARE LOWERED IN A MAGNETIC FIELD. THE CURVES ARE ALSO GIVEN OF THE CONC. DEPENDENCE OF ELEC. AND THERMAL RESISTANCES OF ER-Y ALLOYS.

FACILITY: FIZ.-TEKH. INST. NIZKIKH TEMP., KHARKOV, USSR.

UNCLASSIFIED

Acc. Nr: **AP0043591**

Ref. Code: UR 0056

PRIMARY SOURCE: Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, 1970, Vol 58, Nr 3, pp 800-809

**FINE STRUCTURE OF EXCITON-MAGNON ABSORPTION OF LIGHT IN  $KMnF_3$**

**Belyayeva, A. I.; Yeremenko, V. V.; Beznosikov, B. V.**

Some peculiarities of the structure of pure exciton and exciton-magnon light absorption bands in the region of the  ${}^6A_{1g}({}^6S) \rightarrow {}^6A_{1g}{}^6E_g({}^6G)$  transition in weakly ferromagnetic  $KMnF_3$  are observed and analyzed. It is shown that splitting of pure exciton lines and variation of the magnon frequencies at points  $W$  and  $U$  in the Brillouin zone make an additive contribution to the change of the exciton-magnon absorption band in a magnetic field. This may be regarded as a proof of weakness of exciton-magnon interaction for the  ${}^6A_{1g}({}^6S) \rightarrow {}^6A_{1g}{}^6E_g({}^6G)$  transition in  $KMnF_3$ . The conclusions are valid for a similar transition in  $RbMnF_3$ .

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19762063

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1/2 006 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--IDENTIFICATION OF PSEUDOMONAS SP. AND THE EFFECT OF GROWTH  
CONDITIONS ON ASPARTASE AND GLUTAMINASE ACTIVITY -U-  
AUTHOR--(03)-MARDASHEV, S.R., YEREMENKO, V.V., NIKOLAYEV, A.YA.  
COUNTRY OF INFO--USSR  
SOURCE--MIKROBIOLOGIYA, 1970, VOL 39, NR 1, PP 11-17  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--PSEUDOMONAS, ENZYME ACTIVITY  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FKAME--1990/1414 STEP NO--UR/0220/70/039/001/0011/0017  
CIRC. ACCESSION NO--AP0109476  
UNCLASSIFIED

2/2 006

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0109476

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE BACTERIAL CULTURE WITH ASPARTASE AND GLUTAMINASE ACTIVITY WAS IDENTIFIED AS PSEUDOMONAS FLUORESCENS AG. PRODUCTION OF BOTH ENZYMES WAS INDUCED BY ASPARAGINE IN MEDIA WITH GLYCEROL, GLUCOSE, ACETATE, PYRUVATE, CITRATE, SUCCINATE, FUMARATE, MALATE AND MALONATE AS SOLE CARBON AND ENERGY SOURCES AS WELL AS IN MEDIA WITH PEPTONE, UREA AND AMMONIUM AS SOLE NITROGEN SOURCES BUT WAS NOT INDUCED IN MEDIA WITH NITRATE AND ACID CASEINE HYDROLYSATE. OPTIMAL PH FOR ASPARTASE PRODUCTION WAS 7.0 AND FOR GLUTAMINASE PRODUCTION, 7.5. BOTH ENZYMES WERE INDUCED AT PLUS 20DEGREES, PLUS 25DEGREES AND PLUS 30DEGREES.

UNCLASSIFIED

1/2 019 UNCLASSIFIED PROCESSING DATE--18SEPT0  
TITLE--FLOPPING OF MAGNETIC SUBLATTICES OF UNIAXIALLY COMPRESSED MANGANESE  
FLUORIDE -U-  
AUTHOR--(03)-DUDKO, K.L., YEREMENKO, V.V., FRIDMAN, V.M.  
COUNTRY OF INFO--USSR  
SOURCE--FIZ. TVERD. TELA 1970, 12(11), 83-8  
DATE PUBLISHED-----70  
SUBJECT AREAS--MATERIALS, PHYSICS  
TOPIC TAGS--ANTIFERROMAGNETIC MATERIAL, FLUORIDE, MANGANESE COMPOUND,  
CRYSTAL LATTICE STRUCTURE, MAGNETOSTRICTION  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1980/0232 STEP NO--UR/0181/70/012/001/0033/0038  
CIRC ACCESSION NO--AP0048511  
UNCLASSIFIED

