

CA

21

Electric resistance of coals and shales on heating.  
A. A. Agroskin and I. G. Petrenko. *Zavodskaya Lab.* 14, 807-12(1948).—Measurements were made on 30-g. samples of material ground to grain sizes up to 2 mm., by the ammeter-voltmeter method up to 600° and the bridge method above 600°. The applied d.c. voltage, within the limits 4-140 v., has no significant effect on the elec. resistance. Grain size has an influence only up to about 350°. The effect of moisture also disappears rapidly at higher temps. On the whole, the specific elec. resistance  $\rho$  of various types of hard coal, brown coal, and shale decreases from  $10^{10}$  ohm-cm. at room temp. to 10 ohm-cm. at 900°. Between 0 and 200°, hard coal shows a regular decrease of  $\rho$ , whereas for soft coal and shale  $\rho$  decreases between 0 and 50-100°, and increases up to a max. at 200°. Between 200 and 800°,  $\rho$  decreases regularly with rising temp.,  $\log \rho = a - bt$ , with  $a \sim 12$ ,  $b \sim 1.2 \times 10^{-3}$ . Above 800°, the fall of  $\rho$  becomes slower,  $\rho$  being usually smaller than 100 ohm-cm. Materials with a higher content of volatile matter have a somewhat higher  $\rho$ . N. Thun

PETRENKO, I. G.

PA17/49T24

USSR/Electricity  
Resistance, Electrical  
Coal

Jul 48

"Determination of the Electrical Resistance of  
Heated Coal and Shale," A. A. Agroskin, I. G.  
Petrenko, Power Eng Inst, Acad Sci USSR, 5 pp

"Zavod Lab" Vol XIV, No 7

Report of experiments describes apparatus and  
method in detail. Plots and discusses results.

17/49T24

C. A.

1951

*F. S. and L. C. Pattenko*  
*Produced*  
*21*

**Electrical resistance of shale and coal on heating.** A. A. Agroskin and L. C. Pattenko (G. M. Krzhizhanov Energy Inst., Acad. Sci. U.S.S.R.). *Izv. Akad. Nauk S.S.S.R., Otdel. Tekh. Nauk* 1950, 89 100. Elec. resistance of shale and coal decreased on heating from  $10^6$  to  $10^8$  ohm-cm. at room temp. to 10-100 ohm-cm. at  $900^\circ$ . Between  $200^\circ$  and  $800^\circ$  the resistivity curve was almost straight and could be expressed by the equation  $\lg \rho = a - bT$ . The decrease was caused by breaking down of hydrocarbons during the heating process. An increase in moisture decreased resistivity at room temp.; when moist samples of shale or coal were heated, the resistivity decreased up to  $100^\circ$  because of increasing content of sol salts in the moisture, then rapidly increased as moisture was eliminated, followed by the normal decrease. Resistivity of anthracite decreased from 3500 ohm-cm. at room temp to 10 ohm-cm. at  $900^\circ$ . H. W. Rathmann

PETRENKO, I. G.

USSR/Fuel - Coal Shale

Jan 50

"Electrical Resistance of Shales and Coals During Heating," A. A. Agroskin,  
I. G. Petrenko, Power Eng Inst imeni G. M. Krzhizhanovskiy, Acad Sci USSR, 12 pp

"Iz Ak Nauk SSSR, Otdel Tekh Nauk" No 1

Thermal processing of shales and coals by use of electrical current as energy carrier should be of great practical importance. Therefore, preliminary studies on their resistances must be made. Studied resistance versus temperature, found to be almost linear:  $\log \rho = a - bT$  (specific resistance  $\rho$  in  $\text{ohm}\cdot\text{cm}$ ;  $T$  from 100 to 800°C;  $a = 11.6$  and  $b = 1.32 \cdot 10^{-2}$ ). Studied effect of speed of heating upon resistance; and effect of crushing, moisture, coal type (all change slightly above linear semilog relation); electrical conductivity of lime and of anthracite. Submitted 16 Jun 49 by Acad N. P. Chizhevskiy.

PA 161T72

1. PETRENKO, I. G.
2. USSR (600)
4. Isotopes
7. Use of isotopes in the chemistry and technology of solid fuel and gas. Izv AN SSSR. Otd. tekhn. nauk no. 1, 1953 pp 34-48

Briefly reviews activity of Soviet scientists since 1917 in use of isotopes to study various processes and presents table of atomic nuclei of elements entering compn of fuel portion. Discusses following subjects: mechanism of photo-synthesis, age detn by content of heavy ~~radiation~~ radioactive C isotope, heterogeneity of active surface of catalysts, Fischer-Tropsch synthesis (claims Soviet priority, attributing detection of synthesis to Ye. I. ~~Tropsch~~ Orlov 18 years ahead of Fischer and Tropsch), study of exchange reaction between CO<sub>2</sub> with C, process of sulfur distribution among coking products, and elementary isotopic analysis of org substances. Bibliography lists 85 titles, including 28 non-Soviet (French, German, and mostly US) in translated or original form. Presented by A.B.Chernyshev, Corr Mem. AS USSR.

256T75

9. Monthly List of Russian Accessions, Library of Congress, June 1953. Unclassified.

FD-411

USSR/Chemistry - Fuels

Card 1/1                      Pub 41 - 15/16

Author                        : Petrenko, I. G.

Title                         : On the Mechanism of the reaction of reducing carbon dioxide

Periodical                    : Izv. AN SSSR, Otd. Tekh. Nauk 5, 157, May 1955

Abstract                      : Describes the method of studying the mechanism of the re-  
action of reduction of carbon dioxide through the use of  
radioactive isotopes of carbon, C<sup>14</sup>. It was determined  
that the speed of the reaction of the transformation of  
carbon, just as the direct reactions of carbon monoxide for-  
mation, depends greatly on the intensity of heat applied,  
and the initial partial pressure of the carbon dioxide.

Institution                    : Institute of Mineral Fuels, Academy of Sciences, USSR

AGROSKIN, Anatoliy Abramovich; GRIGOR'YEV, Stepan Makarovich; PETRENKO,  
Ivan Gavrilovich; PITIN, Rafail Nikolayevich; SAPOZHNIKOV, L.N.,  
otvetstvennyy redaktor; KLIMOV, V.A., redaktor izdatel'stva;  
PAVLOVSKIY, A.A., tekhnicheskii redaktor

[Bulk weight of coal used in coking] Nasypnoi ves uglei dlia  
koksovania. Moskva, Izd-vo Akademii nauk SSSR, 1956. 175 p.  
(MIRA 9:8)

1. Chlen-korrespondent AN SSSR (for Sapozhnikov)  
(Coke industry) (Coal)

LAVROV, N.V., akademik: PETRUKO, I.G.

Mechanism of methane conversion by steam. Dokl. AN UzSSR no. 346.5-  
647 S '64. (MIRA 17/10)

1. AN UzSSR (for Lavrov).



AGROSKIN, Anatoliy Abramovich. Prinimali uchastiye: GRIGOR'YEV,  
S.M., doktor tekhn. nauk; PIPIK, K.K., doktor tekhn.  
nauk; PETRENKO, I.G., kand. khim. nauk; GOL'DBERG, I.I.,  
kand. fiz.-matem. nauk; ZAGREBEL'NAYA, V.S., kand.  
tekhn. nauk, dots.; GONCHAROV, Ye.I.

[Physics of coal] Fizika uglia. Moskva, Nedra, 1965.  
351 p. (MIRA 10:1)

L 32011-65 EPA/EWT(m)/EPA(s)-2/EIP(c)/EWP(j)/EPR Pc-4/Pr-4/Ps-4/Pt-10 WJ/JJ/RS  
ACCESSION NR: AP5005891 S/0020/65/160/003/0612/061.

AUTHOR: Lavrov, N.V. (Academician AN UzSSR); Petrenko, I.G.

TITLE: The mechanism of methane combustion at elevated temperatures

42  
0

SOURCE: AN SSSR. Doklady, v. 160, no. 3, 1965, 612-614

TOPIC TAGS: methane combustion, combustion mechanism, high temperature combustion,  
methane oxidation, formaldehyde oxidation

ABSTRACT: A radical chain mechanism for the oxidation of methane to carbon dioxide and water vapor at temperatures above 800C is proposed and calculated. Thermal effects and activation energies for the elemental reactions involved are presented. The calculation and reaction mechanism are based on Semenov's theory (O nekotorykh problemakh khimicheskoy kinetiki i reaktsionnoy sposobnosti, Izd. AN SSSR, 1958), assuming the combined interaction of methane-oxygen and thermal decomposition of methane, and its combustion in three stages, i.e.: partial combustion of methane to formaldehyde ( $\text{CH}_4 + \text{O}_2 = \text{H}_2\text{CO} + \text{H}_2\text{O} + 73.4 \text{ kcal/mole}$ ); decomposition of formaldehyde due to thermal decomposition and oxidation; and oxidation of combustible compounds formed in the second stage to carbon dioxide and water. The total enthalpy balance, - 191.8 kcal/mole, corresponds well with

Card 1/2

L 32011-65

ACCESSION NR: AP5005891

published values. Possible side reactions are also given. The endothermic reaction (26.1 kcal/mole)  $\text{CH}_3 + \text{O}_2 = \text{CH}_3 + \overset{\cdot}{\text{O}}\text{O}$  is proposed as the rate-limiting step. Possible additional elemental reactions are discussed and two alternative reactions and a radical mechanism are proposed for oxidation of formaldehyde to carbon monoxide and hydrogen. The relative rates of the competitive reactions determine the carbon monoxide-hydrogen ratio. Orig. art. has: 32 formulas.

