

KONSTANTINOV, V.V.

Transplantation of malignant tumors of man to rabbits under  
conditions of denervation of the inoculation area and other  
influences. Uch. zap. KRROI 7:17-22'61 (MIRA 16:8)  
(TUMORS—TRANSPLANTATION)

USSR/Miscellaneous - Materials

Card : 1/1 Pub. 123 - 14/19

Authors : Konstantinov, V. V., Cand. of techn. sc.

Title : The role of hydration, crystallization and desiccation processes during solidification of structural gypsum

Periodical : Vest. AN Kaz. SSR 12, 90 - 95, December 1953

Abstract : The positive and negative effects of hydration, crystallization and desiccation on the hardening and mechanical strength of structural gypsum, are described. Five USSR references (1943-1951). Tables, graph, drawing.

Institution : ...

Presented by : D. V. Sokol'skiy, act. memb. of Acad. of Sc. Kaz. SSR

KONSTANTINOV, V. V.

"Investigation of the Processes of Interaction of Gypsum Hemihydrate With Water Under a Microscope," *Izv. AN KazakhSSR*, No 126, ser. gorn. dela, metallurg., stroymaterialov, No 2, 78-87, 1954 (Kazakhstani resume)

The author conducts an experimental verification of the theoretical statements made by A. A. Baykov (*Sb. Trudov (Collected Works)*, Vol 5, 1948) on the interaction of gypsum hemihydrate with water. The observations were made on gypsum hemihydrates (cooked, highly stable, sheet-like) in preparations under a microscope.

RZhGeol, No 1, 1955

KONSTANTINOV, V.V.

Effect of the temperature on the setting time of semihydrate  
gypsum. Izv. AN Kazakh. SSR Ser. gor. dela, nat. i stroimat. no. 2:  
88-91 '54. (Gypsum) (MLRA 9:6)

KONSTANTINOV, V.V.

Importance of the crystallization processes during the hardening  
of silicate cement. Izv. AN Kazakh. SSR Ser. gor.dela, met. i  
stroimat. no.2:92-97 '54. (MIRA 9:6)  
(Cement) (Crystallization)

KONSTANTINOV, V.V.

New methods of utilizing fine-grained sand in concrete  
V. KONSTANTINOV AND A. I. MINAS  
~~А. И. МИНАС~~ ~~В. В. КОНСТАНТИНОВ~~ ~~Резюме~~  
ordinary mortars and concretes using fine grained sand and insufficient cement paste to envelop the sand grains. To overcome this, two methods were developed which require either only a slight excess of cement. In one method, the cement paste is increased by diluting it with a material like fine ground sand in the amount of 5% by weight. In the second method, the thickness of the enveloping cement paste sheath is reduced by using finer grained sand, passing through 0.00 mm openings. Test results were proved satisfactory. Concrete with more than 10% sand showed a lower frost resistance.

Konstantinov, V.V.

Effect of the solution process on hydration of semi-hydrated gypsum. V. V. Konstantinov. Vestnik Akad. Nauk Kazan. S.S.R. II, No. 6 (Whole No. 111), 79-82 (1954) (in Russian).--A study of temp. generated by hydration of structural gypsum by H<sub>2</sub>O satd. with gypsum with or without addn. of the dihydrate indicates that the process of soln. does not affect the process of hydration of semi-hydrated gypsum. The observed acceleration of hydration after a latent period is attributed to a new phase of the dihydrate. O. M. Kotelnoski

Card 1/1

*Konstantinov V.V.*

Microscopic investigation of the reaction of ground quicklime with water. V. V. KONSTANTINOV. *Izvest. Akad. Nauk Kazakh. S.S.R., Ser. Gornaya Delo, Met. i Stroimaterial.*, 1955, No. 5, pp. 58-62. Quicklime has a finely dispersed structure and represents a concretion of very fine granules of CaO up to 0.005 mm. The hydration and carbonation products of quicklime have a similar finely dispersed structure and consist of concretions of very fine crystals of Ca(OH)<sub>2</sub> or CaCO<sub>3</sub> up to 0.005 mm. Hydration of quicklime proceeds with the retention of some of the characteristics of the structure of the original material and chiefly through the direct addition of water to the solid unhydrated substance. These characteristics of the structure of lime are also retained during carbonation.

R.Z.K.

*1*

*30000*

*Chem*

*PM*



110 NIS+ART+NOV, V.V.

✓ Marshallite as a microfiller for concretes. V. V. Konstantinov and E. D. Soboleva. Izvest. Akad. Nauk Kazakh. S.S.R., Ser. Gornogo Dela, Met. i Stroimaterial. 1955, No. 5, 84-88 (in Russian).--Marshallite can be used to dil. cement in making low-grade concretes. Procedure for detg. the activity of cements in accordance with GOST 310-41 is unavailable for detg. the influence of microfillers on the activity of the dild. cement. Instead, the activity should be detd. with plastic mixts. contg. sand which meets the requirements of concrete filler. This gives more correct results and corresponds more to the behavior of the dild. cement in concretes. B. Z. Kamich

Max

2

Konstantinov, V.V.

✓ Influence of salt solutions on rate of slaking of ground quicklime. V. V. Konstantinov. *Izvst. Akad. Nauk*

*Kazikh. S.S.R., Ser. Gornogo Dela, Met. i Stroimaterial.*  
1955, No. 5, 103-5 (in Russian).—Speed of slaking can be  
doubled by use of 1-3% chlorides. Speed of slaking can be  
decreased 10-fold by use of 0.1-3% sulfates and carbonates.

B. Z. Kamich

KONSTANTINOV, V. V. kandidat tekhnicheskikh nauk (Alma-Ata)

Adding fine-grained sand to large porous concrete. Stroimaterialy,  
izdel. i konst. 2 no.2:23 P 156. (MLRA 9:6)  
(Concrete)

KONSTANTINOV, V.V., inzh.; VOROB'YEV, A.A., inzh.; NIKITIN, A.I., inzh.;  
BAN'KOVSKAYA, N.N., inzh.; SHEVCHENKO, V.I., inzh.

Using granulated slags in making high-strength concretes for  
prestressed floor panels. Bet. i zhel.-bet. no.6:234-235 Je '58.  
(MIRA 11:6)

(Kishinev--Concrete)

KONSTANTINOV, V.V., kand.tekhn.nauk; FUZHANOV, G.T., mladshiy nauchnyy  
sotrudnik

High-strength rapidly hardening slag-silicate concretes for pre-  
cast reinforced concrete construction elements. Bet. i shel.-bet.  
no.10:468-470 0 '60. (MIRA 13:10)

(Concrete)

KONSTANTINOV, V.V., kand.tekhn.nauk

Causes of the increased water requirement of mortar and concrete  
made with fine-grained sand. Bet. 1 zhel.-bet. 8 no.6:274-275  
Je '62. (MIRA 15:7)  
(Mortar--Testing) (Concrete--Testing)

ARISTOV, L.I.; KONSTANTINOV, V.V.

Polymers with chelate bonds, derivatives of 8-hydroxyquinoline.  
Izv.TPI 111:104-106 '61. (MIRA 16:9)

1. Predstavleno professorom doktorom khimicheskikh nauk I.P.  
Kulevym.

(Quinolinol) (Chelates)

Call Nr: TK 6553 .R87

**AUTHOR:** Konstantinov, Ye.A., Levandovskiy, Ye.A.,  
Mishakov, Ye.S., Pekarkskiy, S.Ya., Compilers

**TITLE:** Measuring Instruments. Catalog Handbook  
(Izmeritel'nyye pribory. Katalog spravochnik)

**PUB. DATA:** Byuro tekhnicheskoy informatsii, Ministerstvo  
radiotekhnicheskoy promyshlennosti SSSR, Moscow,  
1956, 160 pp. and appendix, 6,000 copies.

**ORIG. AGENCY:** Ministry of the Radio Engineering Industry, USSR

**EDITOR:** Managing Editor: Litvinov, S.V.; Editor-in-Chief:  
Kovalev, N.I.; Editors: Seslavskaya, T.V.,  
Mozhzevelova, G.B.; Tech. Ed.: Ivanyan, K. N.  
Reviewing Editor: Markova, K.S.

**PURPOSE:** This catalog is intended for use by all organizations  
affiliated with the Ministry of the Radio Engineering  
Industry of the USSR.

**COVERAGE:** The catalog describes a variety of radio engineering  
measuring instruments available for purchase from the  
Ministry of the Radio Engineering Industry of the USSR.

~~Card 1/12~~

Output never used  
~~Card 2/12~~



ASTAF'YEV, A.V.; KONSTANTINOV, Ye.A.; MISHAKOV, Ye.S.; PEKARSKIY,  
S.Ya.; DOROFEYEV, V.A., *tekh. red.*

[Reference catalog on measuring instruments] Katalog-  
spravochnik izmeritel'nykh priborov. Moskva, Biuro tekhn.  
informatsii, 1952. 163 p. (MIRA 16:8)

1. Russia (1923- U.S.S.R.) Ministerstvo promyshlennosti  
sredstv svyazi. (Electric measurements)  
(Telecommunication--Equipment and supplies)

KONSTANTINOV, Ye.A., inzhener-kapitan-leytenant; LATYSHEVA, K.V., mladshiy  
nauchnyy sotrudnik

Deactivation of the internal surface of circuits in nuclear power  
plants. Mbr. sbor. 47 no.11:74-76 N '63. (MIRA 16:11)

KONSTANTINOV, Ye.B., insh.

Using boosted voltage in testing electric equipment.  
Isobr.1 rats. no.8:30 Ag '30.  
(Electric instruments)

(MIRA 11:9)

5(2)  
AUTHOR:

Konstantinov, Ye. F.