272 019

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0048511

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT WAS STUDIED OF UNIAXIAL COMPRESSION ON THE CRIT. FIELD OF FLOPPING OF MAGNETIC SUBLATTICES OF ANTIFERROMAGNETIC MNF SUB2 AT 4.2DEGREE SK. THE METHOD USED MAKES IT POSSIBLE TO ESTABLISH AN EXTERNAL PULSED MAGNETIC FIELD ALONG THE AXIS OF SYMMETRY OF THE CRYSTAL WITH AN ACCURACY OF ANGLE LESS THAN OR EQUAL TO 5 PRIME OF ARC AND TO CARRY OUT A COMPARATIVE INVESTIGATION OF H SUBC ON COMPRESSED AND FREE SPECIMENS. THE MIN. WIDTH OF THE REGION OF TRANSITION CLOSE TO H SUBC EQUALS 91.7 KOE IS SIMILAR TO 300 OE AND IS DOUBLED AT ANGLE IS CONGRUENT TO 20 PRIME. IN UNIAXIAL COMPRESSION ALONG THE 4 FOLD AXIS, THE REGION OF THE TRANSITION IS BROADENED AND H SUBC INCREASES ALMOST LINEARLY WITH PRESSURE. THE MAGNITUDE OF THE EFFECT AGREES WITH THE PREVIOUSLY MEASURED JUMP OF MAGNETOSTRICTION IN THE CRIT. FIELD. EVALUATIONS OF THE CONTRIBUTIONS OF MAGNETODIPOLE INTERACTION AND CLASSICAL MAGNETOSTRICTION SHOW THAT THE EFFECT IS PARTIALLY DUE TO THE DEPENDENCE OF THE EXCHANGE INTEGRALS BETWEEN IONS OF OPPOSITE SUBLATTICES ON INTERAT. DISTANCES.

Acc. Nr: AP0043663 4

Ref. Code: UR 0056

PRIMARY SOURCE: Zhurnal Eksperimental'noy i Teoreticheskoy  
Fiziki, 1970, Vol 58, Nr 2, pp 475-485  
EXCITON AND EXCITON-MAGNON ABSORPTION  
IN ANTIFERROMAGNETIC  $CsMnF_3$

Belyayeva, A. I.; Yeremenko, V. V.;  
Silayev, V. I.; Petrov, S. V.

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The absorption spectrum of antiferromagnetic  $CsMnF_3$  is studied in detail in the C-group band region of the  $Mn^{2+}$  ion shifted from the inversion center. The temperature was varied between 1.2 and 60° K and the external magnetic field between 0 and 25 kOe. Identification of the spectrum is performed within the framework of group theory analysis. It is shown that  $CsMnF_3$  is an unusual crystal among antiferromagnetic substances. For the  $Mn^{2+}$  ion in it pure exciton transitions are allowed in the electric dipole approximation. The main properties of pure exciton and exciton-magnon absorption bands are obtained in accordance with the Loudon scheme [?]. «Hot» and «cold» magnon satellites and also two-magnon satellites of pure exciton absorption bands are detected in the absorption spectrum and investigated. The maximal magnon frequency at the boundary of the Brillouin zone is determined,  $\Delta_2 = 38 \text{ cm}^{-1}$ . The problem of distortion of this quantity due to exciton - magnon interaction in processes induced by excitation of one or two magnons together with the exciton is discussed.

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19770067

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USSR

UDC 532.517.4

YEREMENKO, YE. V.

"On the Change in the Energy of Turbulence in a Flow Under Nonsteady-State Motion"

Gidromekhanika. Resp. mezhved. sb. (Hydromechanics. Republic Interdepartmental Collection), 1971, No. 17, pp 88-95 (from RZh-Mekhanika, No 9, Sep 71, Abstract No 9B903)

Translation: The characteristics of the behavior of turbulence under nonsteady-state plane-parallel flow of a liquid in a channel are investigated. A solution is sought for the equation for the kinetic energy of the turbulence  $E$ . Convective and diffusion terms are omitted in the equation and it is assumed that the velocity profile is subject to a logarithmic law. A power law for the acceleration or deceleration is discussed. In this case  $E$  satisfies the Riccati equation and the solution is expressed in terms of Bessel functions. Examples of specific calculations show that for a retardation of flow the magnitude of  $E$  considerably exceeds the stationary value  $E_0$ , especially on the axis of the flow and for a flow acceleration, on the contrary,  $E < E_0$ . A different approach is used to

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YEREMENKO, YE. V., Gidromekhanika. Resp. mezhved. sb., 1971, No. 17, pp 88-95

discuss the characteristics of turbulence in the region near the wall. The steady-state equation for  $\bar{E}$ , including a diffusion term, is discussed. The effects of the nonstationary state are introduced through the profile of tangential stresses of friction, which is represented in the form of a polynomial containing a parameter accounting for the nonstationary state of the flow. An approximate solution for this equation obtained by the variational method shows that effects are observed at the wall which are the reverse as compared with the nucleus of the flow. With deceleration of the flow the energy of the turbulence decreases. 13 ref. A. N. Sekundov.

