Professor N. N. Vasil'yev. On His 70-th Birthday SOV/105-59-6-23/28

strengthen the relations between the chair and industry. He was awarded the Lenin Order, the Order of the Red Banner of Labor and the medal "For Heroic Work in the Great Patriotic War". There is 1 figure.

Card 2/2

8 (0)

AUTHORS: Vasil'yev, N. N., Greben', I.I., Postnikov, I. M., Fedchenko, I. K., Kholmskiy, V. G., Chizhenko, I. M. and Others

SOV/105-59-6-25/28

TITLE: Corresponding Member of the AS UkrSSR A. D. Nesterenko (Chlen-korr. AN USSR A. D. Nesterenko) On His 60-th Birthday (K 60-letiyu so dnya rozhdeniya)

PERIODICAL: Elektrichestvo, 1959, Nr 6, p 94 (USSR)

ABSTRACT: Anatoliy Dmitriyevich Nesterenko was born on April 6, 1899 in the village of Blagodatnoye in the Odessa oblast'. In 1926 he completed his studies at the Faculty of Electrical Engineering at the Kiyevskiy politekhnicheskiy institut (Kiyev Polytechnic Institute). He then began his scientific and pedagogical career. With his collaboration, workshops were installed at the same institute for the production of electrical measurement apparatus, which later on developed into a factory. From 1936 to 1938 he was Head of the Laboratory of Electrical Measurements of the Energeticheskiy institut AN SSSR (Institute of Power Engineering at the Academy of Sciences, USSR). In 1937 he was promoted Doctor, and in 1938

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he was appointed Professor of the special field of electrical measurements. From 1938 to 1941 he was chief designer of a factory for electrical apparatus and from 1942 to 1944 he was Professor at the Omskiy mashinostroitel'nyy institut (Omsk Institute of Mechanical Engineering). After the War he collaborated in the elaboration of the five years' plan and worked as a professor at the Kiyevskiy politekhnicheskiy institut (Kiyev Polytechnic Institute). Due to his initiative a chair of electrical apparatus building was established there. At the same time he was Head of the Department of Automation of the Institut elektrotekhniki AN USSR (Institute of Electrical Engineering of the AS UkrSSR). In 1951 he became a Corresponding Member of the AS UkrSSR and in 1952 he was elected Head of the Institut elektrotekhniki (Institute of Electrical Engineering). He published 50 papers. In his works he primarily deals with a classification of measuring methods and of instruments, with the power measurement in single- and multi-phase circuits, with the theory of phasometers and of compensation and differential bridge circuits, and the

inspection of current- and voltage transformers. He has made more than 15 inventions and technical improvements. In 1951 he was awarded the Stalin Prize. He bears the Red Banner of Labor Order and several medals. There is 1 figure.

9(9) SOV/143-59-1-9/17

AUTHOR: Fedchenko, I.K., Doctor of Technical Sciences, Professor, and Kondra, B.N., Engineer

TITLE: Conditions for Modeling When Investigating Wave Characteristics of Electric Lines on Models (Usloviya modelirovaniya pri issledovanii volnovykh kharakteristik liniy na modelyakh)

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy - Energetika, 1959, Nr 1, pp 56-64 (USSR)

ABSTRACT: A model is required to ensure a full similarity in physical processes to the full-size line. The geometrical similarity is indispensable; it covers such characteristics as the radii of the wires, the heights of their suspension and the distances between them. The scale of modeling may be chosen arbitrarily. The authors proceed to establish the relationships between the C, L, R, and z values of the model and the full-size line in case of their similarity. The voltage to be applied to the model is found on the basis of the ratio between the

Card 1/3

Conditions for Modeling When Investigating Wave Characteristics of Electric Lines on Models

critical voltages of the full-size line and the model. The wave shapes must be identical. Next, the authors give a definition of similarity of electrostatic fields and characterize the similarity in current distribution. The requirements of electrodynamic similarity cover the equality of the dielectric constants, magnetic permeabilities and conductivities of the respective media, the equality of the wave refraction and reflection indices, the similarity in the processes of the attenuation of electromagnetic waves. For perfect similarity, the length of consideration; but for studying the wave characteristics, the length of the model may be reduced to the length of the front of the wave, the reflection of the wave being prevented by adding, at the line end, an active resistance equal to the wave resistance of the line $R = z_{11}$. Experiments have proved that the described method ensures more accurate results when studying wave processes on laboratory models. There are 5 diagrams and 12 Soviet references.

SOV/143-59-1-9/17

Conditions for Modeling When Investigating Wave Characteristics of Electric Lines on Models

ASSOCIATION: Kiyevskiy ordena Lenina politekhnicheskiy institut (Kiyev, Order of Lenin, Polytechnical Institute)

PRESENTED: By the Kafedra tekhniki vysokikh napryazheniy (Chair of High-Voltage Engineering)

SUBMITTED: November 24, 1958

Card 3/3

FEDCHENKO, I.K., doktor tekhn. nauk prof.; IYERUSALIMOV, M.Ye., kand. tekhn. nauk dots.

Characteristics of the electric strength of large spark gaps at constant high voltage. Izv. vys. ucheb. zav.; energ. 2 no.7: 33-40 Jl '59. (MIRA 13:1)

1.Kiyevskiy ordena Lenina politekhnicheskiy institut.
(Electric spark)

27083
S/143/61/000/001/001/006
A207/A126

9,9881

AUTHORS: Fedchenko, I. K., Doctor of Technical Sciences, Kondra, B. N., Engineer

TITLE: An investigation carried out on the model line of wave-resistance change of a cable line at pulse corona

PERIODICAL: Energetika, no. 1, 1961, 1 - 10

TEXT: The present work deals with the problem of investigating the wave resistance of a line, depending on the multiplicity of the voltage on the cable line and on the front length of the pulse wave. An analytical solution of the problem on the change of the wave resistance in the line with pulse corona, due to the complexity of the processes, does not lend itself to accurate calculations, and does not exist at present. The analyses conducted on a standard line, where conditions of similarity are maintained, enabled the authors to determine the qualitative and quantitative characteristics of the process in the presence of a pulse corona in the cable line. An investigation of the pulse corona was conducted on a standard line. Observance of the electrostatic similarity was ensured by adopting the geometrical similarity as the necessary condition of the standard