SOV/32-25-2-3/78

TITLE:

An Accelerated Volumetric Method for the Determination of Titanium in Ferrotitanium (Uskorennyy ob'yemnyy metod opredeleniya titana v ferrotitane)

PERIODICAL:

Zavodskaya Laboratoriya, 1959, Vol 25, Nr 2, pp 134-136 (USSR)

ABSTRACT:

The method described is based on the reduction process taking place in the dissolution of ferrotitanium in sulfuric acid. Titanium is reduced by hydrogen at the moment of dissolution. The trivalent titanium obtained is titrated with a solution of iron-ammonium-alum in the presence of the indicator ammonium rhodanide. Two determination variants have been developed with the help of V. M. Matveyeva. In the first method CO<sub>2</sub> is used, but not in the second. During the dissolution CO<sub>2</sub> is passed through the solution until the titration is over. The completion of the titanium reduction can be checked by means of chromotropic acid. It is indispensable to grind the sample prior to the analysis to a fineness of a Nr 42 sieve to prevent incorrect results (Table 1). The method described was tested at the

Card 1/2

An Accelerated Volumetric Method for the Determination of Titanium in Ferrotitanium

SOV/32-25-2-3/78

Ukrainskiy nauchno-issledovatel'skiy institut metallov  
(Ukrainian Scientific Research Institute for Metals)(Table 3).  
Duration of analysis: 15-20 minutes. Limit of error for two  
parallel determinations: up to 18 % Ti - 0.30 %, more than  
18 % Ti - 0.35 %. The analysis processes for both variants  
are given. There are 3 tables and 1 Soviet reference.

ASSOCIATION: Stalinskiy metallurgicheskiy zavod (Stalino Metallurgical  
Plant)

Card 2/2

DROZDOVA, T.V.; YAKUBOVICH, K.I.; KONSTANTINOV, Ye.F.

Organic matter from the fluorite ores of the Pokrovo-Kireyev  
deposit in the region of the Sea of Azov. Geokhimiia no.6:  
573-577 Je '64. (MIRA 18:7)

1. Institut geokhimii i analiticheskoy khimii imeni Vernadskogo  
AN SSSR i Vsesoyuznyy nauchno-issledovatel'skiy institut mineral'nogo  
syr'ya, Moskva.

L 13060-55 EWT(m)/EWA(d)/EWT(t)/EWP(k)/EWP(b) Pf-1 IJP(s)/ASD(m)-3/ASD(f)-2  
MM/ED/PA/MLK S/0000/64/000/000/0028/0031  
ACCESSION NR: AT4047720

V. P. Pavlov, I. M. (Corresponding member AN SSSR) Konstantinov, Ye. G.,  
Snel'ski, A. Ye.

TITLE: Investigation of strain resistance during plastic deformation of titanium alloys

SOURCE: AN SSSR. Institut metallurgii. Plasticheskaya deformatsiya metallov (Plastic deformation of metals). Moscow, Izd-vo Nauka, 1964, 28-31

TOPIC TAGS: titanium alloy, titanium alloy strain resistance, titanium alloy plastic deformation/alloy VT1, alloy OT4, alloy VT6, alloy VT14

ABSTRACT: Solution of the problems connected with the design and operation of rolling mills requires knowledge of metal strength characteristics which are needed for calculation of the metal pressure on the rolls and the rolling torque. The present paper contains the determination of strain resistance and compares the strain resistance of titanium alloys during rolling and when testing under static and impact tensile loads. Samples were rolled on a 200 rolling mill (roll diameter 212 mm) rolling speed 1000 rpm sec. polished steel rolls. Rockwell hardness tests with dynamometers for measuring the total metal pressure on the rolls and torque meters for measuring the total rolling torque. VT1, OT4, VT6 and BT14 titanium alloys were tested.

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L 13060-65  
ACCESSION NR: AT4047720

the samples being heated for 15-35 minutes for 500-1100C rolling intervals (every 100C). Static tests were performed on a R-5 machine with electric drive and a strain rate of  $0.003-0.0045 \text{ sec}^{-1}$ . The samples were heated in a special furnace with temperature deviations not exceeding over  $\pm 10\text{C}$ . The heating time was 15-35 minutes. The method of determining the strain resistance (proposed by S. I. Gubkin) on the basis of strain elongation under static and impact tensile loads consists of calculating the indicator of the efficiency under ultimate static tension as the ratio of the areas of the diagram of the elongated rectangle. The ultimate impact toughness was tested on the MK-30 machine with an initial impact speed of 5.6 m/sec and a strain rate depending on the temperature of 150-190  $\text{sec}^{-1}$ . The samples were preheated and tested in an atmosphere of nitrogen. The tests demonstrated the strength and plasticity of VT1, OT4, and OT4 titanium alloys. Comparison of data for these alloys showed that the ultimate strength may be used in equations for hot pressure working at 700-1000C. The impact toughness determined experimentally in the same temperature range is higher than the actual and theoretical strain resistance, this being explained by the high strain rates during impact elongation. The plastic properties of these alloys are lowered as the strain rate increases. Orig art has: 4 figures and 3 equations.

Card 2/3



L 13060-65

ACCESSION NR: AT4047720

ASSOCIATION: Institut metallurgii AN SSSR (Institute of Metallurgy, AN SSSR)

SUBMITTED: 01Jul64

ENCL: 00

SUB CODE: MM

NO REF SOV: 006

OTHER: 000

Card 3/3

L 16789-65 EWT(m)/EWA(d)/EWP(t)/EWP(k)/EWP(b) Pf-4 IJP(c)/ASD(f)-2/ASD(m)-3  
JD/RW/AB/MLK

ACCESSION NR: AT4048061

S/0000/64/000/000/0128/0131

AUTHOR: Pavlov, I.M., Shelest, A. Ye., Konstantinov, Ye. G.

B+1

TITLE: Characteristics of the oxidation of several titanium alloys when heated prior to plastic deformation

SOURCE: Soveshchaniye po metallurgii, metallovedeniyu i primeneniyu titana i yego splavov. 5th, Moscow, 1963. Metallovedeniye titana (Metallography of titanium); trudy\* soveshchaniya. Moscow, Izd-vo Nauka, 1964, 128-131

TOPIC TAGS: titanium alloy, titanium alloy rolling, titanium alloy oxidation, plastic deformation/ alloy OT, alloy VT

ABSTRACT: At high temperatures, the scale formation and gas saturation taking place at the surface of titanium alloys depend on the rate of chemical reactions at the border between the liquid and solid phases, as well as on the diffusion rate. The present paper considers the results of a study of the kinetics of oxidation of several Ti alloys under conditions of plastic deformation. The most precise method of testing is the continuous weighing process. However, intermediate samples cannot be taken. Therefore, separate samples were taken for each testing temperature. The samples (10-16 mm cubes) were placed in porcelain crucibles with access to air ensured from all sides and heated to 800-

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L 16589-65

ACCESSION NR: AT4048061

5

1200C (every 100C) for durations of 15, 30, 60, 120 and 240 minutes. The samples were then weighed both with and without the crucibles and with the scale removed. The change in weight was related to sample area prior to oxidation. Fig. 1 of the Enclosure illustrates the kinetic curves of oxidation of the tested Ti alloys. The tests showed that the oxidation rate depends on the oxygen concentration gradient in the surface layer of the alloy. The value of the oxidation rate was determined by graphic differentiation of the curves for prolonged oxidation. Generally, the rate changes gradually and reaches a constant, known as the characteristic rate. This rate changed from 0.17 for VT-1 at 800C to 12.00 at 1200C, from 0.03 for OT4-1 at 800C to 16.00 at 1200C, from 0.33 for OT4 at 800C to 18.00 at 1200C, from 0.10 for VT6 at 800C to 13.00 at 1200C, and from 0.10 for VT14 at 800C to 10.25 at 1200C. Attention should be paid to the fact that for the  $\alpha + \beta$  and  $\beta$  alloys VT6, VT14 and VT15, the oxidation rate increases with temperature at a constant rate, while for VT1 and OT4-1 alloys a sharp increase in oxidation rate is observed. Fig. 2 of the Enclosure shows the kinetic oxidation curves and variations in scale formation. The data obtained in this paper may be used to compare the heat resistance of Ti alloys and estimate the effect of alloying elements on this important property. Orig. art. has: 2 figures and 1 table.

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L 16589-65  
ACCESSION NR: AT4048061

ASSOCIATION: Laboratoriya plasticheskoy deformatsii metallov i splavov Instituta metallurgii im. A. A. Baykova (Laboratory of Plastic Deformation of Metals and Alloys, Institute of Metallurgy)

SUBMITTED: 15Jul64

ENCL: 03

SUB CODE: MM, AS

NO REF SOV: 005

OTHER: 000

Card 3/6

L 16589-65

ACCESSION NR: AT4048061

ENCLOSURE: 01

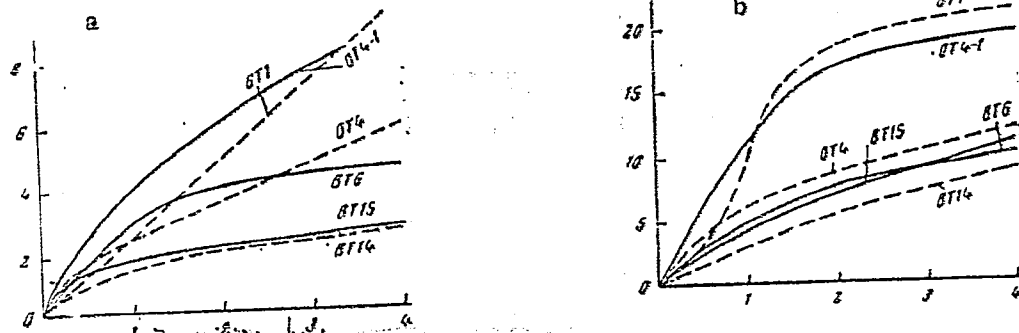


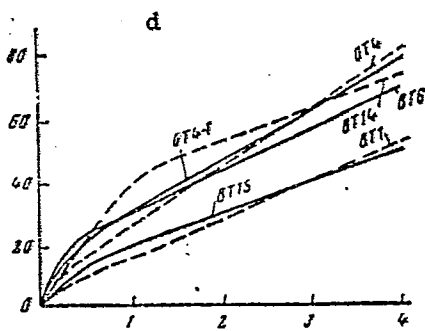
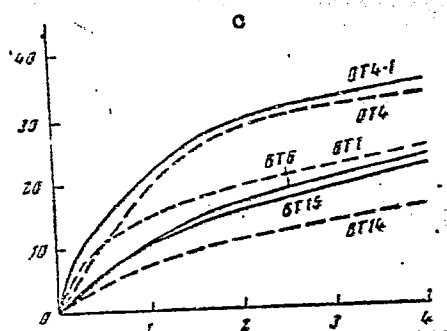
Fig. 1. Relationship between oxidation of Ti alloys and temperature, as well as duration of heating: a - at 900C, b - at 1000C; c - at 1100C; d - at 1200C.