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USSR

UDC: 532.517.4

YEREMENKO, Ye. V.

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"Computing the Kinematic Characteristics of a Turbulent Flow in Nonstationary Motion"

V sb. Turbulentn. techeniya (Turbulent Currents--collection of works) 1970, pp 49-58 (from RZh-Mekhanika, No. 2, Feb 71, Abstract No. 2E918)

Translation: A method is given for computing the plane-parallel smoothly varying nonstationary turbulent flow of an incompressible fluid. To obtain a closed system of equations, the author adds to the Reynolds equations the equation for the balance of the kinetic energy of turbulence per unit mass,  $E$ , and, following A. M. Kolmogorov, assumes that  $\nu_T = L\sqrt{E}$  ( $\nu_T$  is the turbulent viscosity factor). The energy dissipation in this equation is approximated by the two-term Rott formula, and the diffusion of the kinetic energy of turbulence is approximated according to the generally

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YEREMENKO, YE. V., V sb. Turbulentn. techeniya 1970, pp 49-58 (from RZh-Mekhanika, No 2, Feb 71, Abstract No 2B918)

accepted hypotheses; for diffusion of the pressure energy, an approximate expression is obtained, with the solution of the Poisson equation, for the pulsation pressure in a limited space taken into account. To solve the system of equations, the local-unidimensional method of A. A. Sarmarskiy for parabolic equations was used. With the local derivatives tending to zero, the method can easily be extended to stationary nonuniform currents, while for the simplest case of nonstationary motion (pressure) the computations are compared with the experimental data. P. P. Vorotnikov

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UDC 621.384.664

USSR

GALYAYEV, N. A., GOLOVINA, N. I., GRACHEV, M. I., GRIDASOV, V. I., GUBRIYENKO, K. I., YEREMENKO, Ye. V., ZAPOL'SKIY, V. N., ZELENOV, B. A., KOTOV, V. I., KUZNETSOV, V. S., MERKER, E. A., MYZNIKOV, K. E., PUCHUGIN, V. A., PRILEPIN, A. A., SELEZNEV, V. S., SEREBRYAKOV, B. A., KHODYREV, Yu. S., and CHEPEGIN, V. N.

"Proton Beam With an Impulse of Up to 70 Gev/s Elastically Dispersed Inside a Target"

Leningrad, Zhurnal Tekhnicheskoy Fiziki, Vol 42, No 7, 1972, pp 1437-1445

Abstract: This paper discusses the operation of a channel built into the French liquid-hydrogen Mirabelle chamber for the accelerator of the Institute of High-Energy Physics (IFVE). The function of the channel is to form pure beams of pi and k mesons, and antiprotons, in a broad range of impulse magnitudes under the action of a high-frequency separator. The secondary particles are generated on the inside of a target placed in the path of a proton beam diverted from the accelerator with an energy of 70 Gev. By using a fast system for aiming the proton beam at the target, together with a kicker magnet in the channel, the required number of particles passing through the chamber can be provided. The optical system of the channel is described with the

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USSR

GALYAYEV, N. A., et al., Zhurnal Tekhnicheskoy Fiziki, Vol 42, No 7, 1972,  
pp 1437-1445

aid of diagrams of two possible variants; the beam aiming system and the  
particle dosage for the bubble chamber are also explained. The authors  
thank R. M. Sulyayev, P. F. Yermolov, A. M. Moiseyev, M. I. Solov'yev,  
I. A. Danil'chenko, Ye. A. Parshin, V. M. Kolesnik, A. N. Aleyev, V. D.  
Rudko, and V. M. Gorshkov for their assistance.

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USSR

UDC: 539.12

YEMEL'YANOV, Yu. A., YEREMENKO, Yu. A., and TAKIBAYEV, Zh. S.,  
Academician of the Kazakh Academy of Sciences

"Possible Redistribution of Energy Among Generated Particles  
in the Range of Several Hundred KEV"

Moscow, Doklady Akademii Nauk SSSR, vol 204, No 4, 1972, pp 814-  
816

Abstract: In earlier work, the authors proposed study of the behavior of various angular and energy characteristics as functions of the energy given to all generated particles, since they felt that such an approach helps in the direct study of the process of generating secondary particles and may give additional information on meson bunchings or fireballs. The present paper is devoted to investigating the distribution of the energy given to all secondary particles, among charged and neutral mesons. For the analysis, the data obtained from earlier experimental papers was used (M. I. Ali-bekov, et al, Reprint IYaF AN KazSSR, Alma-Ata, 1969; N. L. Gri-gorov, et al, Reprint NIIYaF MGU, Moscow, 1969). Curves are plotted for the energy of charged and neutral ions as a function of the total generated particle energy and for the complete and partial inelasticity coefficients as functions of the primary  
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USSR

UDC: 539.12

YEMEL'YANOV, Yu. A., et al, Doklady Akademii Nauk SSSR, vol 204,  
No 4, 1972, pp 814-816

particle energy. The authors are associated with the Institute of  
High-Energy Physics, Kazakh Academy of Sciences, Alma-Ata.