Card 1/ 2

An investigation carried out on the model line of ...

line. The use of the three-beam cathode oscillograph, type- ЗКО-20 (ZKO-20), designed at the VEI imeni V. I. Lenin, simplifies the method of analysis, enabling one to obtain the curves of current change on one oscillogram, applied to the voltage line, and also the graduated curve, as well. The latter also gives an accurate measurement of the percentage drop of the wave resistance, associated with the pulse corona. A series of oscillograms were taken for any moment of time, and at any multiplicity of over-voltage. The analyses were carried out at positive and negative polarities of the wave. An analysis of these oscillograms showed that: 1) the maximum drop of the wave resistance takes place during the time which corresponds to the current pulse amplitude. 2) The amplitude of N, drops with an increase of the front length of the voltage wave, which confirms the fact that the appearance of N is associated with the shunting action of the capacitances in the initial moment of time, the reactive resistance of which increases with an increase of the wave front length of the voltage. 3) The maximum drop at a front wave length of the voltage equal to 2 μsec is about 3% less, than at a front length equal to 0.5 μsec. There are 6 figures and 10 Soviet-bloc references.

ASSOCIATION: Kiyevskiy ordena Lenina politekhnicheskiy institut (The Kiyev Order of Lenin Polytechnical Institute)
SUBMITTED: April 18, 1960
Card 2/2

FEDCHENKO, I.K., doktor tekhn.nauk, prof.; KONDRA, B.N., inzh.

Use of a model or studying changes in the line resistance of a line conductor in the presence of an impulse corona. Izv. vys. ucheb. zav.; energ. 4 no.1:1-10 Ja '61. (MIRA 14:2)

1. Kiyevskiy ordena Lenina politekhnicheskiy institut. Predstavlena kafedroy tekhniki vysokikh napryazheniy.
(Electric lines)

FEDCHENKO, I.K., doktor tekhn.nauk, prof.; IYERUSALIMOV, M.Ye., kand.tekhn.nauk, dotsent

Moisture control of the insulation of electric transformers. Izv. vys. ucheb. zav.; energ. 4 no.8:14-21 Ag '61. (MIRA 14:8)

1. Kiyevskiy ordena Lenina politekhnicheskiy institut. Predstavlena kafedroy tekhniki vysokikh napryazheniy.
(Electric transformers)

FEDCHENKO, Ivan Kirillovich, doktor tekhn. nauk; PETROV, G.N., doktor tekhn. nauk, retsenzent; NEMCHUNOVA, O.A., red. izd-va; PISARENKO, M.G., inzh., red.izd-va; ROZUM, T.I., tekhn. red.

[High-voltage engineering; specific problems] Tekhnika vysokikh napriazhenii; spetsvoprosy. Kiev, Gostekhizdat USSR, 1963. 319 p. (MIRA 17:3)

[illegible]ENKO, I.I.; IL'YENKO, O.S. [Il'enko, O.S.]

Integration of the differential equation of an arc column with isothermal plasma cooled by means of heat conductivity. Dop. AN URSR no.7:925-929 '64. (MIRA 17:9)

1. Kiyevskiy politekhnicheskiy institut. Predstavleno akademikom B.Ye.Patonom [Paton, B.IE.].

FEDCHENKO, I.K.; IL'YENKO, O.S. [Il'ienko, O.S.]

Study of the dependence of the radius of a d.c. arc on the current intensity and temperature. Dop. AN URSR no.9:1187-1191 '64. (MIRA 17:11)

1. Kiyevskiy politekhnicheskiy institut. Predstavleno akademikom B.Ye. Patonom [Paton, B.IE.].

FEDCHENKO, I. K., doktor tekhn. nauk, prof.; IL'YENKO, O. S., inzh.

Determination of the critical parameters of an open a.c. arc using an energy balance technique. Izv. vys. ucheb. zav.; energ.7 no.5:20-28 My '64. (MIRA 17:7)

1. Kiyevskiy ordena Lenina politekhnicheskiy institut. Predstavlena kafedroy tekhniki vysokikh napryazheniy.

L 4221-65 EWT(d)/EWT(l)/EPF(n)-2/EWG(m)/EPA(w)-2 Pz-6/Po-4/Pab-10/Pg-4/Pi-4
ACCESSION NR: AP4042826 S/0021/64/000/007/0925/0929
IJP(c) WW/AT

AUTHOR: Fedchenko, I. K.; Il'yenko, O. S.

TITLE: Integration of the differential equation of an arc column with isothermal plasma cooled by thermal conductivity

SOURCE: AN UkrRSR. Dopovidi, no. 7, 1964, 925-929

TOPIC TAGS: arc discharge, arc column, thermal conductivity, heat transfer, differential equation, entropy increase minimum rate, differential integration, integral, electric conductivity, tube discharge

ABSTRACT: The differential equation for the arc column is

$$-\lambda_T \frac{d^2T}{dr^2} - \lambda_T \frac{1}{r}\frac{dT}{dr} - \frac{d\lambda_T}{dT}\left(\frac{dT}{dr}\right)^2 = \gamma_t E^2. \qquad (1)$$

where T is the temperature at r distance from the axis, λ_t and γ_t the dependence of the coefficients of thermal conductivity and of electrical conductivity of the plasma on temperature, and E the electric field intensity in the arc column. The integral of this equation is obtained by utilizing the principle of minimum rate of entropy increase and calculating the heat transmission by thermal conductivity. The main characteristics of the arc column were also obtained by approximate numeri-

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L 40321-65

ACCESSION NR: AP4042826

cal solution of equation (1) and the results were found to be in good agreement with those obtained on the basis of minimum rate of entropy increase. The agreement in the results indicates that the minimum rate of entropy increase used in determining the characteristics of the arc column is a valid method. Orig. art. has: 7 formulas and 4 figures.