[08]

ASSOCIATION: none

SUBMITTED: 04Sep64

ENCL: 00

SUB CODE: OC, FP

NO REF SOV: 005

OTHER: 003

ATD PRESS: 3201

Card 2/2

L 16438-65 EWT(m)/EPF(c)/EPR/EWP(j) Ps-4/Pr-4/Ps-4/Pl-4 RPL WW/JW/JFW/RM  
 ACCESSION NR: AP4044883 S/0020/64/157/006/1410/1412

AUTHOR: Lavrov, N. V. (Academician AN UzSSR); Petrenko, I. G. B

TITLE: The mechanism of the reaction of methane conversion with carbon dioxide

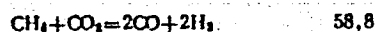
SOURCE: AN SSSR. Doklady\*, v. 157, no. 8, 1964, 1410-1412

TOPIC TAGS: methane carbon dioxide conversion, reaction mechanism, monoradical chain mechanism, methylene radical

ABSTRACT: Based on literature data and their investigations, the authors analysed the elementary reactions of the reaction of CH<sub>4</sub> with CO<sub>2</sub> and their heat effects. The following monoradical chain mechanism was suggested:

	$\Delta H_{298}^0$	KCal/mol.	KCal/mol. E,
1. CH <sub>4</sub> +H=CH <sub>3</sub> +H <sub>2</sub>	-1,2	11,2	
2. CH <sub>3</sub> +OCO=CH <sub>2</sub> O+CO	30,2	38,7	
3. CH <sub>2</sub> O=H <sub>2</sub> CO+H	17,0	24,3	
4. H <sub>2</sub> CO+H=HCO+H <sub>2</sub>	-27,2	4,7	
5. HCO=H+CO	34	37	

Card 1/2

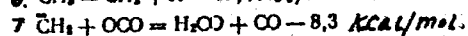
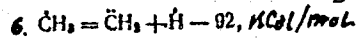


L 16438-65

ACCESSION NR: AP4044883

2

According to this mechanism, reaction 1 is the link in the basic chain of the mono-radical chain; reaction 2, the formation of CO and the methoxyl radical, is the process rate determining reaction; and the heat effect of the overall reaction is in good agreement with the experimental value of 59.1 kcal/mol. The formation of the methylene biradical and its reaction with CO<sub>2</sub> was also indicated possible:



Other intermediate reactions were also indicated possible but insignificant due to their higher heat consumption. Orig. art. has: 11 equations

ASSOCIATION: None

SUBMITTED: 27Apr64

ENCL: 00

SUB CODE: GC

NO REF SOV: 006

OTHER: 002

Card 2/2

PETRENKO, I.G.

Isotopic composition of natural combustible gases. Trudy IGI  
16:7-13 '61. (MIRA 16:7)  
(Gas, Natural) (Carbon isotopes)

PETRENKO, I.G.; Priniziala uchastiye BORISOVA, S.N., laborant

Isotopic molecules of methane and its derivatives. Trudy IGI 16:  
14-23 '61. (MIRA 10:7)

(Methane) (Isotopes)

PETRENKO, I.G.; BELYANOVA, Ye.M.

Method of studying the gas flow in an underground gas producer with  
the aid of radioactive isotopes. Trudy IGI 13:144-152 '60.

(Gas flow) (Gas producers)

(MIRA 14:5)



PETRENKO, I.G.

Methods for studying the processes taking place in reactions between  
carbon oxides and coal with the aid of the radioactive isotope C<sup>14</sup>.  
Trudy IGI 13:5-12 '60. (MIRA 14:5)  
(Carbon oxide) (Coal) (Carbon-isotopes)

PETRENKO, I.G.; KRICHKO, I.B.

Exchange reaction between carbon monoxide and carbon dioxide under  
homogeneous conditions. Trudy IGI 13:13-16 '60. (MIRA 14:5)  
(Carbon monoxide) (Carbon dioxide)

AL'TSHULER, V.; PETRENKO, I.G.

Kinetics of the interaction between gases and carbon; comments on  
P.A.Tesner's article. Gaz.prom. 6 no.2:48-49 '61. (MIRA 14:4)

(Gases) (Carbon) (Tesner, P.A.)

PETRENKO, I.G.

Coal oxidation processes under the effect of ionizing radiation.  
Trudy IGI 14:91-97 '60. (MIRA 13:12)  
(Coal) (Ionization) (Oxidation)

PETRENKO, I.G.

Methods of determining the reactivity of coke. Koks i khim. no.9:  
27-29 '60. (MIRA 13:9)

1. Institut goryuchikh iskopayemykh im. G.M.Krzhizhanovskogo AN SSSR.  
(Coke)

VOLAROVICH, Mikhail Pavlovich; CHURAYEV, Nikolay Vladimirovich;  
PETRENKO, I.G., otv.red.; MEDER, V.M., red.izd-va;  
YEPIFANOVA, L.V., tekhn.red.

[Study of the properties of peat and of processes occurring  
in it by means of radi isotopes] Issledovanie svoistv torfa  
i protsekhushchikh v nem protsessov pri pomoshchi radio-  
aktivnykh izotopov. Moskva, Izd-vo Akad.nauk SSSR, 1960.  
195 p. (MIRA 14:2)  
(Peat) (Radi isotopes--Industrial applications)

PETRENKO, I.G.

Study of the processes of gasification of solid fuel by the  
isotope method. Trudy IGI 11:9-22 '59. (MIRA 13:6)  
(Coal--Gasification) (Carbon--Isotopes)

PETRENKO, I.G.

Isotope-containing molecules of the main products of fuel combustion and gasification. Trudy IGI 11:30-38 '59. (MIRA 13:6)  
(Coal--Gasification) (Isotopes)



LEARENKO, I. G.

PHASE I BOOK EXPLOITATION

SOV/3731

Akademiya nauk SSSR. Institut goryuchikh iskopayemykh

Gazifikatsiya i gorenije topliva (Fuel Gasification and Combustion) Moscow, Izd-vo AN SSSR, 1959. 227 p. (Series: Izv. Trudy, Vol 11) Errata slip inserted. 1,800 copies printed.

Ed.: N. V. Lavrov; Ed. of Publishing House: V. N. Pokrovskiy; Tech. Ed.: I. N. Dorokhina.

**PURPOSE:** This collection of articles is intended for scientific research workers and engineers studying combustion processes and solid fuel gasification.

**COVERAGE:** This collection concerns the theoretical and experimental study of the mechanism of chemical reactions occurring in combustion and gasification. Results of the isotopic method of studying the gas generating process and its reactions, and the reaction of carbon monoxide and heated coal are analyzed and the pilot plants used in this study are described. Reactions of coal combustion, coal oxidation, methane dissociation and conversion are discussed and their

Card 1/6

Fuel Gasification and Combustion

SOV/3731

equilibrium constants given in tables. The processes of methane oxidation by oxygen and synthesis-gas production by oxidizing natural gas with the subsequent reduction of oxidation products by carbon are analyzed as is the effect of an excessive amount of air on the burning process of powdered solid fuel. The utilization of heavy petroleum residue and tar for combustion and gasification purposes is also discussed along with the principles of fluidization. Analysis, routine control and intensification of physical and chemical processes by means of ultrasonic vibrations are also covered. No personalities are mentioned. References accompany all but the first article.

TABLE OF CONTENTS:

Lavrov, N.V. Grandiose Plan for the Development of the Gas Industry in the Soviet Union 3

Petrenko, I.G. Isotopic Method of Studying Solid Fuel Gasification Processes 9

Lavrov, N.V., V.V. Korobov, V.I. Filippova, and I. I. Chernenkov. Thermodynamics of Gasification Reactions 23

Petrenko, I.G. Isotopic Molecules of Principal Combustion Products and the Gasification of Fuel Card 2/6 30

PETRENKO, I.G.; ERICHKO, I.B.

Study of the mechanism of oxidation processes with the aid of  
the oxygen and carbon isotopes  $O^{18}$  and  $C^{14}$ . Trudy IGI 8:254-264  
'59. (MIRA 13:1)

(Coal weathering) (Isotopes--Industrial application)

PETRENKO, I.G.

Studying the processes of underground coal gasification by  
means of isotopes. Podzem.gaz.ugl. no.3:61-64 '59.  
(MIRA 12:12)

1. Institut gornogo dela AN SSSR.  
(Radio isotopes--Industrial application)  
(Coal gasification, Underground)

PETRENKO, I. G.

ПРИМЕНЕНИЕ ИЗОТОПОВ  
ДЛЯ ИЗУЧЕНИЯ ХИМИЧЕСКИХ РЕАКЦИЙ  
ГАЗОТЕРАТОРИЙНОГО ПРОЦЕССА

И. Г. Петренко

VIII Mendeleev Congress for General and Applied Chemistry in  
Section of Chemistry and Chemical Technology of Fuels,  
publ. by Acad. Sci. USSR, Moscow 1979

abstracts of reports scheduled to be presented at above mentioned congress,  
Moscow, 15 March 1979.

AUTHOR:

Petrenko, I.G.