In each graph, ordinate = wt. gain in mg/cm<sup>2</sup>; abscissa = duration of heating in hrs.

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L 16589-65  
ACCESSION NR: AT4048061

ENCLOSURE: 02



Card 5/6

L 16589-65  
ACCESSION NR: AT4048061

ENCLOSURE: 03

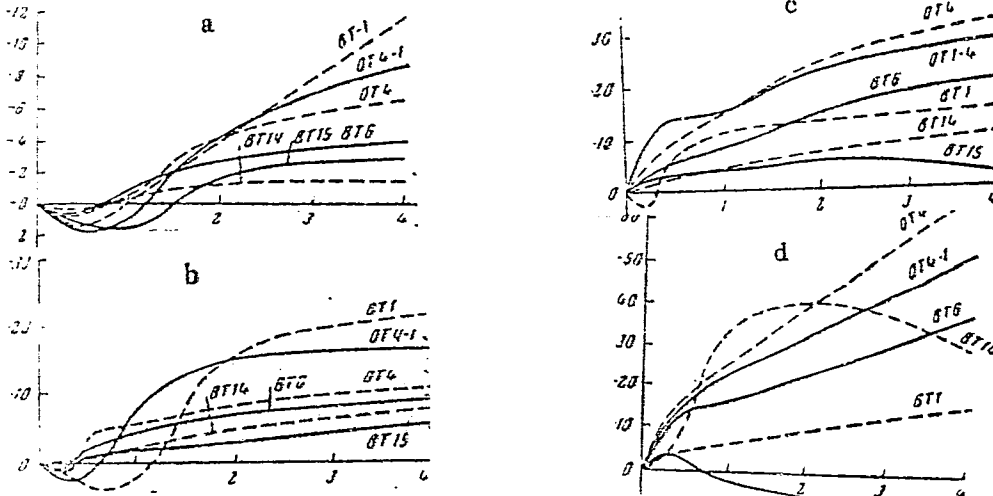


Fig. 2. Relationship between weight change of Ti alloy samples after scale removal and the temperature and duration of heating: a - at 900C; b-at 1000C; c-at 1100C; d-at 1200C. In each graph, ordinate = wt. change in ng/cm<sup>2</sup>; abscissa = duration of heating in hrs.

Card 6/6

L 25368-65 EWT(m)/EWA(d)/EWP(t)/EWP(b) IJP(c) MJW/JD

ACCESSION NR: AR5005074

S/0277/64/000/011/0019/0020

SOURCE: Ref zh. Mashinostroitel'nyye materialy, konstruksii i raschet detaley mashin. Otd. vyp., Abs. 11.48.125

28  
B

AUTHOR: Pavlov, I. M.; Konstantinov, Ye. G.; Shelest, A. Ye.; Tarasevich, Yu. f.

TITLE: Force conditions for deformation of some titanium alloys

27

CITED SOURCE: Tr. Mosk. in-ta metallurgii, Mosk. energ. in-ta i Mosk. in-ta stali i splavov, vyp. 44, 1963, 22-28

TOPIC TAGS: allotropic transformation, metal mechanical property, titanium alloy/  
VT1 alloy, OT4 alloy, VT6 alloy, VT14 alloy

TRANSLATION: The resistance to deformation of VT1, OT4, VT6 and VT14 titanium alloys was determined as a function of the temperature at relative reductions of 20, 40 and 60%. It is established that there is a stepwise change in the specific pressure in the allotropic transformation temperature interval. For OT4 alloy (at rolling temperatures lower than 600°) and for VT6 and VT14 alloys (at rolling temperatures lower than 800°), a decrease in resistance to deformation is observed with an increase in rolling reduction. This is explained by the formation of

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L 25368-65

ACCESSION NR: AR5005074

cracks in the metal. Industrially pure VT1 titanium has good ductility throughout the entire range of temperatures and rolling reductions studied; titanium alloys have less ductility. At temperatures of 1100-900°, the specific pressures for all alloys studied are low. With a reduction in temperature, there is a sharp increase in the difference between the specific pressures for VT1 and the remaining alloys.

SUB CODE: MM

ENCL: 00

Card 2/2

L 34518-65 EWP(k)/EWA(c)/EWT(m)/EWP(b)/T/EWA(d)/EWP(t) Pf-4 IJP(c) 32  
MJW/JD/HW/GS S/0000/64/000/000/0255/0262 30  
8+1

ACCESSION NR: AT4048082

AUTHOR: Pavlov, I.M., Konstantinov, Ye. G., Taresevich, Yu. F., Shelest, A. Ye.

TITLE: Investigation of the principal parameters of hot and warm rolling of several titanium alloys under peculiar conditions of stress

SOURCE: Soveshchaniye po metallurgii, metallovedeniyu i primeneniyu titana i yego splavov. 5th, Moscow, 1963. Metallovedeniye titana (Metallography of titanium); trudy\* soveshchaniya. Moscow, Izd-vo Nauka, 1964, 255-262 16 27

TOPIC TAGS: titanium alloy, titanium alloy rolling, titanium alloy stress, titanium alloy plasticity/alloy OT4, alloy VT6, alloy VT14, alloy VT15, alloy VT1

ABSTRACT: The aim of this investigation was to study the plasticity, stress and deformation of titanium alloys on a "200" rolling mill (roll diameter 213 mm, rolling rate 0.5 m/sec, steel rolls) equipped with dynamometers for measuring the pressure on the rolls and torque meters for measuring the torque of the rolls. Type OT4, VT1, VT6, VT14 and VT15 alloys were selected; after being heated uniformly for 15-35 minutes, depending on the temperature of the rolls, the samples were rolled with an average compression of 20, 40 and 60% (with similar initial depth and variable final depth) at 500-1100C (every 100C). The tests showed that at rolling temperatures above 900C the specific

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L 34518-65

ACCESSION NR: AT4048082

pressure was relatively low. Only the VT15 alloy at a rolling temperature of 1100C and compression of 20% had a specific pressure of about 9 kg/mm<sup>2</sup>. The specific pressure increased more rapidly for the tested alloys than with technical titanium when the temperature dropped from 1100 to 900C. As the compression increased, the specific pressure increased due to friction. Lowering of specific pressure as the degree of deformation rises may be explained by crack formation in the metal due to unequal lateral deformation in comparison with longitudinal deformation. The OT4, VT6, VT14 and VT15 alloys showed a lower plasticity than the VT1 alloy, the VT15 alloy having the lowest. The strips were widened by motion of the lateral surfaces onto the contact surface, although widening was also caused by slipping along the contact surface, which was insignificant. Maximum widening at 20, 40 and 60% compression was obtained with VT1 and VT15 alloys and at 900C with VT6 and VT14 alloys at 800C. As the degree of deformation increased, the widening rose for all alloys. Rolling of samples of various widths (8-60 mm) with 20% and 40% compression at 900C resulted in increased specific

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L 34518-65

ACCESSION NR: AT4048082

2

pressure together with the width, specific pressure increasing together with compression and in inverse proportion to width increase. The curves in the paper show that the absolute widening of the sample for all compression values first increases (for narrow widths), reaches a maximum value, and then drops as the width increases. Orig. art. has: 4 figures and 6 tables.

ASSOCIATION: Laboratoriya plasticheskoy deformatsii Instituta metallurgii im. A. A. Baykova (Laboratory of Plastic Deformation, Institute of Metallurgy)

SUBMITTED: 15Jul64

ENCL: 00

SUB CODE: MM

NO REF SOV: 006

OTHER: 000

Card 3/3

L 385 1-66 EWT(d)/EWT(m)/EWP(w)/EWP(v)/T/EWP(t)/ETI/EWP(k)/EWP(h)/EWP(1)

ACC NR: AT6012409 IJP(c) JD/HW/GD SOURCE CODE: UR/0000/65/000/000/0312/0316

AUTHORS: Pavlov, I. M.; Konstantinov, Ye. G.; Shelest, A. Ye.; Tarasevich, Yu. F. 58

ORG: none

TITLE: Several rolling conditions for titanium alloys

SOURCE: Soveshchaniye po metallokhimii, metallovedeniyu i primeneniyu titana i yego splavov, 6th. Novyye issledovaniya titanovykh splavov (New research on titanium alloys); trudy soveshchaniya. Moscow, Izd-vo Nauka, 1965, 312-316

TOPIC TAGS: <sup>FRICITION COEFFICIENT,</sup> metal rolling, titanium alloy, rolling mill, metal friction / VT1 titanium alloy, OT4 titanium alloy, VT6 titanium alloy, VT14 titanium alloy, VT15 titanium alloy, duo 200 rolling millABSTRACT: The coefficient of external friction during rolling of rectangular titanium alloy slabs under a wide range of temperature and deformation conditions was investigated. Specimens (12 x 10 x 150 mm) of titanium alloys VT1, OT4, VT6, VT14, and VT15 were preheated to 500--1100C (at 100C intervals), rolled on a duo 200 rolling mill with relative reductions of 20, 40, and 60%. The forward flow and coefficient of friction were measured and tabulated for these rolling conditions. The coefficient of friction over the temperature interval 500--1100C was found to be  $\approx 0,15$ , while the forward flow was found to vary considerably. Curves of the forward flow and friction coefficient as a function of strip width are presented for alloy VT6 (20 and 40%

Card 1/2

L 07815-67 EWP(m)/EWP(t)/ETI/EWP(k) IJP(c) FDN/JD/HW

ACC NR: AR6017433

SOURCE CODE: UR/0137/66/000/001/D007/D008

AUTHOR: Pavlov, I. M.; Konstantinov, Ye. G.; Shelest, A. Ye.; Tarasevich, Yu. F.