ASSOCIATION: Kyyivs'kyy politekhnichnyy instytut (Kiev Polytechnic Institute)

SUBMITTED: 09Oct63 ENCL: 00 SUB CODE: EM, MA

NO REF SOV: 001 OTHER: 003

Card 2/2

L 17541-65 AFWL/ESD(t)

ACCESSION NR: AP4041904 S/0021/64/000/009/1187/1191

AUTHOR: Fedchenko, K. K.; Il'yenko, O. S. B

TITLE: Study of the dependence of a d-c arc radius on the current and temperature

SOURCE: AN UkrRSR. Dopovidi, no. 9, 1964, 1187-1191

TOPIC TAGS: arc column differential equation, arc parameter, main parameter, discharge tube

ABSTRACT: Referring to a previous work and using analysis of the solution of the arc column differential equation derived by means of the principle of minimum rate of entropy increase, the authors establish the relation between the main parameters of the arc column and the discharge tube. Orig. art. has: 4 figures and 7 formulas.

ASSOCIATION: Kyyivs'kyy politekhnichnyy instytut (Kiev Polytechnic Institute)

SUBMITTED: 000063 ENCL: 00 SUB CODE: EE

NO REF SOV: 001 OTHER: 001

Card 1/1

FEDCHENKO, I.K., doktor tekhn. nauk; SOKOLOVSKIY, S.A., kand. tekhn. nauk

Generator for studying overvoltages in high-voltage transformer windings. Energ. i elektrotekh. prom. no.4:31-33 O-D '65.
(MIRA 19:1)

L 42828-66 EWT(d)/EWT(l)/T IJP(c) WW/AT

ACC NR: AR6010525 SOURCE CODE: UR/0196/65/000/010/I037/I037

77
B

AUTHOR: Fedchenko, I. K.; Sokolovskiy, S. A.

TITLE: Assembly for the measurement of the temperature field of an electric arc plasma by means of the photoelectric method of recording moment of rotation of spectral lines

SOURCE: Ref. zh. Elektrotekhnika i energetika, Abs. 10I228

REF SOURCE: Vestn. Kiyevsk. politekhn. in-ta. Ser. elektroenerg., no. 1, 1964, 3-16

TOPIC TAGS: plasma temperature, temperature measurement, electric arc, spectral line, photoelectric method, measuring instrument

ABSTRACT: The method of rotation of spectral lines is applied for the instantaneous measurement of a plasma temperature (measurement duration was of the order of 0.5% of the oscillation period of the industrial frequency). An EV-39 device, generating emission corresponding to the emission of an absolute black body at a temperature of 39,000K, is used as a reference source. A special synchronization scheme is offered by means of which it is possible to measure the temperature at any instant of the half-period of arc current, which makes it possible to determine the change in the temperature of the arc column in the course of the current period. The assembly also makes it possible to find the temperature distribution

UDC: 621.316.5.014.31

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L 42828-66

ACC NR: AR6010525

across the cross section and along the arc column. [Translation of abstract] V. Filistovich

SUB CODE: 14/20

Card 2/2

FEDCHENKO, K. K.

"Telluric Currents and Their Connection with Terrestrial Magnetism," Problemy Arktiki, No.9, 1939, pp. 55-61

Translation 600327

[redacted], A. A.

"Law Governing the Variation in Deviation of a Magnetic Compass in the Arctic." Problemy Arktiki, No 1, 1945 (6-30).
(Meteorologiya i Gidrologiya, No 6 Nov/Dec 1947)

SO: U-3218, 3 Apr 1953

28837 S/169/61/000/004/014/026
A005/A130

3.2410 (also 1559, 1482)

AUTHOR: Fedchenko, K.K.

TITLE: The disturbance index of cosmic rays and its connection with magnetic-ionospheric and solar activity

PERIODICAL: Referativnyy zhurnal. Geofizika, no. 4, 1961, 20, abstract 4 G 120. (Tr. Mezhdunar. konferentsii po kosmich. lucham, 1959, v. 4. Moscow, AN SSSR, 1960, 312 - 316)

TEXT: The author attempts to deduce a quantitative characteristic (index) of the degree of disturbance of variations in the intensity of cosmic rays for a given time interval. For such an index the author adopts the diurnal sum of the absolute values of the deviations of the two-hourly values of intensity from the average diurnal value, i.e., $I = \sum_{i=1}^{i_2} |I_1 - \bar{I}|$. These indices correlate well with the planetary magnetic indices K_p, ionospheric disturbances, and spot areas in the sun's central zone.

[Abstracter's note: Complete translation.]

Card 1/1

88826

S/035/61/000/002/011/016
A001/A001

3,1800 (1041, 1162, 1168)

Translation from: Referativnyy zhurnal, Astronomiya i Geodeziya, 1961, No. 2, p. 55, # 2A448

AUTHOR: Fedchenko, K.K.

TITLE: On the Relation Between Cosmic Ray Intensity and Sunspots and Flocculi

PERIODICAL: "Solnechnyye dannyye", 1960, No. 1, pp. 75 - 77

TEXT: The author presents the results of an investigation of the effect of sunspot and flocculi corpuscular streams on intensity of cosmic rays. He compares the daily intensity values of the hard and neutron components of cosmic rays in 1958, obtained on the Heuss island and at Moscow, and the solar activity data, areas of sunspots and calcium flocculi in the Sun's central zone (30° from the visible center). It is noted that the effect of cosmic ray intensity drop, connected with the solar activity in the epoch of maximum, is determined by sunspots to a far greater degree than by flocculi. It is valid both for the hard and neutron component. The results obtained indicate the different nature of

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88826
S/035/61/000/002/011/016
A001/A001

On the Relation Between Cosmic Ray Intensity and Sunspots and Flocculi

corpuscular streams from flocculi and sunspots; this apparently confirms a conjecture of E.R. Mustel' according to which corpuscular streams from sunspots are responsible for magnetic storms with sudden commencement, and corpuscular streams from calcium flocculi for magnetic storms with gradual commencements. There are 5 references.