89-11-13/23

TITLE:

On the Problem of the Number and Concentration of Isotopic Molecules of Simple and Complex Media (K voprosu o kolichestve izotopnykh molekul prostykh i slozhnykh veshchestv i ikh kontsentratsiyakh)

PERIODICAL:

Atomnaya Energiya, 1958, Vol. 4, Nr 4, pp. 377-380 (USSR)

ABSTRACT:

When solving the problem concerning the number of isotopic molecules existing in a simple or complicated medium the bases of mathematical statistics can be successfully employed. The solving process with formulae is theoretically given and the results obtained are demonstrated on the basis of examples. Thus, the compound CO has the isotopic molecules:  $C^{12}O^{16}$ ,  $C^{12}O^{17}$ ,  $C^{12}O^{18}$ ,  $C^{13}O^{16}$ ,  $C^{13}O^{17}$ ,  $C^{13}O^{18}$ , the relative frequency of which is calculated by the method mentioned. For  $CO_2$  and  $CH_4$  the respective results are also shown in tables. There are 3 tables, and 3 Soviet references.

Card 1/2

On the Problem of the Number and Concentration  
of Isotopic Molecules of Simple and Complex Media

89-4-4-13/28

SUBMITTED: June 26, 1957

1. Molecules--Counting methods
2. Methane--Structural analysis
3. Complex compounds--Structural analysis
4. Mathematics

Card 2/2

PETRENKO, I.G.

The quantity and concentration of isotopic molecules of simple and complex substances. Atom. energ. 4 no.4:377-380 Ap '58. (MIRA 11:5)  
(Isotopes)



PETRENKO, I. G.  
AUTHOR: Petrenko, I.G.

65-7-2/14

TITLE: A Study of the Mechanism of the Reduction of Carbon Dioxide Using Radioactive Carbon (Izucheniye mekhanizma reaktsii vosstanovleniya dvoukisi ugleroda pri pomoshchi radioaktivnogo ugleroda)

PERIODICAL: Khimiya i Tekhnologiya Topliva i Masel, 1957, No.7, pp. 15 - 20 (USSR)

ABSTRACT: The above reaction was studied using carbon dioxide containing radioactive  $C^{14}$ . The experimental technique consisted of circulating the initially introduced carbon dioxide and together with carbon monoxide formed in a closed circuit apparatus containing a sample of carbonaceous material investigated (charcoal, metallurgical coke, electrode carbon), heated to 700 - 1100 °C and measuring the pressure and activity of  $CO_2$  + CO and CO. At the end of an experiment the activity of the remaining solid carbon material was also measured. The experimental results are shown in the form of graphs. On the basis of the results obtained, the mechanism of reduction of  $CO_2$  is postulated (Fig.5). 1) The first step is chemisorption of carbon dioxide on carbon with the formation of six-membered cyclic oxygen-carbon complexes on the surface of carbon. At comparatively low temperatures and depending on the conditions

Card1/3

A Study of the Mechanism of the Reduction of Carbon Dioxide Using  
Radioactive Carbon 65-7-2/14

temperatures compound  $C_3O_2$  is possible. The latter is then decomposed with the formation of two molecules of carbon monoxide and elemental carbon. 6) In addition, reverse reactions can also take place. In this instance, isotope exchange reactions between carbon monoxide and dioxide are of substantial importance. There are 5 figures and 5 references, 4 of which are Russian and 1 English.

ASSOCIATION: IGI AN SSSR

AVAILABLE: Library of Congress

Card 3/3

PETRENKO, I. G.

Investigation of carbon dioxide reduction mechanism with radioactive carbon  $^{14}C$ . I. G. Petrenko. *Khim. i Tekhnol. Toplice i Mors* 1957, No. 7, 15-20. — A quartz tube with a layer of carbon (2-3-mm. particles) on a quartz screen inside the tube was evacuated, heated to 700-1100°, and again evacuated to  $10^{-3}$  mm. pressure. The tube was

1 - Prol  
S.A.M.

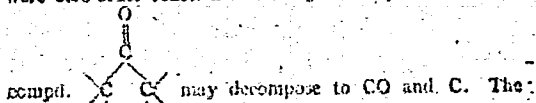
then filled with 1.2 l.  $C^{14}O_2$  of total radioactivity 10-50  $\mu$ c. (specific activity 1.8  $\mu$ c./millimole, initial activity 2538 impulses/min.), and the gas was circulated for 90 min. at 1000° at the vol. rate 0.72 l./min. and initial pressure 330 mm. The mica end-window counter was included in the system. The gas entering the counter was cooled to room temp. and its vol. was 4.0 cc. The reaction products were sepd. through freezing traps, and in this manner were obtained the radioactivity of products, the pressure coeff. ( $P/P_0$ ), the activity coeff. ( $I/I_0$ ), the activity no. ( $I/P$ ), and the change in the radioactivity owing to the heterogeneous isotope exchange ( $I/P_0$ ), and the difference ( $I/P - I/P_0$ ) (showing the activity value which in respect to the unit of pressure was detd. by the change of pressure in the system). During the first 5-10 min., the  $P/P_0$  indicated that the pressure within the system rapidly increased, then decreased until  $P/P_0$  had a const. value of 1.04. During the same time the  $I/I_0$  decreased to a const. value of 0.64. Neither the increase in pressure nor the change in compn. of gaseous reaction products had any practical effect on the  $I/I_0$ . Some decrease in the activity of the gases during the expt. was due to isotope exchange between the reactive gases and nonactive C. Because of the increase in pressure and the decrease of the total activity, the  $I/P$  had

1/2

METRENSIS

a sharp decrease. From the analysis of the data a scheme was proposed for the reaction mechanism. The 1st step was chemisorption which led to the formation of a 6-membered cyclic O-C complex, C.C.C.O.C.O.

At comparatively low temps., conditions which governed the approach between CO<sub>2</sub> and C lattice, a linear O-C complex was formed. These reactions were 1st order. The decompn. of both complexes, as well as a major step, the breaking off of CO, were zero-order reactions. At higher temps. the surface



major steps of reduction were accompanied by isotopic exchange of carbon with the formation of 2 nonradioactive CO mols. for each C<sup>14</sup>.

A. P. Kotloby

2/2  
pink MT

4  
1 Rmk  
1 sum

S/053/62/076/001/004/004  
B117/B101

AUTHORS: Todes, O. M., and Petrenko, I. I.

TITLE: New papers on molecular physics

PERIODICAL: Uspekhi fizicheskikh nauk, v. 76, no. 1, 1962, 181 - 183

TEXT: The authors suggest a discussion of two papers worked out in their laboratory [Abstracter's note: not stated] for purposes of instruction. The first is entitled "Determination of the diffusion coefficient and of the free path of water vapor molecules contained in air" (Fig. 1). The droplet diameters measured with a counter microscope are entered in a diagram representing  $R^2$  as a function of  $\tau$ . The diffusion coefficient is calculated from the slope of the averaged straight line as follows:

$$D = (\rho/2c_0) [-\Delta(R^2)/\Delta\tau]$$

where  $\rho$  is the density of the liquid, and  $c_0$

is the equilibrium concentration of water vapor contained in air. It is recommended that measurements should be made at three different pressures:  $p_0 \approx 1, 1/2, \text{ and } 1/4 \text{ atm}$ , which permits to check the fact that the diffusion coefficient is inversely proportional to pressure:  $Dp_0 = \text{const.}$  With

Card 1/3

New papers on molecular physics

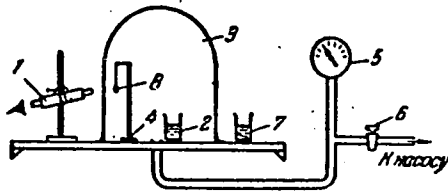
S/053/62/076/001/004/004  
B117/B101

ating and measuring the vacuum. There are 3 figures.

Fig. 1. Diagram of a device for measuring the diffusion coefficient of water vapor contained in air. Legend: (1) Counter microscope; (2) bulb containing concentrated  $H_2SO_4$ ; (3) glass bell; (4) support with droplet suspension; (5) vacuum indicator; (6) tap to pump; (7) glass containing water and small glass rods; (8) suspended droplet.

Fig. 2. Diagram of a device for measuring the dependence of viscosity of air on pressure. Legend: (1) Glass cylinder; (2) turning device with movable plates; (3) fixed plates; (4) scale; (5) ЛТ-2 (LT-2) type measuring tube; (6) ВТ-2 (VT-2) type thermocouple vacuum gage; (7) ММ-40 (MM-40) oil vapor pump; (8) rough-vacuum flask; (9) forepump.

Fig. 1



Card 3/3

TODES, O.M.; PETRENKO, I.I.

New works on molecular physics. Usp. fiz. nauk 76 no.1:181-  
183 Ja '62. (MIRA 15:2)  
(Molecular theory)

PETRENKO, I. I.