TITLE: Conditions for hot and warm rolling of some titanium alloys

28

SOURCE: Ref. zh. Metallurgiya, Abs. 1D42

27

B

REF SOURCE: Tr. Mosk. in-ta stali i splavov i Mosk energ. in-ta, vyp. 61, ch. 1, 1965, 181-193

TOPIC TAGS: hot rolling, warm rolling, titanium alloy

ABSTRACT: It was found during this investigation that an increase in reduction (with  $H=const$ ) increases the widening index for all alloys studied, where widening is basically due to barrel distortion. Due to the narrow width of the specimens under the conditions of this investigation, transverse deformation  $\Psi=B_2/B_1$  was greater than longitudinal deformation  $\mu=L_2/L_1$  in nearly all cases, which corresponded to the particular conditions for the stressed state of the metal at the source of deformation. An increase in reduction resulted chiefly in development of transverse deformation relative to drawing deformation. A. Leont'yev. [Translation of abstract]

SUB CODE: 13, //

Card 1/1 mc

UDC: 621.771.001

KONSTANTINOV, Ye.N.; NIKOLAYEV, A.M.

Mass transfer in the rectification of multicomponent mixtures. Izv.vys.ucheb.zav.; neft' i gaz 7 no. 1:53-58 '64. (MIRA 17:7)

1. Kazanskiy khimiko-tekhnologicheskii institut imeni S.M. Kirova.

KONSTANTINOV, Ye.N.; NIKOLAYEV, A.M.

Mass transfer during the rectification of four-component mixtures.  
Izv. vys. ucheb. zav.; khim. i khim. tekhn. 7 no.3:492-496 '64.  
(MIRA 17:10)

1. Kazanskiy khimiko-tekhnologicheskii institut imeni Kirova,  
kafedra khimicheskogo mashinostroyeniya.



KONSTANTINOV, Yo.N.; MADAMINOV, S.Kh.

Incidence of coronary atherosclerosis and hypertension in relation to nutrition. Vop. pit. 24 no.2:72-77 Mr-Apr '65.

(MIRA 18:8)

1. Kafedra propedevtiki vnutrennikh bolezney (zav. - dotsent B.I. Soybel') i gigiyeny (zav. - dotsent A.R.Razikov) Andikubanskogo meditsinskogo instituta imeni Kalinina.

VINOGRADOV, Yu.N., inzh.; KONSTANTINOV, Ye.S., inzh.

Wear of collectors and use of EG-2a brushes with shock  
absorbing construction in the traction motors of electric  
locomotives. Elektrotehnika 34 no.11:14-19 N '63.

(MIRA 17:2)

ZAKHAROV, B.; KONSTANTINOV, Yu.

Shortcomings in the coverage of labor questions by periodicals  
concerned with individual branches of industry. Sots.trud  
4 no.8:155-158 Ag '59. (MIRA 13:1)  
(Russia--Industries--Periodicals)

ZAKHAROV, B.; KONSTANTINOV, Yu.

Supply workers with a basic knowledge of economics. Sots. trud  
5 no.11:154-158 N '60. (MIRA 14:1)  
(Economics—Study and teaching)

KONSTANTINOV, Yu.; RYUMIN, S.

Growth of accumulations is necessary for building communism. Fin.  
SSSR 22 no.10:26-32 0 '61. (MIRA 14:9)  
(Capital)

KONSTANTINOV, Yu.

Profitableness and economic work at enterprises. Fin.SSSR 23  
no.6:43-48 Je '62. (MIRA 15:7)  
(Profit) (Industrial management)

ZAKHAROV, B.; KONSTANTINOV, Yu.

"Work organization in a shop section" by A.G.Losev. Reviewed by  
B.Zakharov, IU.Konstantinov. Sots. trud. 7 no11:152-516 N '62.  
(MIRA 15:12)

(Labor and laboring calsses)  
(Losev, A.G.)

ZAKHAROV, B.; KONSTANTINOV, Yu.

For a deeper interpretation of problems connected with the  
administration of an enterprise. Sots. trud 8 no.7:156-159  
Jl '63. (MIRA 16:10)



KAPUSTIN, Ye.I., kand.ekon.nauk; LAVROV, V.V.; RYUMIN, S.M.; KONSTANTINOV, ~~Yu.A.~~  
Yu.A.; PRAVDIN, D.I., kand.ekon.nauk; KIRILLOVA, N.I.; RIMASHEVSKAYA,  
N.M.; ANTROPOV, B.F.; RYABKOV, F.S.; POPOV, G.A.; DEM'YANOVA, V.A.;  
SMOLYAR, I.M.; ACHARKAN, V.A., kand. yurid.nauk; BRONER, D.L.;  
SHEPTUN, Ye.V.; KRYAZHEV, V.G.; ALESHINA, F.Yu., kand. ekon. nauk;  
KUZNETSOVA, N.P.; MARKOVICH, M.B.; BIBIK, L.F.; BUDARINA, V., red.;  
GRIGOR'YEVA, I., mladshiy red.; CHEPELEVA, O., tekhn. red.

[Public consumption funds and improving the welfare of the people in  
the U.S.S.R.] Obshchestvennye fondy i rost blagosostoiania naroda v  
SSSR. Moskva, Sotsekgiz, 1962. 222 p. (MIRA 15:6)  
(Cost and standard of living)

S/169/62/000/004/042/103  
D228/D302

AUTHOR: Konstantinov, Yu. B.

TITLE: Expeditions of the Arkticheskaya observatoriya Pevek  
(Pevek Arctic Observatory)

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 4, 1962, 2, ab-  
stract 4V5 (V sb. Probl. Arktiki i Antarktiki, no. 8,  
L., Morsk. transport, 1961, 98-99)

TEXT: Two oceanographic expeditions were organized for the 1960  
voyages of the vessels "Lomonosov" and "Priboy". The work program  
provided for the execution of deep-water bathymetric observations  
at daily and sporadic stations; current observations were made at  
daily and multi-diurnal stations. Ground operations and meteoro-  
logic, actinometric, and ice observations were also carried out.  
The electric vessel "Lomonosov" completed the first survey in the  
Chukotsk Sea on July 8-17. The observations were made in the sea's  
ice-free central part. The positive anomaly (about 2°) of the wa-  
ter temperature was noted. The intensive development of the Geralt-

Card 1/2

KONSTANTINOV, Yu.F.

Electric skip meter. Gor.zhur. no. 4:70-71 Je '57. (MLRA 10:8)

1. Unipromed'.

(Mine hoisting)  
(Electric meters)

KONSTANTINOV, Yu. M.

99-8-8/12

AUTHOR: Konstantinov, Yu.M.

TITLE: Problems of Energy Losses of Fluids Moving over Rectangular Shaped Overflow. (K voprosu o poteryakh energii v struyakh na perepadakh pryamougol'nogo secheniya)

PERIODICAL: "Gidrotekhnika i Melioratsiya", 1957, Nr. 8, pp 46-48 (USSR)

ABSTRACT: N.G. Dmitriyevskiy Candidate of Mechanical Science, published in issue No 9, 1956, of this journal an essay on the theme: "Problems of Energy Losses of Fluids Moving over Rectangular Shaped Overflow". The author of this article criticized the statements made by Dmitriyev, and pointed out that: 1. the force applied by the whirl onto the stream is an external force and that an intense interchange of liquid takes place between the stream and the whirl. Besides, pressure exerted by the whirl on the stream near the bottom is considerable higher than the hydrostatic pressure, and not equal to the pressure of the whirl exerted on the wall. Therefore, the equation arrived by Dmitriyev is not correct. 2. It would be more rational to use the equation of the cross section of the liquid which is confined between the reduced cross section C - C on the one side, and the cross section of critical depth K - K - s on the other

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BOL'SHAKOV, Valeriy Alekseyevich, kand. tekhn. nauk; GORELKIN, Anatoliy Vasil'yevich, kand. tekhn. nauk, dots.; KONSTANTINOV, Yuriy Mikhaylovich, inzh.; KRASNITSKIY, Mikhail Sergeyeovich, kand. tekhn. nauk, dots.; POPOV, Vladimir Nikolayevich, kand. tekhn. nauk, dots.; Prini-mal uchastiye DENISENKO, I.D., inzh.; VISHNEVYY, V.V., red.

[Collection of problems in hydraulics] Sbornik zadach po gidravlike. [By] V.A.Bol'shakov i dr. Kiev, Budivel' k, 1964. 291 p. MIRA 17 9

L 6467-66 EWT(m)/EPF(c)/ETC/EPF(n)-2/EWG(m) WW/DM  
ACCESSION NR: AP5019819

UR/0089/65/019/001/0086/0089  
621.039.58

AUTHOR: Ramzayev, P. V.; Belyayeva, I. A.; Gus'kova, V. N.; Ibatullin, M. S.;  
Konstantinov, Yu. O.; Nikolayev, S. P.; Oreshina, A. F.