V. Yesipov

Translator's note: This is the full translation of the original Russian abstract.

Card 2/2

ACCESSION NR: AT3012746 S/2961/60/000/002/0137/0141

AUTHOR: Fedchenko, K. K.

TITLE: Connection between cosmic ray intensity and solar activity

SOURCE: AN SSSR. Mezhduvedomst. komit. po prov. mezhdunarodn. geofizich. goda. 7 razdel program, MGG. Kosmicheskiye luchi. Sb. statey, no. 2, 1960, 137-141

TOPIC TAGS: cosmic rays, cosmic ray intensity, cosmic ray neutron component, cosmic ray hard component, sunspot, floccula, corpuscular stream, corpuscular stream source, solar activity

ABSTRACT: To ascertain the influence of corpuscular stream sources such as sun spots and calcium flocculae on the cosmic ray intensity variations during different periods of the solar cycle, data on the variations of the hard and neutron components were obtained during 1954--1958 in the high latitude stations Bukhta Tikhaya and Heiss

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ACCESSION NR: AT3012746

Island, and also in Moscow. The data on the solar activity were taken from the pertinent bulletins. The variation data were corrected for the barometric effect. Plots obtained by superposition of epochs show that during the maximum solar activity the cosmic rays are affected most by spots and during the minimum activity the effects due to spots and to flocculas are both small. It is also shown that some of the largest spots, which occur only during years of high solar activity, can produce everywhere (except in equatorial latitudes) a considerable increase in the intensity of the neutron (~4%) and hard (~2%) components as they pass through the central zone of the sun. The reasons for the increase are discussed and a hypothesis advanced that some unknown mechanism on the sun, not connected with the flares, is effective and ensures a prolonged (several days) emission from the sun of a low-energy cosmic-ray component. It is possible that this mechanism is somehow connected with the unipolar magnetic regions on the sun, observed by H. W. and H. D. Babcock. "In conclusion the author is grateful to Professor E. R.

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ACCESSION NR: AT3012746

Mustel' and the staff of the Cosmic Ray Division of IZMIRAN for a discussion of the obtained results." Orig. art. has: 2 figures.

ASSOCIATION: None

SUBMITTED: 00	DATE ACQ: 22Oct63	ENCL: 00
SUB CODE: PH	NO REF SOV: 006	OTHER: 003

Card 3/3

S/035/62/000/[illegible]33/098
A055/A101

3.2410 (2205; 2805

AUTHOR: Fedchenko, K. K.

TITLE: Relation between cosmic rays intensity and solar activity

PERIODICAL: Referativnyy zhurnal, Astronomiya i Geodeziya, no. 5, 1962, 32-33, abstract 5A259 (V. sb. "Variyatsii kosmichesk. luchey i solnechn. korpuskulyarn. potoki, no. 2", Moscow, AN SSSR, 1960, 137-141, English summary)

TEXT: From data provided by a continuous recording of the cosmic rays intensity in the periods of maximum (1958) and minimum (1954 - 1955) solar activity, the author investigates the influence exerted on cosmic rays by the corpuscular streams related to flocculi and sunspots. It is shown that, in the maximum activity period, the predominating influence on the cosmic rays intensity is exerted by sunspots; in the minimum period, both sunspots and flocculi exert but a small influence on cosmic rays. This leads the author to the conclusion that, in the maximum activity period, the corpuscular streams related to flocculi carry away weak frozen magnetic fields, whereas the streams caused sunspots carry magnetic fields whose strength is greater by an order of

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S/035/62/000/005/033/098
A055/A101

magnitude. The author examines next the relation between the cosmic rays intensity and the transit of large spots (whose area is greater than $2{,}000 \cdot 10^{-6}$ S $\odot$) across the central meridian of the Sun. In the majority of cases, the transit of such spots across the central meridian was followed by a decrease in the intensity of cosmic rays. However, the transit of the largest group of spots (September 18 - 21, 1957) coincided with a perceptible increase of the intensity. It is supposed that the observed intensity increases may be the consequence of a prolonged generation, on the Sun, of high-energy cosmic rays.

N. Kaminer

[Abstracter's note: Complete translation]

DRIATSKIY, V.M.; MILYAYEV, N.A.; NIKOL'SKIY, A.P.; FEDCHENKO, K.K.

Development of geophysical research in the Arctic during the past 40 years. Probl. Arkt. i Antarkt. no. 4:97-110 '60.
(MIRA 13:12)
(Arctic regions--Geophysical research)

FEDCHENKO, K.K.

Directed anisotropy in the mechanism of Forbush decreases of cosmic ray intensity. Geomag. i aer. 1 no.3:346-353 My-Je '61. (MIRA 14:9)

1. Polyarnyy geofizicheskiy institut Kol'skogo filiala AN SSSR.

(Cosmic rays)

L 44132-66 EWT(1)/FCC GW/GD

ACC NR: AT6026926 SOURCE CODE: UR/0000/66/000/000/0094/0101

47
45
8+1

AUTHOR: Smirnov, V. S.; Fedchenko, K. K.

ORG: none

TITLE: Anisotropy of the Forbush effect and electromagnetic conditions in interplanetary space

SOURCE: AN SSSR. Kol'skiy filial. Polyarnyy geofizicheskiy institut. Vysokoshirotnyye issledovaniya v oblasti geomagnetizma i aeronomii (High-latitude studies in geomagnetism and aeronomy). Moscow, Izd-vo Nauka, 1966, 94-101

TOPIC TAGS: Forbush effect, interplanetary space, ~~cosmic ray~~, geomagnetic storm, interplanetary magnetic field, solar atmosphere, ~~chromospheric~~ flare, magnetic plasma, ionospheric blackout, magnetic anisotropy, solar

ABSTRACT: The present review article summarizes the earlier results of the Forbush-effect events observed furing the IGI period. The coincidence of Forbush-effect events is compared with the geomagnetic storms of sudden commencement. The structure and strength of the interplanetary magnetic field can be studied from the duration of anisotropy of the Forbush effect and processes in the solar atmosphere during chromospheric flares. All Forbush-effect events can be divided into two types: the first type has short anisotropy and unclear dependence of the duration of anisotropy upon the heliographic longitude of flares, and the other type has long-

Card 1/2

Card 2/2

L 09098-67 EWT(1)/FCC GW

ACC NR: AP7002334 SOURCE CODE: UR/0026/66/000/006/0113/0114

AUTHOR: Fedchenko, K. K.