USSR,

Application of solution kinetics of potassium dichromate to a study of the mass exchange in heterogeneous systems in the region of convection diffusion. I. I. Petrenko and O. M. Tolka, *Zhuk. Prikl. Fiz.* 23, 1121-22 (1953). The soln. of  $K_2Cr_2O_7$  crystals in  $H_2O$ , stirred with a stirrer rotating at 1200 r.p.m. was studied by

a previously developed method (cf. *Ibid.* 11:27-33). The decrease  $dR/dt$  of the particle size depends on the convection and diffusion of a supersatd. layer formed around the particle. The criteria of Nusselt, Reynolds, and Prandtl can be calcd. from measurements of  $dR/dt$ , detd. from an increase in the concn. of the solute and from measurements of the movement of particles. The vertical distribution of crystallites in a turbulent stream is similar to that of gas mols. and it is given by the formula  $n(h) = n_0 \exp(-3gh/\bar{u}^2)$ . The no.  $n(h)$  of particles per cc. at the height  $h$  was detd. experimentally, by sampling, and from this the velocity  $\bar{u}$  was detd. for particles of different size. The pulsating velocity of the stream,  $v_p$ , can be calcd. from the knowledge of  $\bar{u}$  and the diam. of particles. The criterion of Reynolds ( $Re$ ) can be calcd. from  $Re = \bar{u} \cdot d/\nu$  ( $\nu$  = viscosity of  $H_2O$ ) and from this the criterion of Nusselt ( $Nu$ ) can be obtained. Since laws of mass exchange and heat exchange are similar, the detn. of  $Re$  and  $Nu$  by this method is applicable to other types of turbulent mixing, such as the combustion of powder fuel.

S. Pakswar

MS B3



GUPALO, Yu.P.; PETRENKO, I.I.; ROZENBAUM, R.B.; TODES, O.M.

Measuring density pulsations in a fluidized bed. Izv. AN  
SSSR. Otd. tekhn. nauk. Met. i topl. no. 4:123-127 J1-Ag '67.  
(MIRA 14:8)

(Fluidization—Density)

PETRENKO, I. K.

PA 20723

USSR/Medicine - Aviation - Public Health Aspects  
Medicine - Public Health  
Apr/May 1947

"Sanitary Aviation as a Means of Improving Specialized Medical Aid in the Rural Medical District,"  
I. K. Petrenko, Chief of Dept. of Medical and Sanitary Institutions of Air Transport of the Ministry of Public Health of the USSR, 5 pp

"Sovetskoye Zdravookhraneniye" No 4

Statistical discussion of flights made and their nature from the beginning of the service in 1940.

20723

BONDARENKO, V.A.; FOMINIKO, I.M., otv. red.

[Equipment for sugar-beet production; sugar beet processing section] *Sborovanie sveklosakharnogo proizvodstva; sveklo-pererabatyvalushchnee otdelenie. Sbzor. Moskva, TSentr. in-t nauchno-tekhn. informatsii pishchevoi promysl., 1961. 111 p.*  
(MIRA 18:5)

KARTASHOV, A.K.; PETRENKO, I.M., spetsred.; BUKINA, L.N., vedushchiy red.

[New operating methods in juice extracting, and refining of  
diffusion juice in beet-sugar manufacture] Novye metody raboty  
v sokodobyvanii i oчитke diffuzionnogo soka v sveklosakharnom  
proizvodstve. Moskva, GOSINTI, 1959. 37 p. (MIRA 13:6)  
(Sugar manufacture)

KSIĄZKIEWICZ, M.; SAMSONOWICZ, J.; PETRENKO, V.S. [translator]; ~~PETRENKO,~~  
I.M. [translator]; NIKOLAYEV, N.I., redaktor; ZNAMENSKAYA, V.K.,  
redaktor; BOGDANOV, V.P., tekhnicheskii redaktor; SHAPOVALOV, V.I.,  
tekhnicheskii redaktor

[A sketch of the geology of Poland. Translated from the Polish]  
Ocherk geologii Pol'shi. Perevod s pol'skogo. V.S.Petrenko i I.M.  
Petrenko. Pod red. i s predisl. N.I.Nikolaeva. Moskva, Izd-vo  
inostrannoi lit-ry, 1956. 239 p. (MLRA 9:10)  
(Poland--Geology)

YEGOYAN, V.L. [translator]; ZHABREV, I.P. [translator]; KOLCHANOV, V.P.  
[translator]; MOISEYEVA, V.M. [translator]; PETRENKO, V.S.  
[translator]; PETRENKO, I.M. [translator]; SPYUKOV, N.D.  
[translator]; TITOVA, N.A. [translator]; KHAIN, V.Ye., red.;  
ROMANOVICH, G.P., red.; REZOUKHOVA, A.G., tekhn.red.

[Present-day studies of the tectonics of foreign countries]  
Voprosy sovremennoi zarubezhnoi tektoniki; sbornik statei.  
Moskva, Izd-vo inostr.lit-ry, 1960. 498 p. Translated articles.

(Geology, Structural)

(MIRA 13:12)

PETRENKO, I.N., kand biologicheskikh nauk; KARASIKOVA, A.A.

Using indices of the amino acid complex of the Baltic herring  
in short-range forecasts of its catches. Trudy VNIRO 42:189-  
194 '60. (MIRA 13:9)

(Baltic Sea—Herring fisheries)  
(Amino acid metabolism)

17(3)

AUTHORS:

Petrenko, I. N., Karasikova, A. A.

SOV/20-122-6-32/49

TITLE:

The Amino Acid Composition of Proteins During the Maturing of the Offspring of Sprats (*Clupea sprattus*) From the Gulf of Riga (Aminokislotnyy sostav belkov v protsesse sozrevaniya polovykh produktov u salaki Rzhskogo zaliva)

PERIODICAL:

Doklady Akademii nauk SSSR, 1958, Vol 122, Nr 6, pp 1071-1072 (USSR)

ABSTRACT:

The problems of the physiology and especially of the bio-chemistry of fish in the time before and during spawning are investigated only very insufficiently. In order to fill that gap the authors undertook the task of making clear the changes in the content of amino acids in the muscles and offspring of the sprat spawning in spring. They ascertained an instability in the content of amino acid in the course of the ovo- and spermatogenesis. From the data given in table 1 it can be seen that the content of arginine in the muscle proteins of the female is almost constant in the 2nd and 3rd stage of maturing (9.95 - 9.30%). From the 4th stage of maturing onward the content of arginine decreased rapidly (down to 5.18%). Not all amino acids

Card 1/4



507/20-122-6-32/49

The amino acid composition of proteins during the maturing of the offspring of sprats (*Clupea sprattus*) from the Gulf of Riga

take part in the maturing process of the offspring to the same extent. There is a slight increase in the content of histidine in the proteins of the muscles of a female up to the 5th stage of maturing (from 1.21 to 1.65%) which goes then down to 0.90% in the 5th stage. There are also some changes in the content of aromatic amino acids during the spawning: during the ovogenesis of the female tryptophane is reduced from 2.73 to 1.02% and tyrosine from 3.65 to 2.66%. With the maturing of the gonads the relative content of methionine in the muscles decreases from 3.69 to 1.68%. There is a slight increase in the content of methionine, arginine, and histidine in females after spawning (6th stage of maturing). It was found that, according to the degree of maturing of the gonads, amino acids are accumulated. Thus in a male only a few irreplaceable amino acids were found in the 2nd stage of maturing: lysine, histidine, arginine, methionine, and tryptophane, while in female gonads apart from those already mentioned also "threonine" was found. In the gonads of both sexes the leucine group was found in the 3rd stage of maturing. In the 4th and 5th stage almost all

Page 2/4

SOV/20-122-6-52/49

amino acid composition of proteins During the Maturing of the Offspring  
of the Sprat (*Sprattus*) From the Gulf of Riga

amino acids are found in their gonads. The tyrosine content, however, decreases in the course of the spermatogenesis of the male from 0.21 to 0.74%. The histidine accumulation in the proteins of male gonads took place more intensely than in females (Table 1) where its content remained practically constant. A similar situation was observed with sturgeons (Ref 2). In the proteins of the gonads of both sexes the arginine content increases. In the muscles the reverse phenomenon is the case: while in the case of the sprat the arginine content in the muscles of the male increased, it decreased with the maturing of the gonads of the female. From the phenomena described above it can be concluded that the amino acids of the muscle proteins during the ovo- and spermatogenesis undergo complicated changes. They are mainly employed in the development of the offspring. There are 1 table and 4 Soviet references.

vesoyuznyy nauchno-issledovatel'skiy institut morskogo rybnogo khozyaystva i okeanografii (All-Union Scientific Research Institute of Maritime Fishery and Oceanography)

SOV/20-121-6-32/49

AMINO Acid Composition of Proteins During the Maturing of the Offspring  
of Sprats (*Clupea sprattus*) From the Gulf of Riga

RECEIVED: June 23, 1958, by Ye. N. Pavlovskiy, Member, Academy of  
Sciences, USSR

SUBMITTED: June 20, 1958

Card 4/4

PETRENKO, I.N.; KARASIKOVA, A.A.

Biochemical evaluation of spawners of the Kura River salmon *Salmo trutta caspicus* Kessler and their roe in the Chaykend and Chukhurkabala hatcheries. Vop. ikht. 2 no.2:286-290 '62.

(MIRA 15:11)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut morskogo rybnogo khozyaystva i okeanografii (VNIRO).  
(Chaykend--Trout) (Chukhurkabala--Trout) (Fishes--Eggs)

PETRENKO, I.N., kand.biologicheskikh nauk.

Some data on the physiology of nutrition and growth of young  
roach in the outer Volga Delta. Trudy VNIRO 32:255-262 '56.

(MIRA 10:10)

(Volga Delta--Roach (Fish)  
(Fishes--Food)

1. PETRENKO, I. N.
2. USSR (600)
4. Fishes - Food
7. Degree of young sturgeons' demand for foodstuffs and productive action of feeds. Ryb. khoz. 28, no. 9, 1952.