TITLE: Radiation conditions near the VVR-M nuclear reactor

SOURCE: Atomnaya energiya, v. 19, no. 1, 1965, 86-89

TOPIC TAGS: argon, atmospheric contamination, radiation dosimetry, radiation hazard, radiation protection, Gamma background, radioactive waste disposal

ABSTRACT: The article deals with the determination of the concentration of radioactive waste in the atmosphere near research reactors. It is shown first that if the fuel-element cladding is hermetically sealed and the aerosols are effectively trapped, the radioactivity in the surrounding air is due for the most part to Ar<sup>41</sup> (disregarding the very slight oxygen activity). The chemical inertness of the argon prevents its accumulation in the organism, its dangerous effects are due to its external  $\gamma$  radiation. This, on the other hand, facilitates its monitoring and prevention of harm to the population. The authors have measured the radioactive contamination of the air around the VVR-M reactor operating at 10 MW power, over an area of a 20-km radius around the reactor. No radioactive fission products,

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ACCESSION NR: AP5019819

which might appear if the fuel-element cladding is not hermetically sealed, were observed. The intensities of fallout of long-lived radioactive isotopes (total  $\beta$  activity and  $\text{Sr}^{90}$ ) were the same near the reactor as in other control points, and were governed by global fallout conditions. The maximum  $\gamma$ -ray dose intensity was registered at distances 400 meters from the reactor chimney axis and amounted to 380 microrad/hr. Even under the worse conditions the limit of the maximum permissible dose (50 mber/yr) was about 1 km from the reactor on the windward side. The actual dose was much less. The authors reason that under the most stringent conditions, the permissible hourly dose intensity must not be exceeded in the guarded safety zone around the reactor, and point out that in the case of the VVR-M reactor the limit of hourly maximum dose intensity extends over distances 3--4 times larger than the limit of the maximum annual dose, and that future reactor designs must take this circumstance into account. Orig. art. has: 2 figures and 1 table.

ASSOCIATION: none

SUBMITTED: 20Jul64

NR REF SOV: 005

ENCL: 00

OTHER: 000

SUB CODE: NP

nw

Card 2/2

DOLIVO-DOBROVOL'SKIY, L.B., KONSTANTINOV, Yu.P., MUZYKANTOV, R.V.

Deactivating function of biocoenoses in purification systems with regard to the liquid phase of city sewage containing radioactive contaminations. *Biol.MOIP. Otd. biol.* 63 no.4:153-154 *Jl-Ag '58*  
(MIRA 11:11)

(SEWAGE--PURIFICATION)

(RADIOACTIVE WASTE DISPOSAL)



DOLIVO-DOBROVOL'SKIY, L.B., starshiy nauchnyy sotrudnik; KONSTANTINOV,  
Yu.P., mladshiy nauchnyy sotrudnik; MUZYKANTOV, R.V., mladshiy  
nauchnyy sotrudnik

Data on the deactivation of municipal sewage at biological  
treatment stations; preliminary report. Gig.i san. 25 no.2:  
15-18 F '60. (MIRA 13:6)

1. Iz Moskovskogo nauchno-issledovatel'skogo instituta sanitarii  
i gigiyeny imeni F.F. Erismana Ministerstva zdavookhraneniya  
RSFSR.

(RADIOACTIVE WASTE DISPOSAL)

120-3-16/40

AUTHOR: Konstantinov, Yu.S.

TITLE: An Electronic Stabilizer of Magnet Current for Experiments into Nuclear Magnetic Resonance (Elektronnyy stabilizator toka magnita dlya opytov po yadernomu magnitnomu rezonansu)

PERIODICAL: Priboiy i Tekhnika Eksperimenta, 1957, Nr 3, pp 61-63 (USSR)

ABSTRACT: An electronic stabiliser for currents of 3 to 5 A is described. After a warming up period of 15 minutes, the current in the load did not change by more than  $10^{-2}\%$  over a period of 1.5 hrs. The stabilisation was greatly increased by an integrating servo mechanism in the negative feedback loop. The circuit permitted linear adjustment of the load current over 10% range. The stabiliser (Fig.1) consists of series valves (24, 6H5C, valves connected in parallel) controlling the current in the magnet windings; a standard, low temperature coefficient resistance  $R_2$ ; a reference battery  $E_1$ ; a compensating circuit and the negative feedback loop. In the negative feedback loop is connected the usual dc amplifier (УПН) and also a servo controlled potentiometer ЭПА-17. The servo mechanism consists of a low frequency amplifier with a vibrator-converter and a rever-

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120-3-16/40

An Electronic Stabilizer of Magnet Current for Experiments into Nuclear Magnetic Resonance.

sible motor connected to a variable resistance  $R_5$ . To reduce noise and hum from the motor,  $R_5$  is shunted by a 500 $\mu$ F condenser. Any change of current in the load causes a change of voltage across the standard resistance  $R_3$  and an "error signal" at the output of the compensating network ( $R_3$ ). The servo system changes the bias impedance  $R_5$  and thus creates an input signal to the  $Y_{NH}$  proportional to the time-integral of the error signal. The gain of the dc amplifier is 800 with a frequency pass band of 10 kc/s. The output of the  $Y_{NH}$  is connected to the grids of the series valves via the cathode follower 6H8C. The potentiometer  $R_4$  is connected in parallel with the cathode load of the cathode follower. By using the compensating network consisting of  $R_1$ ,  $R_2$  and  $R_3$ , the current in the load can be adjusted within the limits 3 to 4.5 A. The wiper of  $R_3$  is connected through gearing to the motor CA-60

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120-3-16/40

An Electronic Stabilizer of Magnet Current for Experiments into Nuclear Magnetic Resonance.

which makes a slow linear change of load current possible. With increase in the gain of the servo amplifier a slow oscillation occurred. The stabiliser is switched on as follows: after the series valve heaters have warmed up and the YNH is switched on,  $K_1$  is closed. The wiper of  $R_4$  is put to the earthed position, and the magnet current measured by the ammeter A. Then  $R_4$  is adjusted to give the desired current, and  $R_1$ ,  $R_2$  and  $R_3$  adjusted for zero voltage output from  $R_3$  wiper, measured on the meter B.  $K_2$  is then closed. In Fig.2 is shown an oscillogram of the nuclear magnetic resonance of fluorine in  $CF_3-CF_2-CN$  which demonstrates the short-time stability of the magnetic field  $H_0$ . The distance between the components of the signal in relative units ( $\Delta H/H_0$ ) is  $1.3 \times 10^{-4}$ .

S. D. Gvozdover, K.P.Krylov, V.P.Sidyakin and M. M. Strukov helped in this work. There are 2 figures and 7 references, Card 3/4 3 Russian and 4 English.

ANKHAROV, S. A., GVOZDOVER, S. D., KONSTANTINOV, I. S., TROFIMENKO, I. T. (MGU, MOSCOW)

"An Autodyne Radiospectroscope in the 3-cm Wave Range".

report presented at the All-Union Conference on Statistical Radio  
Physics, Gor'kiy, 13-18 October 1958. (Izv. vyssh uchev zaved-Radiotekh.,  
vol. 2, No. 1, pp 121-127) COMPLETE card under SIFOROV, V. I.)

SOV/120-58-2-28/37

AUTHOR: Konstantinov, Yu. S.

TITLE: Application of a Synchronised Autodyne in the Study of Nuclear Magnetic Resonance (Primeneniye sinkhronizovannogo avtodina dlya izucheniya spektrov yadernogo magnitnogo rezonansa)

PERIODICAL: Pribory i Tekhnika Eksperimenta, 1958, Nr 2, p 105 (USSR)

ABSTRACT: The phenomenon of synchronisation of a self-oscillating system with an external harmonic force, as discussed by Andronov and Vitt (Ref.4), has been used in the detection of nuclear magnetic resonance. Crystal-controlled oscillator was employed as the synchronising locking device in conjunction with the usual autodyne instrument. In this way the frequency of the autodyne does not change in passing through the resonance. This removes distortion, improves resolution, and ensures that the form of the resonance lines thus obtained approximates to that predicted by Bloch's theory. A nuclear magnetic resonance spectrum of  $Fe^{19}$  in  $C_4F_8$  obtained with and

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SOV/120-58-2-28/37

Application of a Synchronised Autodyne in the Study of Nuclear Magnetic Resonance.

without the synchronisation is shown in Fig.1. There is 1 figure and 4 references, of which 2 are Soviet, 1 English and 1 German.

ASSOCIATION: Fizicheskiy fakul'tet MGU (Department of Physics of the Moscow State University)

SUBMITTED: August 12, 1957.

Card 2/2 1. Nuclear magnetic resonance--Detection 2. Oscillators--  
Synchronization

SOV-120-58-3-32/33

AUTHORS: Akhmanov, S. A., Gvozdover, S. D., Konstantinov, Yu. S.,  
and Trofimenko, I. T.

TITLE: Application of a TWT-Generator and the Observation of  
Electron Paramagnetic Resonance (Ispol'zovaniye LBV-  
generatorsa dlya nablyudeniya elektronogo paramagnitnogo  
rezonansa)

PERIODICAL: Pribory i Tekhnika Eksperimenta, 1958, Nr 3, p 109  
(USSR)

ABSTRACT: A travelling wave tube (TWT) connected across an external feedback circuit may be used as a generator of u.h.f. vibrations (Refs.1 and 2). The frequency of the vibrations is determined by a resonator in the feedback circuit. Such a generator has been used by the authors in the 3 cm region in the observation of electron paramagnetic resonance. The specimen under investigation (diphenylpicrylhydrazyl) was placed directly in the generator circuit and in the electromagnet gap. The uniformity of the external magnetic field was sufficiently high and had no effect on the form of absorption lines. The absorption signal was detected by a crystal detector placed in the feedback channel. As the feedback is reduced and the oscillation threshold is approached the sensitivity of the TWT

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SOV-120-58-3-32/33

Application of a TWT-Generator and the Observation of Electron  
Paramagnetic Resonance

generator increases. In the observation of an absorption  
signal recorded on the screen of an oscilloscope, the  
signal-to-noise ratio for a specimen containing  $2 \times 10^{-8}$   
moles of diphenylpicrylhydrazyl was not less than 4:1  
(bandwidth of the low frequency oscillator was 2 kc/s).  
There are no figures or tables. Of the two references,  
1 is Soviet and 1 is English.