ORG: Polar Geophysical Institute Apatity Polyarnyy geofizicheskiy institut)

TITLE: Automatic recording of cosmic rays

SOURCE: Priroda, no. 6, 1966, 113-114

TOPIC TAGS: cosmic ray measurement, artificial earth satellite

ABSTRACT:

Soviet cosmic ray stations are equipped with specially developed standard recording apparatus for complex investigations: shielded ionization chambers, cubic telescopes and neutron monitors. However, under present-day conditions, when extensive use is made of artificial earth satellites, space rockets and high-speed computers, a need arises for further effective improvement of existing apparatus and a maximum increase of its accuracy. A design for highly sensitive automatic apparatus for the recording of cosmic rays has been developed at the Institute of Terrestrial Magnetism, Ionosphere and Radio Wave Propagation of the Academy of Sciences USSR. The execution of this complex design and plan required the participation of a large

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0925 0617

body of different specialists and organizations. The work was done in part by a number of institutes of the Academy of Sciences USSR, Georgian SSR and Kazakh SSR.

The apparatus consists of two parts -- a meson supertelescope and a neutron supermonitor, designed for continuous automatic recording of the corresponding components of the intensity of cosmic rays with a high accuracy. The total instrument error for both components does not exceed 0.1%, that is, will be more than an order of magnitude less in comparison with instruments now in use.

All the apparatus is completely automatic. The most important individual components and parts can be replaced automatically by spares; all other components have light or sound signals which make known any malfunctioning. At the output of the recorder data will be fed out in double form: as punch tapes, adapted for direct input into electronic computers and as digital printed tapes for visual inspection.

The new apparatus has been developed, has been fully tested, and the first experimental model is in operation. Such an apparatus, satisfying present-day requirements, should be set up at all presently operating and newly opened magnetic-ionospheric stations, together with instruments for

L 09098-67
ACC NR: AP7002334

recording geomagnetic and ionospheric phenomena. By the beginning of 1967 most Soviet cosmic ray stations will be re-equipped and present instruments will be replaced by the new highly sensitive automatic apparatus.

[JPRS: 37,397]

SUB CODE: 03,22 / SUBM DATE: none

Card 3/3 mat

LEVINA, V.P.; FEDCHENKO, L.G.

Traumatic dextroventricular aneurysm of the heart. Vest. khir. 94 no.1:115-116 Ja '65. (MIRA 18:7)

1. Iz gospital'noy khirurgicheskoy kliniki (zav. - dotsent N.N. Zemskov) Luganskogo meditsinskogo instituta.

[redacted], N. I.

Dissertation: "Chemical Fight against the Harmful 'Eurygaster Integriceps Pub.' in the Krasnodarskiy Kray." Cand Agr Sci, VASKhNIL (All-Union Academy of Agriculture imeni Lenin), All-Union Sci Res Institute of Plant Protection, Leningrad, 1954. (Referativnyy Zhurnal-Khimiya, No 11, Moscow, Jun 54)

SO: SUM 318, 23 Dec 1954

FEDCHENKO, M.A., kandidat sel'skokhozyastvennykh nauk.

"Vofatoks." Nauka i zhizn' 23 no.5:18 '56. (MLRA 9:8)
(Insecticides)

FEDCHENKO, M.A., kandidat sel'skokhozyaystvennykh nauk (st.Pashkovskaya).

New poison for controlling Eurygaster. Priroda 45 no.4:96-97 Ap '56. (MLRA 9:7)

1.Krasnodarskaya krayevaya opytnaya stantsiya zashchity rasteniy.
(Eurygasters) (DDT (Insecticide))

FEDCHENKO, M. A.

Yu. A. Orfanitskiy, M. A. Fedchenko, and A. S. Tvorogova on "Soil Problems connected with the problem of clearance types."

report presented at the Conference on Forestry, Arkhangel'sk, 14-15 April 1958 (Vest. Ak Nauk SSSR, 1958, No. 7, pp. 133-4)

ORFANITSKIY, Yu.A.; FEDCHENKO, M.A.; ARDASHEV, M.Ya.

Ammonification and nitrification in certain types of felling areas of Archangel Province. Pochvovedenie no.10:79-85 '60. (MIRA 13:10)

1. Institut lesa i lesokhimii Akademii nauk SSSR.
(Archangel Province--Forest soils)

FEDCHENKO, M.A., kand. sel'skokhoz. nauk

New compounds for corn disinfection. Zashch. rast. ot vred. i bol. 6 no.10:33-34 O '61. (MIRA 16:6)

1. Krasnodarskiy nauchno-issledovatel'skiy institut sel'skogo khozyaystva.
(Krasnodar Territory—Corn(Maize)—Diseases and pests)
(Seeds—Disinfection)

FEDCHENKO, M.A., kand.sel'skokhoz.nauk

Rodent control. Zhivotnovodstvo 23 no.2:87-88 F '61.
(MIRA 15:11)

1. Krasnodarskiy nauchno-issledovatel'skiy institut sel'skogo khozyaystva.

(Rodent control)

FEDCHENKO, M.A.