9. Monthly List of Russian Accessions, Library of Congress, January, 1953. Unclassified.

PETRENKO, I.P.

Investigating the strength of high-strength plastic subjected to repeated and variable axial loads. Dop. AN URSR no.12: 1587-1589 '61. (MIRA 16:11)

1. Institut mekhaniki AN UkrSSR. Predstavleno akademikom AN UkrSSR F.P. Belyankinym [Bieliankin, F.P.].

PETRENKO, I.P.

Mold conveyor system for steel foundries. Biul.tekh.-ekon.  
inform.Gos.nauch.-issl.inst.nauch. i tekh.inform. 16 no.10:  
20-21 '63. (MIRA 16:11)



PETRENKO, I. I.

Changes in the asymmetry of the stress cycle as a function of the mean stress. Izv. AN UkrSR no. 7:896-898, 1964. (MIRA 1:10)

1. Institut mekhaniki AN UkrSR. Predstavleno akademikom AN UkrSR N. I. Pilyankinym (Pilyankin, N. I.).

S/021/61/000/012/008/011  
D251/D305

AUTHOR: Petrenko, I. P.

TITLE: Investigating the strength of force plastic with repeated-variable axial loads

PERIODICAL: Akademiya nauk Ukrayins'koyi RSR. Dopovidi, no. 12, 1961, 1587-1589

TEXT: The author describes the investigation of the strength of the force plastic ДСП-Б (DSP-B) under repeated-variable axial loads with different values of the coefficient of asymmetry. The hydraulic fatigue machine ЦДМ-ПГ-10Т (TsDM-Pu-10<sub>T</sub>) was used at a temperature of 20°C and 5 mil. cycles. The sample of plastic was attached to the machine by means of wedges, as shown in Figs. 1a and 1b. It is shown that the fatigue limit of the plastic depends on the coefficient of asymmetry, the symmetric case giving a minimum. The fatigue limit increases with an increase in the modulus of the average stress. There are 2 figures and 2 Soviet-bloc references. ✓

Card 1/3

Investigating the strength ...

S/021/61/000/012/008/011  
D251/D305

ASSOCIATION: Instytut mekhaniky AN URSR (Institute of Mechanics  
AS UkrSSR)

PRESENTED: by F. P. Byelyankin, Academician AS UkrSSR

SUBMITTED: July 17, 1961

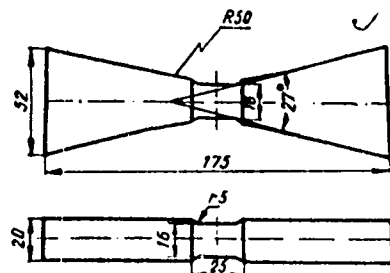


Fig. 1a: Specimen of plastic DSP-B prepared for fatigue testing

Card 2/3

Investigating the strength ...

S/021/61/000/012/008/011  
D251/D305

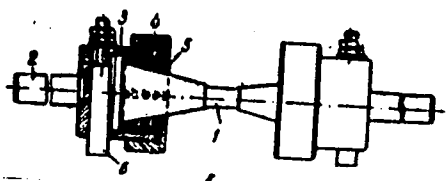


Fig. 1b: The specimen supported in claws

Card 3/3

GROZIN, B.D., otv.red.; DRAYGOR, D.A., zam.otv.red.; BARABASH, M.L.,  
red.tom; KRAGHL'SKIY, I.V., red.; SERENSEN, S.V., red.;  
FAYNERMAN, I.D., red.; ZASLAVSKIY, S.S., red. Prinsipali  
uchastiye: BRAUN, M.P., prof.; VAYNBERG, D.V., prof.; PETRENKO,  
I.P., kand.tekhn.nauk; SINYAVSKAYA, M.D., inzh.; SHEVCHUK, V.A.,  
kand.tekhn.nauk; SEMIROG-ORLIK, V.N., kand.tekhn.nauk; YANKEVICH,  
V.F., inzh.; GORB, M.L., kand.tekhn.nauk; RAKHLINA, N.P.,  
tekhn.red.

[Increasing the wear resistance and useful life of machinery in  
two volumes] Povyshenie iznosostoikosti i sroka sluzhby mashin  
v dvukh tomakh. Kiev, Izd-vo Akad.nauk USSR. Vol.1. 1960.  
486 p. (MIRA 13:12)

1. Vsesoyuznoye nauchno-tekhnicheskoye obshchestvo mashino-  
stroitel'noy promyshlennosti. Kiyevskoye oblastnoye pravleniye.  
(Mechanical wear)  
(Mechanical engineering)

SOV/137-57-11-22349 D

Translation from: Referativnyy zhurnal, Metallurgiya, 1957, Nr 11, p 244 (USSR)

AUTHOR Petrenko, I.P.

TITLE The Influence of Annealing on the Endurance Limit of Plastically Deformed Steel (Vliyaniye otzhiga na predel vynoslivosti plasticheski deformirovannoy stali)

ABSTRACT Bibliographic entry on the Author's dissertation for the degree of Candidate of Technical Sciences, presented to the Instroit. mekhan. AN USSR (Institute of Structural Mechanics, Academy of Sciences, UkrSSR), Kiyev, 1957

ASSOCIATION Instroit mekhan. AN USSR (Institute of Structural Mechanics, Academy of Sciences, UkrSSR), Kiyev

Card 1/1

PETRENKO, I. P., inzh.; NESTERENKO, A. I., inzh.

Determining the width of a working cut in dredging. Transp.  
stroil. 13 no. 4:59-60 Ap '63. (MIRA 16:4)

(Dredging)

PETRENKO, I.P.

Using a flexible rubber shaft in the NU-type machine. Zav.lab. 22  
no.5:619 '56. (MLRA 9:8)

1. Institut stroitel'noy mekhaniki Akademii nauk USSR.  
(Testing machines)



PETRENKO, I.P.

Effect of the degree of tension strain and of the recrystallization  
annealing temperature on the fatigue limit of 12KhNZA steel. Dop.  
AN URSR no.2:134-136 '57. (MLRA 10:5)

1. Institut budivel'noi mekhaniki AN URSR. Predstaviv akademik  
AN URSR F.P. Belyankin.  
(Steel--Testing)

VOLIK, A.G., inzh.; PETRENKO, I.P., inzh.

Use of epoxy resins in ship repair. Transp. stroi. 12 no.5:31-32  
My '62. (MIRA 15:6)

(Epoxy resins)  
(Ships--Maintenance and repair)

PETRENKO, I.P.

Strength of a vitreoplastic under repeated variable axial loads.  
Dop. AN URSR no.8:1024-1027 '65. (MIRA 18:8)

1. Institut mekhaniki AN UkrSSR.

PETRENKO, I.P.

Fatigue strength diagrams of a DSP-B plastic in the case of  
repeated-variable axial loads. Dop. AN USSR no.3:366-370 '62.  
(MIRA 15:5)

1. Institut mekhaniki AN USSR. Predstavleno akademikom AN USSR  
F.P.Belyankinym [Bieliankin, F.P.].  
(Strength of materials) (Plastics)

PETRENKO, I. I.

S/137/60/000/005/008/009  
A006/A002

Translation from: Referativnyy zhurnal, Metallurgiya, 1960, No. 5, p. 268, # 11029

AUTHORS: Petrenko, I.P., Malinovskaya, P.A.

TITLE: The Effect of Annealing in Air Atmosphere on the Endurance Limit of  
"12 3" (12KhN3A) Steel Subjected to Plastic Stretching

PERIODICAL: Inform. materialy In-t stroit. mekhan. AN UkrSSR, 1959, No. 11, pp. 86-89 ✓

TEXT: The authors studied the effect of annealing on  $\sigma_w$  of 12KhN3A steel (0.17% C) subjected to preliminary plastic deformation. Specimens, preliminarily cold-hardened by stretching to a relative elongation  $\epsilon$ , equalling 1.8, 9 and 13%, were subjected to fatigue tests with symmetrical circular bending on a HY (NU) machine. The specimens of the first series of experiments were tested without any heat treatment after cold-hardening. The specimens of the second series were annealed at 550°C in air atmosphere after cold-hardening. The test results are presented in a  $\sigma_w - \epsilon$  graph. It was established that  $\sigma_w$ , at  $\epsilon$  up to 2%, decreased in both tests with higher  $\epsilon$ ; it increased again if  $\epsilon > 2\%$ ; it attained the initial value if  $\epsilon \sim 8-9\%$ . Annealing of specimens with  $\epsilon < 5-6\%$ , reduced  $\sigma_w$ .

Card 1/2

S/137/60/000/005/008/009  
A006/A002

The Effect of Annealing in Air Atmosphere on the Endurance Limit of "12XH3A"  
(12KhN3A) Steel Subjected to Plastic Stretching

but raised  $\sigma_w$  if  $\epsilon > 5-6\%$ . The decrease in  $\sigma_w$  after annealing is explained by the harmful effect of oxidation on the properties of surface layers of the specimens. Annealing of the specimens in a  $N_2$  atmosphere does not cause softening of the metal surface layers and increases  $\sigma_w$  on the whole range of  $\epsilon$  from 0 to 11%. ✓

S. G.

Card 2/2

CHERNYAK, M.I.; PETRENKO, I.P.