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USSR

UDC: 539.171.017

BABAYEV, M. K., YEREMENKO, YU. A., LUKIN, YU. T., and TAKIBAYEV, ZH. S.,  
Institute of High-Energy Physics, Academy of Sciences, Kazakh SSR

"Concerning Angular Distribution Asymmetry of Secondary Particles in the  
Center-of-Mass System and Azimuthal Plane With Energies of Several Hundred Gev"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, Vol 35, No 10,  
Oct 71, pp 2036-2039

Abstract: Asymmetry in the center-of-mass system of a cosmic-ray shower of charged particles is usually measured by comparing the number of secondary particles moving in the forward direction to the number of secondary particles moving in the reverse direction along the collision axis. This measurement (alpha) may be augmented by considering two new analogous measurements (beta and gamma) that may be taken along the mutually perpendicular axis in the azimuthal plane perpendicular to the collision axis. Several measurements, comparing alpha and beta, were made of a variety of emissions. The results show that beta is sufficiently sensitive in 25 to 50 percent of the cases to provide an indication of asymmetry in emissions based on the single-fireball model. Beta measurements have the additional advantage of verifying the direction of the fireball-primary-particle collision axis.

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WDC 613.644:613.68

YERENKOVA, S. M., and LUK'YANOV, V. N., Murmanskaya Oblast Station of Labor Hygiene and Occupational Diseases

"Hygienic Assessment of Noise and Vibration on Fishing Vessels of the Trawler Fleet"

Moscow, Gigiyena i Sanitariya, No 1, Jan 71, pp 32-34

Abstract: A study was conducted of the levels of noise and vibration on fishing vessels of types EMRT-254 (German construction) and EMRT-401 (Polish construction) of the Murmansk trawler fleet. These are factory trawlers on which fish is processed. They are equipped with machines for this purpose, radio navigation devices, etc. Fishing and processing of fish are similar on both types of EMRT trawlers, but the inner arrangement is somewhat different. The levels of noise and vibration, particularly during forced runs and lowering and collection of the trawl net, were too high on both types of vessel, but the EMRT-401 was more satisfactory than the EMRT-254 in this respect. The noise was excessive in production sections, service rooms, and living quarters. The reasons were absence of sound insulation, incorrect and imprecise balancing of rotating engine parts, and absence of sufficiently firm connections between individual construction elements. The design of EMRT vessels should be modified to reduce vibration and noise.

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UDC: 621.791.06:620.181.5

KOVAL'CHUK, G. Z., YEREMETOV, A. M., and BAGNYUK, L. N., Institute of Ferrous Metallurgy  
"Isothermal Decay of Austenite in Welded Specimens of St. 5sp and 35GS Steels"

Moscow, Izvestiya VUZ--Chernaya Metallurgiya, No. 8, 1971, pp 145-149

Abstract: For this study of the isothermal decay of austenite in the zone of the welding seam, small specimens of St. 5sp and 35GS steel measuring 10 X 5 X 4 mm cut from butt-welded samples were investigated. The isothermal decay of the supercooled austenite was realized by the tempered-microstructure method. The specimens were austenitized for 20 minutes at a temperature of 850° C, and curves of the austenite decay were plotted for a large number of them from the data derived from the experiment. These curves are reproduced. Also reproduced are photomicrographs of the welding seam and the basic metal structure at various temperatures and durations of the welding process. It is found that the structural differences resulting from the chemical changes in the welding zone are minor, except for sections of the seam with high decarburization, with earlier separation of the ferrite in the decay of low-carbon austenite.

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Acc. Nr: **AP0049745** - Abstracting Service:  
CHEMICAL ABST. 5/70

Ref. Code:  
**UROVO9**

100390g Chemistry of ethylenimine. III. Interaction of 1-aminoethylenimine with the simplest aliphatic aldehydes and acrolein. Hillers, S.; Yermeyev, A. V.; Lidaks, M. (Inst. Org. Sin., Riga, USSR). *Zh. Obshch. Khim.* 1970, (1), 1-1 (Russ). The condensation reaction of 1-aminoethylenimine (I) with AcH, propionaldehyde, butyraldehyde, and acrolein, resp., and the isomerization of the resulting hydrazones (II) to azines MeCH:NN:CHR (III) was studied and the products were



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