ASSOCIATION: Fizicheskiy fakul'tet MGU (Department of Physics of  
the Moscow State University)

SUBMITTED: March 11, 1958.

1. Vibration---Propagation Applications
2. Traveling wave tubes--
3. Resonance--Magnetic factors

Card 2/2

06507

SOV/141-58-4-23/26

**AUTHOR:** Konstantinov, Yu.S.

**TITLE:** The Application of Self Oscillating Systems to the Study of Nuclear Magnetic Resonance Spectra (O primeneni avtokolebatel'nykh sistem dlya izucheniya spektrov yadernogo magnitnogo rezonansa)

**PERIODICAL:** Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika, Vol. 1-1958, Nr 4, pp 164-166 (USSR)

**ABSTRACT:** The autodyne method is widely used in experimental work on nuclear magnetic resonance (NMR) because of its high sensitivity, wide-band response and relative simplicity. Until recently it was reckoned that amplitude modulation of the autodyne, created when a signal passed through resonance, produced a response corresponding to absorption, while frequency modulation gave the dispersion. Pfeifer (Ref 3) showed, however, that the dispersion component distorts the form of the absorption signal even in the case where an amplitude detector is used; the character of the distortion depends on the magnitude of the parameter:

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SOV/141-58-4-23/26

The Application of Self Oscillating Systems to the Study of  
Nuclear Magnetic Resonance Spectra

$$\pi x_0 T_2^2 (\gamma H_0)^2$$

( $x_0$  is the static magnetic susceptibility of the nucleus,  $T_2$  is the transverse relaxation time,  $\gamma$  is the gyromagnetic ratio,  $H_0$  is the strength of the constant magnetic field). If the parameter is less than 1, then the dispersion component reduces the absorption line by a definite amount. If the parameter is greater than 1, then pulling occurs accompanied by a sharp distortion in the form of the absorption signal. For example, in the case of protons hysteresis occurs at a frequency of 15Mc/s even when  $T_2$  is greater than  $3.3 \times 10^{-4}$  sec, which corresponds to a width of absorption line of the order of 0.2 gauss. When hysteresis is present the form of the absorption signal differs from that predicted by Bloch's theory (see Ref 5); the resonance line then has an asymmetrical form. When investigating, for example, organic fluorine compounds the effect of the distortion

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06507

SOV/141-58-4-23/26

The Application of Self Oscillating Systems to the Study of  
Nuclear Magnetic Resonance Spectra

1 English and 1 German.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet  
(Moscow State University)

SUBMITTED: 8th January 1958

Card 4/4

SOV/120-59-2-7/50

AUTHORS: Fedin, E.I., and Konstantinov, Yu.S.

TITLE: Apparatus for Observing Nuclear Quadrupole Resonance  
(Apparatura dlya nablyudeniya yadernogo kvadropol'nogo rezonansa)

PERIODICAL: Pribery i tekhnika eksperimenta, 1959, Nr 2, pp 27-30  
(USSR)

ABSTRACT: A sensitive quadrupole spectrometer is described; the second derivative of the signal is recorded by using a phase-sensitive system to detect the second harmonic of a small-amplitude frequency modulation (double frequency modulation is used). Eq (1) defines the interaction energies of the nuclear quadrupole moment. The system is a modification of those described by Livingston et al (Refs 8 and 9). Eq (2) defines the voltage change in the circuit in terms of the (small) frequency deviation, etc. from which it follows that the second harmonic has an intensity given by Eq (3). Then Eq (4) gives the amplitude if the signal has the usual dispersion shape. Eq (5) gives the optimal frequency deviation (that which results in only 5% contribution from the fourth derivative). The next section deals with frequency deviations that exceed the line width; Eqs (6a) and

Card 1/2

SOV/120-59-2-7/50

Apparatus for Observing Nuclear Quadrupole Resonance

(6b) then give the output. This method gives better sensitivity in detecting the line, but cannot give the line width. The circuit is that of Ref 10 (Hopkins') modified to suit Soviet valves. Fig 5 shows the signals recorded from the  $^{35}\text{Cl}$  in 3 cc of polycrystalline sodium perchlorate at 29.9 Mc/s with scan amplitudes respectively smaller (left) and larger (right) than the line width.

Card 2/2 There are 5 figures and 12 references, of which 1 is German, 1 French, 7 are English and 3 are Soviet.

ASSOCIATION: Institut elementoorganicheskikh sovedineniy AN SSSR  
(Institute of Elemental-organic Compounds, Ac.Sc.  
USSR)

SUBMITTED: July 12, 1958

SOV/120-59-2-11/50

AUTHORS: Akhmanov, S.A., Gvozdover, S.D., Konstantinov, Yu.S.,  
and Trofimenko, I.T.

TITLE: An Autodyne 3 cm Radiospectroscope for Electron Paramagnetic  
Resonance Studies (Avtodinnyy radiospektroskop  
3-santimetrovogo diapazona dlya nablyudeniya elektronnoy  
paramagnitnoy rezonansy)

PERIODICAL: Pribory i tekhnika eksperimenta, 1959, Nr 2, pp 38-40  
(USSR)

ABSTRACT: A travelling-wave tube is fitted with variable phase-  
shifters and a ferrite isolator and is used in a  
regenerative (or super-regenerative) mode. The  
oscillation frequency is that of the cavity containing  
the specimen. The system is tested on DPPH;  $2 \times 10^{-8}$  mole  
is readily detected in the autodyne mode. The magnet  
is normal; a simple crystal-video detection system is  
used. The quenching frequency (20-30 kc/s) used in the  
super-regenerative mode is applied to the spiral on the  
travelling-wave tube. The sensitivity can, in  
favourable cases, be increased by a factor of 2-3, but

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SOV/120-59-2-11/50

An Autodyne 3 cm Radiospectroscope for Electron Paramagnetic Resonance Studies

superheterodyne or other methods are needed to give any further improvement.

Card 2/2 There are 2 figures and 4 references, of which 2 are Soviet and 2 English.

ASSOCIATION: Fizicheskiy fakul'tet MGU  
(Physics Department, Moscow State University)

SUBMITTED: January 14, 1958



S/058/61/000/010/028/100  
A001/A101

24,790 0

AUTHORS: Akhamov, S.A., Konstantinov, Yu.S., Volkov, V.A.

TITLE: On sensitivity of autodyne circuits for observation of nuclear magnetic resonance

PERIODICAL: Referativny zhurnal. Fizika, no. 10, 1961, 154-155, abstract 10V283 (V sb. "Paramagnitn. rezonans", Kazan', Kazansk. un-t, 1960, 145)

TEXT: The sensitivity of autodyne circuits for observations of nuclear magnetic resonance was investigated experimentally and theoretically. It is established that main noise sources in these circuits are amplitude fluctuations of autodyne and fluctuations in the gain factor of the high-frequency amplifier. Spectra of amplitude fluctuations of oscillations were measured in several autodynes in the frequency range from 100 cps to 5 kc by the demodulation method. The measurements were conducted for different modes of operation of autodynes, including the mode of synchronization by an external harmonic force. It was discovered that the main source of fluctuations are fluctuations of the tube transconductance. A calibration device analogous to Pound's device was employed for measuring the signal-to-noise ratio, parameters of autodyne as functions of their mode

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S/058/61/000/010/028/100  
A001/A101

On sensitivity of autodyne circuits ...

of operation. Spectral measurements of signal-to-noise ratios were made for different operation modes of autodynes. It is shown that at transition to the self-excitation threshold, the signal-to-noise ratio grows. Quantitative data are presented which characterize the circuits investigated. An attempt is made to formulate the quantitative criterion for estimating sensitivity of autodyne radio-spectroscopes for observations of nuclear magnetic resonance. ✓


[Abstracter's note: Complete translation]

Card 2/2

S/020/60/134/004/018/023  
B004/B064AUTHOR: Konstantinov, Yu. S.TITLE: Chemical Shift of the Nuclear Magnetic Resonance of F<sup>19</sup> in  
Organofluorine Compounds 19 19

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 134, No. 4, pp. 868-870

TEXT: To be able to use nuclear magnetic resonance (n.m.r.) in the structural and qualitative analysis of organofluorine compounds, the author investigated the n.m.r. of F<sup>19</sup> in approximately 100 molecules of known structure. Measurements were made with a synchronized autodyne spectroscope described in Ref. 6. The relative quantity  $\delta$  was used as the standard of shift:  $\delta = [(H_{\text{sample}} - H_{\text{stand}})/H_{\text{stand}}] \cdot 10^6$ , where  $H_{\text{sample}}$ ,  $H_{\text{stand}}$  denote the resonance potential of the magnetic field for the sample and for Freon (CF<sub>2</sub>Cl<sub>2</sub>) chosen as standard. Table 1 gives the minimum and maximum values of  $\delta$  for the fluorine-containing groups investigated. The minimum values of  $\delta$  ( $\delta_{\text{min}} = -63$ ,  $\delta_{\text{max}} = -27$ ) were found in the group



Card 1/3

Chemical Shift of the Nuclear Magnetic Resonance  
of  $F^{19}$  in Organo-fluorine CompoundsS/020/60/134/004/018/023  
B004/B064

$-C \begin{matrix} \text{O} \\ \parallel \\ \text{F} \end{matrix}$ , the maximum values ( $\delta_{\min} = 216$ ,  $\delta_{\max} = 230$ ) in the group  $-CFH_2$ . In the series  $CF_2H-$ ,  $-CFH-$ ,  $-CFH_2$ ,  $\delta$  increases with the number of hydrogen atoms bound to fluorine. The high value of  $\delta$  for  $-CFH-$  and  $-CFH_2$  made it possible to determine these groups in the molecule by means of n.m.r. In  $-CF_2H$ ,  $-CF_2-$ ,  $-CFCl-$ ,  $-CFBr-$ ,  $-CFBrH$ , and  $-CFClH$ , the ranges of  $\delta$  coincide.  $-CF_2H$  can, however, be recognized by the doublet splitting occurring as a result of the spin-spin interaction of F with H. In aliphatic chains,  $\delta$  is influenced by neighboring atoms; in the group  $C-CF_2-X$ ,  $\delta$  depends on X and increases in the series  $X = O, N, S, C$  from 50 to 105. The author thanks S. D. Gvozdover for his interest in the work, and L. S. German and B. L. Dyatkin, collaborators of the Institut elementoorganicheskikh sovedineniy AN SSSR (Institute of Elemental-organic Compounds of the AS USSR) for samples and discussions. There are 1 table and 7 references: 3 Soviet and 4 US. ✓

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Chemical Shift of the Nuclear Magnetic  
Resonance of  $F^{19}$  in Organofluorine Compounds

S/020/60/134/004/018/023  
B004/B064

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

PRESENTED: April 12, 1960 by I. L. Knunyants, Academician

SUBMITTED: April 12, 1960

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NEYMAN, M.B.; LIKHTENSHTEYN, G.I.; KONSTANTINOV, Yu.S.; KARPETS, N.P.;  
URMAN, Ya.G.