The comparative effect of rolling steel with rollers and plastic stretching on the fatigue limit of 12KhN3A steel. Dop. AN URSR no.1:50-51 '55. (MLRA 8:7)

1. Institut budivel'noi mekhaniki AN URSR. Predstaviv diyeniy chlen AN URSR F.P. Belyakin.  
(Steel--Fatigue)

GROZIN, B.D., otv.red.; DRAYGOR, D.A., zam.otv.red.; SAMOKHVALOV, Ya.A., red.toma; BRAUN, M.P., red.; FAYNERMAN, I.D., red.; KRAGZL'SKIY, I.V., red.; BARABASH, M.L., red. Prinimali uchastiye: VAYNBERG, D.V., prof.; PETRENKO, I.P., kand.tekhn.nauk; SINYAVSKAYA, M.D., inzh.; SHEVCHUK, V.A., kand.tekhn.nauk; SEMIROO-ORLIK, V.N., kand.tekhn.nauk; YANKEVICH, V.F., inzh.; GORB, M.L., kand.tekhn.nauk; RAKHLINA, N.P., tekhn.red.

[Increasing the wear-resistance and life of machinery] Povyshenie iznosostokosti i sroka sluzhby mashin. Kiev, Izd-vo Akad.nauk USSR. Vol.2. 1960. 290 p. (MIRA 14:1)

1. Vsesoyuznoye nauchno-tekhnicheskoye obshchestvo mashinostroi-  
tel'noy promyshlennosti. Kiyevskoye oblastnoye pravleniye.  
(Mechanical wear) (Machinery)



PETRENKO, K.P.

Introduction of multiple machining processes in the plants of the  
North Caucasus Economic Region. Mashinostroitel' no.1:15-16 Ja '64.  
(MIRA 17:2)

1. Nachal'nik tekhnicheskogo upravleniya Soveta narodnogo khozyaystva  
Severo-Kavkazskogo ekonomicheskogo rayona.

FILONOV, V.A., inzh. [deceased]; LOLA, VLN., inzh.; PAVLISHCHEV, V.B., inzh.;  
PETRENKO, I.S., inzh.

Flame scarfing of stainless steel ingots and the preparation of slabs  
for rolling. Stal' 23 no.1:73-75 Ja '63. (MIRA 16:2)

1. Zavod "Zaporozhstal".  
(Steel ingots—Cleaning)

(Steel, Stainless—Cleaning)

S/133/63/000/001/009/011  
A054/A126

AUTHORS: Filonov, V. A. (Deceased), Lola, V. N., Pavlishchev, V. B.,  
Petrenko, I. S., Engineers

TITLE: Flame cleaning of stainless steel ingots and preparing slabs for  
rolling

PERIODICAL: Stal', no. 1, 1963, 73 - 75

TEXT: The surface defects of 12-ton stainless steel ingots (maximum cross section: 640 x 1,100 mm, height: 2,200 mm) produced at the zavod "Dneprospetsstal'" ("Dneprospetsstal'" Plant) and rolled at the zavod "Zaporozhstal'" (Zaporozhstal'" Plant) could not be removed by conventional planing and grinding methods. In 1961, tests were carried out (in co-operation with L. N. Soroko, F. M. Dolmatov, M. Ye. Kugayenko, V. G. Antipenko, F. A. Yevtushenko, V. K. Barziy, N. V. Pal'chik, N. P. Cherkashina, V. I. Kalabukhov, V. I. Kiselev, A. V. Sysoyev, Yu. V. Zagorul'ko, B. M. Tsirlin, V. D. Klipinitser, Engineers, et al.) to remove the surface defects of the ingots by flame-cleaning. Based on the construction of the PP -53 (RR-53) type flame cutter a special

Card 1/3

Flame cleaning of stainless steel ingots and...

S/133/63/000/001/009/011  
A054/A126

apparatus was designed, in which the burning substance ejected from the head of the apparatus consisted of crushed calcium silicate and the so-called ПAM-4 (PAM-4) powder (50% aluminum and 50% magnesium) in a volume ratio of 2 : 1. The heat developed by the burning mixture is sufficient for both carbon and stainless steels. Calcium silicate in the mixture has a fluxing effect on the high-smelting components, it makes the slag layer fluid and promotes its removal. The powder mixture is ejected through a jet of oxygen of 99.0% purity under a pressure of 10 atm. The cutter head is also supplied with natural gas (caloric value: 8,340 cal/stand m<sup>3</sup>) under a pressure of 3 atm. One run of the flame cleaner cleans the ingot surface to a depth of 3 - 7 mm and over a width of 150 - 200 mm. Then follows the secondary cleaning, which removes the remaining deeper defects to a depth of 20 - 30 mm. After flame cleaning, the metal surface is slightly corrugated with ridges not higher than 3 mm. The metal loss in flame cleaning is 10 - 30 kg/ton of flawless metal, whereas in the planing process: up to 51 kg/ton. However, as flame cleaning alone did not produce the required flawless ingot surface and as it requires much labour, tests were carried out to combine it with other finishing processes, i.e. I. flame cleaning + local removal of single defects by grinding, II. flame cleaning + continuous

Card 2/3

Flame cleaning of stainless steel ingots and...

S/133/63/000/001/009/011  
A054/A126

grinding of the entire surface, III. flame cleaning + planing of the slabs and IV. planing of the slabs without any previous processing of the ingot surface. The best quality of rolled sheets was obtained with the application of version III, but this method is the most labour-intensive and has the highest metal consumption coefficient. The second best method is version I, which gives a surface not of the same quality as that obtained by version III, but it takes less labour and the metal consumption is lower. Therefore version III is only applied to slabs that have to satisfy very high standards, whereas version I is used in cases where the qualitative standards are not as high. Version II has no special advantages, except a very low consumption coefficient, and is about equivalent to the conventional process (IV). Therefore it is only used to overcome production bottlenecks. The parameters of the four versions are given. There are 2 figures.

ASSOCIATION: Zavod "Zaporozhstal'" ("Zaporozhstal'" Plant)

Card 3/3

L 23432-66 FSS-2/EWT(1)/FCC/EWA(d)/EWA(h) TI/GW

ACC NR: AP6012832

SOURCE CODE: UR/0293/66/004/002/0268/0279

AUTHOR: Avdyushin, S. I.; Kogan, R. M.; Nazarova, M. N.; Pereyaslova, N. K.;  
Petrenko, I. Ye.; Svidskiy, P. M.

33  
B

ORG: none

TITLE: Recording cosmic rays by the Cosmos-17 satellite

SOURCE: Kosmicheskiye issledovaniya, v. 4, no. 2, 1966, 268-279

TOPIC TAGS: cosmic ray, cosmic ray measurement, cosmic ray shower/Cosmos 17

ABSTRACT: Scintillation counters, STS-5 Geiger counters, and SBT-9 end-window Geiger counters were used on Cosmos-17 to record the intensity of cosmic radiation beyond the Earth's radiation belts as a function of L coordinates. The average radiation intensity was found to vary from 0.5 to 3.0/cm<sup>2</sup>/sec for charged particles and from 9 to 22/cm<sup>2</sup>/sec for gamma quanta. A high-latitude chopping of the cosmic ray spectrum was observed for hardness R = 1.8. A cosmic ray "equator" was constructed for altitudes of 400-600 km. Cosmic ray showers produced by the interaction of high-energy particles with the satellite body at angles of divergence exceeding 60° were also recorded. The showers had the following average characteristics: particle density, 0.038/cm<sup>2</sup>; total number of particles, 10<sup>2</sup>; ratio of the number of photons to the number of corpuscles, 11.3. Orig. art. has: 4 figures and 2 tables. [JR]

2

SUB CODE: 07/ SUBM DATE: 19Apr65/ ORIG REF: 010/ OTH REF: 005/ ATD PRESS:  
Cord 1/1 *dla* UDC: 537.591:629.19 4235

L 2990-66 FSS-2/EWT(1)/FCC/EWA(d)/EWA(h) TT/OS/GW

ACCESSION NR: AT5023631

UR/0000/65/000/000/0511/0512

AUTHOR: Avdyushin, S. I.; Pereyaslova, N. K.; Petrenko, I. Ye.

TITLE: Intensity of ionizing radiation as measured by Zond-1

SOURCE: Vseboyuznaya konferentsiya po fizike kosmicheskogo prostranstva. Moscow, 1965. Issledovaniya kosmicheskogo prostranstva (Space research); trudy konferentsii. Moscow, Izd-vo Nauka, 1965, 511-512

TOPIC TAGS: radiation counter, particle counter, Geiger counter, cosmic ray intensity, ionizing radiation/Zond 1 satellite

ABSTRACT: Measurements of cosmic radiation intensity outside the Earth's magnetic field were made by Zond-1 using eight STS-5 Geiger counters with shielding of 10 g/cm<sup>2</sup>. One centrally located counter was additionally shielded by the other seven. Total pulse count rate was taken, as well as the number of coincident and noncoincident pulses recorded by the centrally located counter in conjunction with the other seven. The total flux recorded was  $3.37 \pm 0.40 \text{ cm}^{-2} \cdot \text{sec}^{-1}$ , which is an increase over the 1959 level and is in agreement with the 11-yr solar activity cycle. The noncoincidence count rate (referred to a unit area) was  $1.3 \pm 0.2 \text{ cm}^{-2} \cdot \text{sec}^{-1}$  and is thought

Card 1/2

I 2990-66

ACCESSION NR: AT5023631

to be caused mainly by  $\gamma$ -quanta with energy of 1 Mev or more arising from the interaction of primary cosmic particles with Zond-1. Since the exact spectral distribution of the  $\gamma$ -quanta is not known, it can only be surmised that the  $\gamma$ -radiation flux was of the order of a few tens of quanta per square centimeter. Orig. art. has: 1 figure and 1 table. (BD)

ASSOCIATION: none

SUBMITTED: 02Sep65

ENCL: 00

SUB CODE: ES,SV

NO REF SOV: 003

OTHER: 001

ATD PRESS: 4109

Card 212 *kl*



L 3233-66 FSS-2/EWT(1)/FS(v)-3/FCC/EIA(d)/EIA(h) TT/GS/GW

ACCESSION NR: AT5023630

UR/0000/65/000/000/0510/0510

AUTHORS: Avdyushin, S. I.; Kogan, R. M.; Nazarova, M. N.; Pereyaslova, N. K.; Petranko, I. Ye.; Svidskiy, P. M.