Fractional composition of soil humus in cutover areas of Archangel Province where hairgrass is predominant. Pochvovedenie no.1:49-58 Ja '62. (MIRA 17:1)

1. Institut lesa i lesokhimii AN SSSR.

FEDCHENKO, M.A., kand.sel'skokhozyaystvennykh nauk; BOCHKAREVA, Z.A., starshiy nauchnyy sotrudnik

Preparation and use of disinfectants with indicators. Zashch. rast. ot vred. i bol. 7 no.3:42-43 Mr '62. (MIRA 15:11)

1. Krasnodarskiy nauchno-issledovatel'skiy institut sel'skogo khozyaystva.

(Seeds—Disinfection)

FEDCHENKO, M.A., kand.sel'skokhoz.nauk

Disinfectization of granaries with chlorophos. Zashch. rast.ot vred. i bol. 8 no.9:27 S '63. (MIRA 16:10)

1. Krasnodarskiy nauchno-issledovatel'skiy institut sel'skogo khozyaystva.

FEDCHENKO, M.A., kand.sel'skokhoz.nauk

Wet disinfection of seeds. Zashch. rast. ot vred. i bol. 9 no.3:29-30 '64. (MIRA 17:4)

1. Krasnodarskiy nauchno-issledovatel'skiy institut sel'skogo khozyaystva.

FELCHENKO, M.A., kand. sel'skokhoz. nauk

Seed disinfectors with color indicators. Zashch. rast. ot vred. i bol. 9 no.8:15 '64. (MIRA 17:12)

1. Krasnodarskiy nauchno-issledovatel'skiy institut sel'skogo khozyaystva.

FEDCHENKO, O.N.

SPIVAK, M.S., golovnyy redaktor; BILOZUB, V.G., redaktor; VASILENKO, P.M., redaktor; ZORIN, I.G., redaktor; IL'CHENKO, I.K., redaktor; KOVAL', O.G., redaktor; KRILOV, O.F., redaktor; PUKHAL'S'KIY, A.V., redaktor; SIDORENKO, O.P., redaktor; FEDCHENKO, O.N., redaktor; ANGELINA, P.M., redaktor; BUZANOV, I.F., redaktor; BOYKO, D.V., redaktor; BURKATS'KA, G.E., redaktor; VASILENKO, A.O., redaktor; VLASYUK, P.A., redaktor; GORODNIY, M.G., redaktor; DEMIDENKO, T.T., redaktor; DUBKOVETS'KIY, F.I., redaktor; KIRICHENKO, F.G., redaktor; LITOVCHENKO, G.P., redaktor; OZERNIY, M.O., redaktor; PERSHIN, P.M., redaktor; POPOV, F.A., redaktor; POSMITNIY, M.O., redaktor; PSHENICHNIY, P.D., redaktor; RADCHENKO, B.P., redaktor; POMANENKO, S.S., redaktor; RUBIN, S.S., redaktor; SAVCHENKO, M.Kh., redaktor; SOKOLOVS'KIY, O.N., redaktor; TSIBENKO, K.O., redaktor; SHCHERBINA, O.P., redaktor; KRAVCHENKO, M.F., tekhnichniy redaktor

[Collective farm encyclopedia] Kolhospna vyrobnycha ensyklopediia. Vyd. 2-e, perer. i dop. Kyiv, Derzh.vyd-vo sil's'kohospodars'koi lit-ry URSR. Vol.1. Abrykos - Liutserna. 1956. 756 p. (MIRA 9:9)
(Agriculture--Encyclopedias and dictionaries)

S/601/60/000/011/012/014
D207/D304

AUTHORS: Dekhtyar, I. Ya., Litovchenko, S. G., and Fedchenko, R. G.

TITLE: Investigating the effect of plastic deformation on the electrical properties of alloys in the Fe-Al system

SOURCE: Akademiya nauk Ukrayins'koyi RSR. Instytut metalofyzyky. Sbornik nauchnykh rabot. no. 11. 1960. Voprosy fiziki metallov i metallovedeniya, 121 - 128

TEXT: The authors investigated the influence of crystal defects produced by plastic deformation on the electrical resistivity of pure iron and of Fe-Al alloys with 0.13 - 8% Al. Cast alloys were homogenized (120 hours at 1150°C), forged, drawn into a wire of 0.56 mm diameter, annealed (3 hours at 800°C), and finally cooled in air. Extension was produced by a constant load

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Investigating the effect...

of 1.5 - 2 kg and measured by a clock mechanism. The electrical resistivity was determined with a ППТН (PPTN) potentiometer and a highly sensitive galvanometer М25/3 (M25/3). For pure iron and Fe-0.13% Al, it was found that (1) $\Delta\rho/\rho_0 = A\varepsilon^{3/2}$, where $\Delta\rho$ is the change of resistivity due to plastic deformation, ρ_0 is the initial resistivity (in ohm cm), ε is the relative deformation (in%), and A is a constant; (2) the increase of resistivity was primarily due to vacancies. The electrical resistivity due to one vacancy in pure iron was 1.1×10^{-21} μohm cm/cm^3; and for Fe-0.13% Al, it was 0.6×10^{-21} μohm cm/cm^3. For the alloys with 0.28 - 1.08% Al, it was found that $\Delta\rho/\rho_0 = B\varepsilon^{1/2}$ and that the increase in resistivity was primarily due to dislocations; the electrical resistivity due to one dislocation was of the order of 10^{-13} μohm cm/cm^3, and it rose with increase of the

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aluminum content. The Fe-8% Al alloy behaved differently from all the other alloys: its electrical resistivity was reduced by plastic deformation. This was due to destruction of the short-range order produced by the 800°C heat treatment before tests. It was also found that the electrical resistivity of all the alloys, except Fe-8% Al, rose linearly with their Al content. There are 4 figures, 1 table and 11 references: 3 Soviet-bloc and 8 non-Soviet-bloc. The 4 most recent references to the English-language publications read as follows: D. L. Dexter, Phys. Rev., 90, 710, 1953; S. C. Hunter, F. Nabarro, Proc. Roy. Soc., 220, 542, 1953; W. A. Harryson, Phys. Chem. of Solids, 5, 44, 1958; Matsura Keisuke, Hamaguchu Voshikazu, Koda Shigeyasu, J. Phys. Soc. Japan, 12, 1424, 1957.