Thermal oxidative degradation of polypropylene studied by the  
method of nuclear magnetic resonance. Vysokom.soed. 5 no.11:  
1706-1710 N '63. (MIRA 17:1)

1. Institut khimicheskoy fiziki AN SSSR.

L 6352-66 EWT(1)/EWA(h)

ACC NR: AP5020363

SOURCE CODE: UR/0141/65/008/003/0513/0521

AUTHOR: Klyshko, D. N.; Konstantinov, Yu. S.; Tumanov, V. S.

54  
53  
B

ORG: Moscow State University (Moskovskiy gosudarstvennyy universitet)

TITLE: The parametric excitation of a two-level system during saturation

SOURCE: IVUZ. Radiofizika, v. 8, no. 3, 1965, 513-521

TOPIC TAGS: magnetic pumping, electromagnetic pump, electron paramagnetic resonance, parametric resonance

ABSTRACT: The possibilities of parametric amplification<sup>25</sup> of electromagnetic oscillations when a substance with a narrow absorption line is illuminated by an auxiliary monochromatic signal (pumping signal) are analyzed. It is assumed that the active substance is inside the resonator and that the resonator has two noninteracting types of oscillations with natural frequencies close to the pumping frequencies. An expression is obtained for the magnetization (or polarization in the case of electric dipole interaction) of a two-level system in the presence of an intense pumping field with a frequency  $\omega_1$  and two weak fields with frequencies  $\omega_2$  and

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UDC: 539.28

0702 C103

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lbb

ACC NR: AP6030441

SOURCE CODE: UR/0420/66/000/006/0110/0112 44

AUTHOR: Konstantinov, Yu. S.

ORG: None

TITLE: A method for solving transformed equilibrium equations (streamline method)

SOURCE: Samoletostroyeniye i tekhnika vozdushnogo flota, no. 6, 1966, 110-112

TOPIC TAGS: streamline flow, metal deformation, plasticity, plane flow

ABSTRACT: A method is proposed for transformation of equilibrium equations to give expressions of maximum simplicity for determining the stressed state of a body subjected to deformation. Only the plane problem is considered since the axisymmetric problem reduces to the plane problem under conditions of complete plasticity. The method is based on a curvilinear coordinate system consisting of mutually orthogonal families of streamlines, assuming that there are no tangential stresses along these lines. Formulas are derived which may be used to determine stress components  $\sigma_x$ ,  $\sigma_y$  and  $\tau_{xy}$  when a streamline has been experimentally found with a sufficient degree of accuracy. Orig. art. has: 1 figure, 4 formulas.

SUB CODE: 20, 12/ SUBM DATE: None/ ORIG REF: 004

Card 1/1 BP



KONSTANTINOVA, A.A.

S/O81/60/000/016/004/C12  
ACC6/A001

Translation from: Referativnyy zhurnal, Khimiya, 1960, No. 16, p. 87, # 64747

AUTHORS: Maydanovskaya, I.G., Karandasheva, R.A., Timofeyeva, N.S., Kon-  
stantinova, A.A., Vinokurtseva, I.M.

TITLE: Hydrogen Adsorption on Germanium ✓

PERIODICAL: Uch. zap. Tomskiy un-t, 1959, No. 29, pp. 165-169

TEXT: The hydrogen adsorption on high-dispersion germanium powder was studied in a temperature range from -186 to +300°C within a range of initial pressure of 0.724 - 0.935 mm Hg; and at -186 to +100°C within a range of initial pressure of 0.194 - 0.178 mm Hg. Isobar curves indicate a minimum at -100°C and a maximum at -17°C. The course of the isobar curve obtained by Low (Lou) by other experimental methods and plotted by three experimental points, is confirmed and made more precise. The isobar curve is plotted on the basis of ten experimental points. The values of 1/n in Freundlich's equation are calculated, which vary with changing temperature from 0.59 to 0.81. The authors show the applicabil-

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Card 2/2

TISHCHENKO, I.T.; SMOGARZHEVSKAYA, Ya.E.; SOFIYENKO, N.Ya.; KONSTANTINOVA,  
A.A.; LUR'YE, M.A.

On the problem of the etiology and epidemiology of intestinal  
dysfunctions induced by pathogenic Escherichia coli. Zhur.  
mikrobiol., epid. i immun. 30 no.12:115-117 D. '59.

(MIRA 13:5)

1. Iz Kiyevskoy gorodskoy sanitarno-epidemiologicheskoy stantsii.  
(ESCHERICHIA COLI INFECTIONS in inf. & child)

KONSTANTINOVA, A. A., YELSHINA, M. A., ZAYDENBERG, YE. G., FEDOROVA, L. G., and  
SOFIENKO, N. YA.

Continued studies of the spread of pathogenic strains of  
the intestinal rod among children of the younger age. p. 34

Materialy nauchnykh konferentsii, Kiev, 1959. 288pp  
(kievskiy Nauchno-issledovatel'skiy Institut Epidemiologii i Mikrobiologii)

KAL'BERGENOV, G.K.; LYAKH, A.I.; KONSTANTINOVA, A.D.; KHLOP, N.I.

Fertilizer mixed with insecticide. Zashch. rast. ot vred. i bol. 7  
no.8:35 Ag '62. (MIRA 15:12)

1. Institut sel'skogo khozyaystva nechernozemnoy zony, pochtovoye  
otdeleniye Nemchinovak, Moskovskoy oblasti. (for Kal'bergenov, Lyakh).
2. Saratovskaya toksikologicheskaya laboratoriya Vsesoyuznogo  
instituta zashchity rasteniy (for Konstatinova, Khlop).  
(Fertilizers and manures) (Insecticides)

S/051/62/012/003/008/016  
E202/E192

24,3000

AUTHORS: Fedorov, F.I., and Konstantinova, A.F.  
TITLE: Passage of light through plates of uniaxial active crystals belonging to axial classes

PERIODICAL: Optika i spektroskopiya, v.12, no.3, 1962, 407-411

TEXT: An exact solution to the passage of light through a plane parallel plate cut out from an optically active crystal is given. The solution takes into account the refraction at both edges of the plate. It is based on the earlier work of F.I. Fedorov and T.L. Kotyash (Ref.2: Opt. i spektr. v.12, 1962, 298) in which the same problem was solved for an uniaxial not (optically) active crystal. The accuracy in the present solution was particularly stressed since the anisotropic property is weak and could easily be masked or exceeded by the effect of the refraction at both edges of the plate polarising the emergent wave. The solution is applicable to a normal incidence of light at any orientation of optical axis. The expressions for amplitudes of the emergent wave are given in terms of the

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Card 1/2

Passage of light through plates... E202/E192

incident wave and are derived using formal vector calculus and Maxwell's equations.  
There is 1 figure.

SUBMITTED: March 3, 1961

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243300

37221  
S/051/62/012/004/006/015  
E039/E485

AUTHORS: Fedorov, F.I., Konstantinova, A.F.

TITLE: The passage of light through plates of uniaxial optically active crystals. II. Plates, parallel to optical axis

PERIODICAL: Optika i spektroskopiya, v.12, no.4, 1962, 505-509

TEXT: In a previous paper a general expression was obtained for the amplitude of waves passing perpendicular to plane parallel plates with arbitrarily orientated optical axes cut from uniaxial optically active crystals. In this paper is considered the case when the optical axis is parallel to the faces of the plate. When linearly polarized light passes through non-active uniaxial crystals the polarization is unchanged, but in the case considered here the linear polarization is converted into elliptical. Calculations are made which show that the magnitude of this effect is small in the case of quartz. It is also shown that the polarization parameters for waves passing through two crossed plates have approximately the same value as for one plate. It is concluded that the plane of polarization of linearly  
Card 1/2

Vif

The passage of light ...

S/051/62/012/004/006/015  
E039/E485

polarized light is not rotated on passing perpendicular to the optical axis through uniaxial optically active crystals.

SUBMITTED: March 6, 1961

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Card 2/2

S/070/62/007/006/011/020  
E132/E435

AUTHORS: Fedorov, F.I., Bokut', B.V., Konstantinova, A.F.

TITLE: The optical activity of crystals of the classes of intermediate symmetry having planes of symmetry

PERIODICAL: Kristallografiya, v.7, no.6, 1962, 910-915

TEXT: The classes in question  $L^6P$ ,  $L^4P$  and  $L^3P$  (6 mm, 4 mm, 3 mm) having a plane of symmetry parallel to their axes of highest order have hitherto been thought to be optically inactive. There are few crystals representative of these classes but tourmaline is one. Rotation of the plane of polarization cannot occur for any direction of propagation but optical activity can manifest itself by other phenomena, as in optically active crystals of other classes, for propagation along directions other than the optic axis. It is shown that the phenomenon of the elliptic polarization of the reflected wave is a unique symptom of optical activity. It is, however, normally extremely small - of the order of  $10^{-5}$  in quartz. An experimental arrangement for making observations under the best conditions is suggested. The surface of the crystal is immersed in a liquid of carefully  
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The optical activity ...