TITLE: Recording of cosmic rays on the satellite Kosmos-17

SOURCE: Vsesoyuznaya konferentsiya po fizike kosmicheskogo prostranstva. Moscow, 1965. Issledovaniya kosmicheskogo prostranstva (Space research); trudy konferentsii. Moscow, Izd-vo Nauka, 1965, 510

TOPIC TAGS: artificial earth satellite, cosmic ray, scintillation counter, Geiger counter/Kosmos. 17 satellite, Kosmos 7 satellite, Explorer 7 satellite

ABSTRACT: In May 1963 scintillation and Geiger counters were used to measure the intensity of cosmic radiation outside the Van Allen belt at altitudes of 260-780 km. The dependence of radiation intensity on the invariant coordinate L was determined. The flux of charged particles was observed to change from 0.5 particles per cm<sup>2</sup> per sec in the equatorial region to 3.0 particles per cm<sup>2</sup> per sec in high latitudes. The gamma-quanta flux in the energy range from 0.1 to 3 Mev was found to range from 9 to 22 quanta per cm<sup>2</sup> per sec. The edge of the high-latitude plateau of cosmic ray intensity lies at L = 3.0. Results were compared with data from other

Card 1/2

L 3233-66

ACCESSION NR: AT5023630

satellites. Various combinations of scintillation and Geiger counters were used. On the assumption that particle density has the form  $f(n)dn = Ae^{-\lambda n}dn$ , where  $A = 1.3 \cdot 10^2$  per  $cm^2$  per sec and  $\lambda = 26 cm^2$ , all results are in agreement. The ratio of gamma quanta to charged particles does not depend on  $n$ ; its value is 11.3. An absence of any latitudinal relationship in number of cosmic ray showers indicates that the recorded showers are generated chiefly by particles with energies exceeding 30 Bev. The total number of recorded showers leads to the conclusion that the energy threshold for generation of showers is below 60 Bev. The average gamma-quantum energy in the showers is 4.6 Mev. Considering that the contribution of a shower is 0.3 the total counting rate of a single Geiger counter, comparison of counting rates in different areas indicates a particle density in the equatorial region of 0.01, the number of showers to be 15 per  $cm^2$  per sec, and the divergence of particles in the shower to be 15-20°. [04]

ASSOCIATION: none

SUBMITTED: 02Sep65

ENCL: 00

SUB CODE: AA, SV

NO REF SOV: 000

OTHER: 000

ATD PRESS: 4/06

Card 2/2

BALUTINA, O.S.; PETRENKO, L.A.; STOROZHENKO, Yu.G.

[Let's bring corn to the fields of Sakhalin] Kukuruzu - na  
polia Sakhalina. Iuzhno-Sakhalinsk, Izd. gazety "Sovetski  
Sakhalin," 1955. 22 p. (MIRA 15:10)  
(Sakhalin—Corn (Maize))

L 8547-65 EWT(1)/EWG(k)/EWT(m)/EEG(t)/EWP(q)/EWP(b) Pz-6 IJP(c)/SSD/  
ASD(p)-3/ASD(a)-5/ESD/AFWL/ESD(gs)/ESD(dp)/ESD(t)/RAEM(t)/AS(mp)-2 JD/AT  
ACCESSION NR: AR4044073 S/0058/63/000/011/H045/H046

SOURCE: Ref. zh. Fizika, Abs. 11Zh363

AUTHOR: Kostin, V. N.; Petrenko, I. A.

TITLE: The influence of ion bombardment on the photoelectric properties of copper

CITED SOURCE: Uch. zap. Khar'kovsk, un-t, v. 127, 1962, Tr. Radiofiz. fak., v. 6,  
93-98

TOPIC TAGS: ion bombardment, photoelectric property, copper, counter, control cathode

TRANSLATION: Investigates the influence of ion bombardment on the photoelectric properties of Cu in nonself-quenching hydrogen-filled counters. The design of the counters permits investigation of the influence of bombardment on the working Cu-cathode and simultaneous comparison of it with an identical control cathode which is not bombarded. It is shown that the characteristics of both cathodes under ordinary circumstances change little with time, and that these changes are identical for both cathodes. However, ion bombardment (positive corona) of the working

Card 1/2

L 8547-65

ACCESSION NR: AR4044073

cathode with gradually increasing current values (25-300  $\mu$ a) greatly decreased the sensitivity of both cathodes to UV radiation (more sharply for the working cathode than for the control cathode); at a bombardment current of 125  $\mu$ a the working cathode ceases to be sensitive to UV radiation. With further voltage increase the coronal discharge abruptly became an intermediate discharge (voltage 1300 v, current 3 ma), and bombardment under these conditions for 2 minutes resulted in a sharp increase of cathode sensitivity to UV radiation. The sensitivity of the control cathode in this case remained as before. The threshold of spectral sensitivity of the control cathode also remained unchanged, while for the working cathode it was displaced by approximately  $\sim 25$  m $\mu$  toward higher wavelengths and the work function decreased by 0.4 ev. Thus it was shown that bombardment of a cathode with positive ions decreases its work function.

SUB CODE: IC, NP

ENCL: 00

Card 2/2

DIKUSHIN, V.I., akad., otv. red.; SHUMILOVSKIY, N.N., red.; ZASLAVSKIY,  
Yu. S., red.; TATOCHENKO, L.K., red.; VERKHOVSKIY, B.I., red.;  
NAZAROV, S.T., red.; ~~PKHRENKO~~, L.I., red.; ZHELEVINSKAYA, N.G., red.;  
BEKYANIN, P.N., red. izd-va.; POLENOVA, T.P., tekhn. red.

[Machine and instrument manufacture; proceedings of the conference]  
Mashinostroenie i priborostroenie; trudy konferentsii. Moskva, Izd-vo  
Akad. nauk SSSR, 1958. 358 p. (MIRA 11:12)

1. Vsesoyuznaya nauchno-tekhnicheskaya konferentsiya po primeneniyu  
radioaktivnykh i stabil'nykh izotopov i izlucheniya v narodnom  
khoz'yaystve i nauke. Moscow, 1957.

(Radioisotopes--Industrial applications)  
(Metals)

IL'INSKIY, B.D.; PETRENKO, L.I.; SINEBRYUKHOV, N.V.; DUNAYEVSKIY, M.M.;  
ZORIN, S.V., red.; MICHAYLOVA, V.V., tekhn.red.

[Safety regulations in the electric steel smelting industry]  
Previla bezopasnosti v elektrostaleplavil'nom proizvodstve.  
Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po chernoi i tavetnoi  
metallurgii, 1960. 94 p. (MIRA 13:11)

1. Soyuz rabochikh metallurgicheskoy promyshlennosti SSSR.  
TSentrel'nyy komitet. 2. Vsesoyuznyy nauchno-issledovatel'skiy  
institut organizatsii proizvodstva i truda chernoy metallurgii  
(VNIIOCHEMET) (for Il'inskiy, Petrenko, Sinebryukhov, Dunayevskiy).  
(Steel--Electrometallurgy)  
(Metallurgical plants--Safety measures)

IL'INSKIY, V.D., insh.; ~~PEZRENKO~~, L.I., insh.

Work safety in continuous steel casting. Bezop.truda v  
prom. 4 no.8:15-17 Ag '60. (MIRA 13:8)  
(Continuous casting--Safety measures)



PETROV, N.A., red.; PETRENKO, L.I., red.; SAVITSKIY, P.S., red.; SINITSIN, V.I., red.; KOGOTIKHIN, I.S.M., red.; SYRKUS, N.P., red.; ROMM, R.P., red.; ANYSHEV, P.I., red.; VARTAZAROV, S.Ye., red.; ZAYTSEV, A.I., red.; ZEZYULINSKIY, V.M., red.; ZEDGINIDZE, G.A., red.; MARTYNKIN, F.P., red.; ROGACHEV, V.I., red.; SLATINSKIY, A.N., red.; LEVINA, Ye.S., vedushchiy red.; TITSKAYA, B.F., vedushchiy red.; PERSHINA, Ye.G., vedushchiy red.; IONEL', A.G., vedushchiy red.; ZARETSKAYA, A.I., vedushchiy red.; MUKHINA, E.A., tekhn.red.