SUBMITTED: June 24, 1959

Card 3/3

S/185/61/006/002/012/020
D210/D304

AUTHORS: Dekhtyar, I.Ya., Lytovchenko, S.H., and Fedchenko, R.M.

TITLE: Effect of plastic deformation on the electrical resistance of alloys

PERIODICAL: Ukrayinskyy fizychnyy zhurnal, v. 6, no. 2, 1961, 233 - 238

TEXT: The authors describe the influence of vacancies and dislocation in alloys on the electrical resistance of the alloys. There exists a large amount of theoretical data on the effect of plastic deformations on electrical resistance and the main purpose of this study was to check this theory as well as the authors' theory presented in an earlier publication which states that

$$\frac{\Delta\rho}{\rho_0}=\frac{\rho_v}{\rho_0}flb^{-2}k\varepsilon^{1/2}+\frac{\rho_d}{\rho_0}k\varepsilon^{1/2}=A\varepsilon^{1/2}+B\varepsilon, \qquad (1)$$

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S/185/61/006/002/012/020
D210/D304

Effect of plastic deformation ...

ρ - increase of specific resistance; ρ_0 - initial specific resistance; ρ_v - resistance due to one vacancy; ρ_d - resistance due to one dislocation; b - Buerger's vector; l - mean length of free dislocation run; f - coefficient specifying the effective number of steps which are the source of dislocations. From this equation, the constants A and B, and hence ρ_v and ρ_d can be easily calculated by plotting experimental values of $\Delta\rho\varepsilon^{-1/2}/\rho_0$ against ε as this should give a straight line. Experimental resistivity measurements were made on Fe + Mo (0.9 to 1.5 %) at room temperature and Fe + 1.0 at .% Ni, Fe + 0.9 at .% Mo, and Fe + 0.9 at .% V at 78°K. The samples were in the form of 0.5 mm diameter wire, 9 cm long and they were strained up to 10 % at room temperature, and up to 150 % at 78°K. The resistance measurements were made with a potentiometer and a sensitive galvanometer. For the Fe + Mo alloy measurements carried out at room temperature the plot of $\Delta\rho/\rho_0$ against ε^+ gave straight lines implying that the principal cause of resistance in-

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crease is due to dislocations. This can be explained by concentrating vacancies near the admixed atoms, forming a "modified admixture". The Mo concentration in this experiment had no significant effect, probably because it was very high (0.9 %) in the lowest concentration. On the basis of k determined in the previous experiment, ρ_d was found to be $17 \cdot 10^{-14} \mu\Omega\,cm/cm^{-2}$. No appreciable change in resistance was found on annealing for 8 hours at 100°C after 10 % deformation of a Fe + Mo specimen. For low temperature measurements the deformation was effected at room temperature while the resistivity was measured at 78°K. After a certain deformation a limit in the number of defects is reached and the resistivity reaches a limiting value. By plotting these curves according to Eq. (1) straight lines were obtained in each case. Fe + Mo gave A = 0.037 and B = 0.011. The curve for Fe + Ni, plotted up to ε = 70 %, gave a straight line going through the origin implying that the main source of resistance are vacancies, with the relationship $\Delta\rho/\Delta\rho_0 = 0.01\,\varepsilon^{3/2}$. For the vanadium alloy A was found to be zero

and B = 0.095. The differences between these curves are attributed by the authors to the affinity of the admixed atoms for the vacancies, being greatest for V and least for Ni. Other factors which may affect the resistivity are the scattering of electron waves by point defects (vacancies) and dislocations, and the interaction of point defects with dislocations. There are 3 figures and 7 references: 1 Soviet-bloc and 6 non-Soviet-bloc. The references to the 4 most recent English-language publications read as follows: P. Jongenburger, Phys. Rev., 90, 710, 1953; F. Seitz, Advances in Physics, 1, 43, 1952; S.C. Hunter, N.F. Nabarro, Proc. Roy. Soc., 1953 220, 542; W.A. Harrison, Phys. Chem. of Solids, 1958, t. 5, 44-46.

ASSOCIATION: Instytut metalofizyky AN URSR m. Kyyiv (Institute of Metal Physics AS UkrSSR, Kiyev)

SUBMITTED: June 18, 1960

S/659/62/008/000/003/028
I048/I248

AUTHORS: Dekhtyar, I.Ya., Mikhalenkov, V.S., and Fedchenko, R.G.

TITLE: To the evaluation of atomic interaction in alloys at high temperatures

SOURCE: Akademii nauk SSSR. Institut metalurgii, Issledovaniya po zharoprochnym splavam. v.8. 1962. 31-35

TEXT: Experimental data showing the paramagnetic susceptibility (χ) - temperature (up to 1000°C) relationship for Fe-Cr alloys containing 12.4-41.6 at.% Cr is used as a basis for evaluating atomic interactions within these alloys. The plot of $1/\chi$ vs. the temperature yields a straight line, except in the case of the alloy containing 12.4 at.% Cr at temperatures exceeding 850°, where the straight-line relationship is disturbed by an $\alpha \rightarrow \gamma$ transformation within the alloy. A comparison of the experimental data with data from the literature indicates that "n" (the number of bond-forming electrons per atom, which is calculated from the χ-temperature

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S/659/62/008/000/003/028
I048/I248

To the evaluation of atomic interaction...

data) can be used as an index of the mechanical properties of the alloy, i.e., the elastic modulus increases with increasing n. It is assumed that strengthening of the interatomic bonds takes place with any changes in the structure of the solid solution which lead to changes in n similar to those caused by increasing the concentration of the second component of the alloy. An equation for the relationship between n and χ is derived:

$$\chi = \frac{a\,(n_s+d_o) - n^2}{T -} , \qquad (7)$$

where n_s is the total number of s-electrons, d_o is the average number of vacant d-levels (both per atom of the alloy), T is the temperature, θ is the Curie temperature, $a=N^2\mu_B^2/3R$, N is the Avogadro number, μ_B is the Bohr magneton, and R is the gas constant. There are 3 figures and 1 table.