S/070/62/007/006/011/020  
E132/E435

chosen refractive index. The refractive index can be changed slightly, by altering its temperature, thus changing the sign of the effect. In addition to detecting the presence of optical activity, it should be possible to determine its sign. In principle too, optical activity can be detected in absorbing crystals. There is 1 figure.

ASSOCIATIONS: Institut fiziki AN BSSR (Institute of Physics AS BSSR).  
Institut kristallografii AN SSSR  
(Institute of Crystallography AS USSR)

SUBMITTED: March 21, 1962

Card 2/2



ROZHKOV, I.S.; ABRASHEV, K.K.; KONSTANTINOVA, A.F.

Some characteristics of the heat conductivity of diamonds from  
the "Mir" and "Aykhal" deposits. Geol. i geofiz. no.3:135-138  
'64. (MIRA 18:7)

1. Yakutskiy filial Sibirskogo otdeleniya AN SSSR, g. Yakutsk.

ROZHKOV, I.S.; ABRASHEV, K.K.; KONSTANTINOVA, A.P.; TORITSYN, B.A.

Dependence of the electrical conductivity of diamonds on temperature.  
Geol. i geofiz. no.2:138-141 '65. (MIRA 18:9)

1. Yakutskiy filial Sibirskogo otdelentya AN SSSR, Yakutsk.

KONSTANTINOVA, A.F., assistant

Disinfecting lilac seedlings against bud acarines. Zashch. rast.  
ot vred. i bol. 6 no.4:38 Ap '61. (MIRA 15:6)

1. Kafedra fitopatologii Mskovskogoy ordena Lenina sel'skokhozyay-  
stvennoy akademii im. Timiryazeva.

(Lilacs--Diseases and pests)

(Acarina)

KONSTANTINOVA, A.G. [Konstantynova, A.H.]

Anatomical features of certain species of Poa among Ukrainian flora.  
Ukr.bot.zhur. 17 no.1:51-58 '60. (MIRA 13:6)

1. Khar'kovskiy gosudarstvennyy universitet im. A.M.Gor'kogo.  
Institut biologii.  
(Grasses)

KONSTANTINOVA, A.G.

Effect of grazing on the change of the floristic composition of psammophytes. Nauch.dokl.vys.shkoly; biol.nauki no.4:121-123 '62.

(MIRA 15:10)

1. Rekomendovana Institutom biologii Khar'kovskogo gosudarstvennogo universiteta im. A.M.Gor'kogo.

(LUGANSK PROVINCE—PASTURES AND MEADOWS)

KONSTANTINOV, A.G.

ANTSIFEROV, M.S.; KONSTANTINOVA, A.G.

Analysis of seismoacoustic phenomena during two outbursts of coal  
and gas in Donets Basin mines. Trudy Geofiz. inst. no. 34:243:268 '56.  
(Donets Basin--Coal mines and mining--Safety measures)(MLBA 10:2)  
(Mine explosions)

SOV/124-57-9-10813

Translation from: Referativnyy zhurnal. Mekhanika, 1957, Nr 9, p 140 (USSR)

AUTHORS: Antsyferov, M. S., Zvolinskiy, N. V., Konstantinova, A. G.

TITLE: On the Emission and Propagation of Quasi-harmonic Elastic Waves Under the Conditions Obtaining in Underground Mines (Ob izuchenii i raspostranении kvazigarmonicheskikh uprugikh voln v usloviyakh podzemnykh vyrabotok)

PERIODICAL: Tr. Geofiz. in-ta. AN SSSR, 1956, Nr 34 (161), pp 280-295

ABSTRACT: The authors examine problems relating to the emission and propagation of quasi-harmonic stationary elastic waves under conditions obtaining in underground mines. For the purposes of their examination of these problems the medium is considered to be ideally homogeneous. They examine two types of driving forces: 1) Forces acting from within the elastic medium [three-dimensional (spherical; Transl. Ed. Note)] waves and 2) forces acting on the free boundary of a semi-infinite medium (surface waves). It is established that the driving power needed to excite surface waves having a given amplitude is approximately two orders of magnitude smaller than the driving power needed to excite three-dimensional waves having that same amplitude.

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SOV/124-57-9-10813

On the Emission and Propagation of Quasi-harmonic Elastic Waves Under the (cont.)

Also, the authors elucidate the law whereby the intensity of the emissive power must increase with the observer's distance from the emitter. An account is given of observation methods used, and the results obtained thereby, in coal mines of the Donbass. While, in general, the author's experimental findings do support their theoretical conclusions, the wave-attenuation picture as traced by them is rendered more complicated in some respects by the operation of interference and resonance factors. Included are experimental data on the propagation distance of elastic waves (in the 300-1,000 cps frequency range) in Donbass coal seams and in the rock enclosing them.

Authors' résumé

Card 2/2



KONSTANTINOVA, A.G.

ANTSYFEROV, M.S., kand.fiziko-matemat.nauk; KONSTANTINOVA, A.G., kand.  
geologo-mineralogicheskikh nauk.

Using geophones in mine rescue work. Bezop.truda v prom. 1  
no.10:25-26 O '57. (MIRA 10:11)

(Geophone)

AUTHOR: Konstantinova, A. G.

TITLE: On the Dynamics of the Abrupt Ejection of Coal and Gas in  
Mines, Based on Seismic Observations (O dinamike vnezapnykh  
vzrysov uglia i gaza v shakhtakh po dannym seysmoakusti-  
cheskikh nablyudeniy)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000824410016-5

PERIODICAL: Izvestiya Akademii nauk SSSR, Seriya geofizicheskaya,  
1959, Nr 2, pp 229-241 (USSR)

ABSTRACT: This work describes the data obtained by the Geophysical  
Institute of the Academy of Sciences USSR, for the ejection  
of coal and gas which took place on April 7, 1954 in the  
"Yunkom" mine of the "Ruchyy" coalfield in the Donetsk.  
The ejection lasted about 23 sec. The total duration could be  
divided into 3 different cycles, each lasting 8 sec, accord-  
ing to the type of oscillation registered by the tape record-  
er. The first cycle indicated a seismic process of low energy.  
The second cycle showed the rise of energy while the third  
cycle was characterized by the fall of energy. The character  
of the impulses in terms of their frequencies and amplitudes  
is shown in Figs 1-3. Fig 1 illustrates the time distribution

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the oscillations show a non-interrupted character which, at  
the beginning of the low frequency process (third cycle) in-  
dicates on a continuous seismo-acoustic process (Fig 6). It  
can be seen from the figures that the frequency of impulses  
and their amplitude remained in close connection, i.e. the  
low frequency processes developed large amplitude and the  
high frequencies, a low amplitude. The energy of the ejection  
had a tendency to periodic rises. To apply the observed data

Card 2/4 to the dynamical processes in the coal seam, the following

SOV/49-59-2-7/25

On the Dynamics of the Abrupt Ejection of Coal and Gas in Mines,  
Based on Seismic Observations

factors should be considered: a - pressure of the whole layer above, b - pressure of the gas in the coal seam, c - physical properties of the coal, d - weight of the coal in the case of deep stratification. It could be said that the ejection originated in the interior of the coal mass and then developed in the avalanche manner. An introductory period, prior to the ejection, was caused by cracks in the coal seam due to the pressure from above. The suddenness of the ejection in its final state was caused by the pressure of gas. The most intensive seismic waves of low frequency recorded during the experiments could be ascribed to the major breaks in the coal mass, while the intensive waves of high frequency were connected with the dislocations of a minor character caused by the pressure of both the whole layer above and gas (Refs 1, 2, 10, 11, 12). The high frequency processes of low intensity were caused by the fractures in the coal, due to gas pressure while the low frequency and low intensity vibrations (Fig 7) were coupled with the expulsion of gas and coal dust. All the above kinds of waves were registered during the observations, permitting the finding of an explanation of the

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SOV/49-59-2-7/25

On the Dynamics of the Abrupt Ejection of Coal and Gas in Mines,  
Based on Seismic Observations

character of the ejection starting from its initial moment.  
The author thanks A. A. Skochinskiy and M. S. Antsyferov for  
their advice and assistance. There are 7 figures and 29  
references; all of the references are Soviet.

ASSOCIATION: Akademiya nauk SSSR, Institut gornogo dela (Academy of  
Sciences USSR, Mining Institute)

SUBMITTED: June 16, 1957.

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SOV/49-59-4-12/20

AUTHOR: Konstantinova, A. G.

TITLE: On the Character of Elastic Impulses Accompanying a Disintegration of Rocks (O forme uprugikh impul'sov, soprovozhdayushchikh razrusheniye gornykh porod)

PERIODICAL: Izvestiya Akademii nauk SSSR, Seriya geofizicheskaya, 1959, Nr 4, pp 604-610 (USSR)

ABSTRACT: Experiments were carried out under laboratory conditions, where an elastic impulse was applied to various materials (gypsum, colophony, paraffin wax, coal, marble) subjected to pressure. The apparatus employed in the experiments is shown in Fig 1, where 1 - sample, 2 - metal plates, 3 - felt layer, 4 - piezo-electric gauge, 5 - noise meter, 6 and 7 - magnetophones, 8 - oscillograph, 9 - small sphere attached to a piece of cotton, 10 - plates of the press. The main impulses were measured together with their disturbances caused by the sphere knocking the sides of the samples at predetermined moments of time. In the result, 3 types of disintegration of samples were obtained; first, fractures and breaks of such materials as the colophony (Fig 5. colophony, a; gypsum; b, talc-chloride, g, and coal, 4; second, the fragments breaking away (paraffin, Fig 6); third, the type of the disintegration similar to those taking place in coalmines (Fig 7). All the

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