[Transactions of the Conference on the Introduction of Radioactive Isotopes and Nuclear Radiation into the National Economy of the U.S.S.R.] Trudy Vsesoiuznogo soveshchania po vnedreniu radioaktivnykh izotopov i iadernykh izluchenií v narodnoe khoziaistvo SSSR. Pod red. N.A.Petrova, L.I.Petrenko i P.S.Sevitskogo. Moskva, Gos.nauchno-tekhn.izd-vo nefi. i gorno-toplivnoi lit-ry. Vol.1. [General aspects of isotope applications. Instruments with sources of radioactive radiation. Radiation chemistry. Chemical and petroleum refining industry]

(Continued on next card)

PETROV, N.A.---(continued) Card 2.

Obshchie voprosy primeneniia izotopov. Pribory s istochnikami radioaktivnykh izlucheni. Radiatsionnaia khimiia. Khimicheskaia i neftepererabatyvaiushchala promyshlennost'. 1961. 340 p. Vol.2. [Construction and the industry of construction materials. Light industry. Food industry and agriculture. Medicine] Stroitel'stvo i promyshlennost' stroitel'nykh materialov. Legkaia promyshlennost'. Pishchevaia promyshlennost' i sel'skoe khoziaistvo. Meditsina. 1961. 267 p.

(MIRA 14:4)

1. Vsesoyuznoye soveshchaniye po vnedreniyu radioaktivnykh izotopov i yadernykh izlucheny v narodnoye khozyaystvo SSSR. Riga, 1960.

(Radioisotopes)

(Radiation)

PETROV, N.A., red.; PETRENKO, L.I., red.; SAVITSKIY, P.S., red.; RUMYANTSEV, S.V., red. toma; TSEPAYEV, V.A., red. toma; GRUZIN, P.L., red. toma; LEBEDEV, A.K., red. toma; GERASIMCHUK, G.S., red. toma; MIGAY, L.S., vedushchiy red.; SHOROKHOVA, L.I., vedushchiy red.; IONEL', A.G., vedushchiy red.; MUKHINA, E.A., tekhn. red.

[Transactions of the Conference on Radioactive Isotopes and Nuclear Radiation in the National Economy of the U.S.S.R.] Trudy Vsesoyuznogo soveshchaniya po vnedreniyu radioaktivnykh izotopov i yadernykh izlucheni v narodnoe khoziaistvo SSSR. Riga, 1960, v chetyrekh tomakh. Pod red. N.A.Petrova, L.I.Petrenko i P.S.Savitskogo. Moskva, Gos. nauchno-tekhn. izd-vo neft. i gorno-toplivnoi lit-ry. Vol.3. [Machinery industry. Metallurgy] Mashinostroenie. Metallurgiya. 1961. 224 p. (MIRA 14:6)

1. Vsesoyuznoye soveshchaniye po vnedreniyu radioaktivnykh izotopov i yadernykh izlucheni v narodnom khozyaystve SSSR. Riga, 1960. (Metal industries) (Radioisotopes--Industrial applications)

PETROV, N.A., red.; PETRENKO, L.I., red.; SAVITSKIY, P.S., red.; SPERANSKIY, M.A., red. toma; PETRENKO, L.I., red.; SAVITSKIY, P.S., red.; SPERANSKIY, M.A., nauchnyy red.; KUZ'MINA, N.N., vedushchiy red.; IONEL', A.G., vedushchiy red.; POLOSINA, A.S., tekhn. red.

[Transactions of the Conference on Radioactive Isotopes and Nuclear Radiation in the National Economy of the U.S.S.R.] Trudy Vsesoyuznogo soveshchaniya po vnedreniyu radioaktivnykh izotopov i yadernykh izlucheni v narodnoe khoziazstvo SSSR. Riga, 1960, v chetyrekh tomakh. Pod red. N.A.Petrova, L.I.Petrenko i P.S.Savitskogo. Moskva, Gos. nauchno-tekhn. izd-vo nef. i gorno-toplivnoi lit-ry. Vol.4. [Mineral exploration, prospecting, and extraction] Poiski, razvedka i razrabotka poleznykh iskopaemykh. 1961. 284 p. (MIRA 14:6)

1. Vsesoyuznoye soveshchaniye po vnedreniyu radiaktivnykh izotopov i yadernykh izlucheni v narodnom khozyaystve SSSR. Riga, 1960. (Mines and mineral resources) (Radioisotopes--Industrial applications)

PETRENKO, L.I.

Use of radioisotopes in industry. Biul. tekhn.-ekon inform.  
no. 2:88-92 '61. (MIRA 14:2)  
(Radioisotopes--Industrial applications)

The "Military" section of the "1000" is a collection of "military" information. It is a collection of "military" information. It is a collection of "military" information.

IL'INSKIY, B.D.; PETRENKO, L.I.; ZORIN, S.V., red.; PINEGIN, I.I.,  
red. izd-va; ISLENT'YEVA, P.G., tekhn. red.

[Safety regulations in pipe rolling and pipe welding  
industries] Pravila bezopasnosti v truboprokatnom i  
trubosvarochnom proizvodstvakh. Moskva, Metallurgizdat,  
1962. 119 p. (MIRA 16:4)

1. Professional'nyy soyuz rabochikh metallurgicheskoy  
promyshlennosti. Tsentral'nyy komitet.  
(Pipe mills--Safety measures)  
(Welding--Safety measures)

*P. L. PETRENKO, L.M.*

BOCHKOVSKAYA, I.V., gornyy inzhener; PETRENKO, L.M., gornyy inzhener

Practice of multi-hammer boring with separate borehole washing.  
Gor.shur. no.4:27-30 Ap '55. (MIRA 8:7)  
(Boring)



ACC NR: AT6036529

SOURCE CODE: UR/0000/66/000/000/0119/0120

AUTHOR: Gertsuskiy, D. F.; Abramova, V. N.; Aleksyenko, L. V.; Sychkov, H. A.;  
Popkova, S. A.; Petrenko, L. N.

ORG: none

TITLE: Effect of 660-Mev protons and gamma rays on potato tubers irradiated  
before planting [Paper presented at the Conference on Problems of Space Medicine  
held in Moscow from 24 to 27 May 1966.]

SOURCE: Konferentsiya po problemam kosmicheskoy meditsiny, 1966. Problemy kosmicheskoy meditsiny. (Problems of space medicine); materialy konferentsii, Moscow, 1966, 119-120

TOPIC TAGS: ionizing radiation biologic effect, cosmic radiation biologic effect, relative biologic efficiency, plant genetics, radiation genetic effect, space food, bioastronautics

ABSTRACT: The effect of 660-Mev protons and  $Co^{60}$  gamma rays on potato tubers (variety "Khibinskiy ranniy") was studied. Tubers were irradiated with 660-Mev protons from an OIYAI synchrocyclotron and gamma rays from an EGO-2 apparatus in the 250-10,000 rad dose range. The experiment was conducted in field conditions in three parts (50 specimens each). The following indices of radiation effect were used: germination, tempo

Card 1/3

ACC NR: AT6036529

of development, number of tubers, and their total weight.

Ionizing radiation is known to affect both the growth and development rates and the productivity of the potato: small doses have a stimulating effect and large doses a depressing effect. Experimental results showed that a proton dose of 250 rad or a dose of gamma rays from 500 to 1000 rad stimulates the appearance of seedlings and the beginning of budding. A considerable depressing effect was noted beginning with doses of 500 rad (protons) and over 1000 rad (gamma rays). Analogous results were obtained with respect to the number of stalks from one tuber and the height of the plants.

Potato productivity changes under the influence of radiation. The general rule of decrease in productivity with increase in dose is retained. This may be explained by the smaller number of tubers per experimental plant with all the doses used. The average number of tubers per plant was six with a 500-rad dose of protons, and eight for the same gamma-ray dose (as compared with nine in the control). Visual observations of full-grown plants showed that the stimulating effect of small radiation doses is most strongly manifested in initial developmental phases, and disappears gradually with time. In the period before blossoming, it is already difficult to detect the stimulating effect of a 250-500-rad dose. The depressing

Card 2/3

ACC NR: AT6036529

effect of large radiation doses also seems to attenuate with time. Seventy days after planting, individual seedlings sprouted from specimens irradiated with a dose of 4000 rad. Doses of either gamma rays or protons higher than 4000 rad completely prevented germination: however, the tubers did not rot in the ground and retained their turgor. Experiments showed that potato tubers are radiosensitive and that protons have a greater effect on their growth, development and yield than gamma rays. [N. A. No. 22; ATD Report 66-116]

SUB CODE: 06 / SUBM DATE: 00May66

Card 3/3

SOV/138-59-4-9/26

AUTHORS: Bryantseva, Yu.V., Korchagina, O.M., Zolotareva, Z.V.,  
Petrenko, I.P., Leonov, M.V.

TITLE: The Preparation of Lacquers (Coating Films) from Poly-  
styrene Residues Obtained During the Manufacture of  
Synthetic Rubber (polucheniye lakov (zashchitnoy plenki)  
iz polistirool'nykh ostatkov proizvodstva sinteticheskogo  
kauchuka)

PERIODICAL: Kauchuk i Rezina, 1959, Nr 4, pp 32-35 (USSR)

ABSTRACT: The production of resins from polystyrene residues and  
their use in the manufacture of lacquers and coloured  
coatings was investigated. At present, styrene rubber is  
prepared by the dehydrogenation of ethyl benzene. After  
the distillation of styrene, polystyrene or vat residues  
are obtained as by-products; the composition of these vat  
residues has not been investigated in detail, but it was  
known that the crystalline part contained stilbene and  
diphenyl ethane. Investigations carried out in 1953 in  
the Department for Organic Chemistry of the Voronezh

Card 1/3