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S/601/62/000/015/003/010
A004/A127

AUTHORS: Dekhtyar, I.Ya., Mikhalenkov, V.S., Fedchenko, R.G.

TITLE: Rating of the interatomic action in ferrochromium alloys at high temperatures

SOURCE: Akademiya nauk Ukrayins'koyi RSR. Instytut metalofyzyky. Sbornik nauchnykh rabot. no. 15. Kiev, 1962. Voprosy fiziki metallov i metallovedeniya, 117 - 122

TEXT: The authors investigated the paramagnetic susceptibility vs temperature curve of ferrochromium alloys containing 12.4, 24.5, 33,6 and 41.6 atomic % Cr, respectively. The alloys were smelted in an induction-type vacuum furnace. The ingots were homogenized for 50 hours at 1,200°C, and then forged and drawn to 2 mm in diameter with subsequent 3-hour annealing at 900°C to relieve the drawing stresses. The paramagnetic susceptibility vs temperature curves obtained proved that the tested alloys comply with the Curie-Weiss law. A number of formulae and a table are presented. The investigation results reveal that, if in changes of the state of the solid solution, magnitude n is changed in the same direction as

S/601/62/000/015/003/010
A004/A127

Rating of the interatomic action in ....

is the case with an increase in concentration of the second constituent, this will favor the "strengthening" of interatomic binding. There are 3 figures and 1 table.

SUBMITTED: March 10, 1961

Card 2/2

ACCESSION NR: AT4013932 S/2659/63/010/000/0087/0092

AUTHOR: Dekhtyar, I. Ya.; Mirkin, I. L.; Mikhalenkov, V. S.; Fedchenko, R. G.; Volkova, T. I.; Blanter, M. S.

TITLE: Investigation of the paramagnetic properties of high temperature alloys on an iron and nickel base

SOURCE: AN SSSR. Institut metallurgii. Issledovaniya po zharoprochn*m splavam, v. 10, 1963, 87-92

TOPIC TAGS: paramagnetic steel, high temperature alloy, iron alloy, nickel alloy, chromium alloy, alloy paramagnetic property, paramagnetism

ABSTRACT: The temperature dependence of the paramagnetic properties of high temperature alloys on an iron and nickel base was investigated as a guide to their electronic structure and the effective number of electrons N. It was found that the maximum number of electrons for nickel-chromium alloys is found in those containing 10% Cr. Addition of niobium to an alloy of Ni + 16% Cr leads to significant increase in N. Investigation of complex alloys on a nickel-chromium base showed that the maximum N is observed in alloys with aluminum and titanium. Investigation of complex alloys on an iron-nickel-chromium base showed

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ACCESSION NR: AT4013932

that the effective magnetic moment connected with N is maximal in alloys containing tungsten and molybdenum, while niobium, titanium and aluminum lead to a decrease in N. The results obtained and their comparison with tensile strength studies show that the number of electrons in the bond found on the basis of the temperature dependence of paramagnetic sensitivity may characterize the strength of the interatomic bonds at high temperatures. Orig. art. has: 3 figures, 2 tables and 9 formulas.

ASSOCIATION: Institut metallurgii AN SSSR (Metallurgical Institute AN SSSR)

SUBMITTED: 00 DATE ACQ: 27Feb64 ENCL: 00

SUB CODE: ML NO REF SOV: 002 OTHER: 000

Card 2/2

ACCESSION NR: AT4010696 S/2601/63/000/017/0120/0131

AUTHOR: Borisova, V. I.; Dekhtyar, I. Ya.; Madatova, E. G.; Mikhalenkov, V. F.; Fedchenko, R. G.; Khazanov, M. S.

TITLE: Investigation of the effects of nonstationary heating on the changes in magnetic and electrical properties of heat-resistant alloy ZhS-6K

SOURCE: AN UkrRSR. Insty*tut metalofizy*ky*. Sbornik nauchny*kh trudov. no. 17, 1963. Voprosy* fiziki metallov i metallovedeniya, 120-131

TOPIC TAGS: alloy ZhS-6K, paramagnetic susceptibility, surface electrical resistance, heat treatment, phase transformation, eddy current, heat resistance, magnetism, alloy electrical property, heat resistant alloy

ABSTRACT: Application of new methods to the physical investigation of the phase and structural changes occurring during cyclic heat treatment of heat-resistant materials is very important. One of the methods used in this study is that of paramagnetic susceptibility, by means of which it is possible to determine the interrelationship between structural changes and the states of phases, whether these changes are successive or simultaneous, and to what extent they occur during the process of thermal fatigue. In addition to the above methods the following were also used: changes in thermal rigidity and

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ACCESSION NR: AT4010696

electrical resistance, form changes, and measurement of the surface electrical resistance with determination of losses due to eddy currents. The first task was the investigation of the effects of thermal stress on form changes and hardness of samples of the alloy subjected to cyclic heat treatment. The results obtained showed that the linear dimensions of alloys with high recrystallization temperatures did not change appreciably as a result of thermal cycles. It is interesting to note that after 250 thermocycles with cooling in water, breakage occurred without noticeable change in the length of the samples. Thermal rigidity of samples was measured in a standard VIM-1M apparatus. It was found that the changes in hardness resulting from thermal treatment depend not on thermal stresses but on changes in the fine crystalline structure of the alloys. The dependence of the electrical resistance of the alloy on heat changes during thermal treatment was studied by the potentiometric method using a standard PPTN bridge. It was found that resistance decreases up to 50 thermocycles. The absolute minimum occurs at about 325 cycles after which there is a continuous increase up to 600 cycles. The study of paramagnetic susceptibility showed that during heat treatment there was a continuous decrease in the hard solution of the matrix due to the alloying components. This process should cause a decrease in electrical resistance. The sharp increase after 325 cycles is

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ACCESSION NR: AT4010696

difficult to explain. For the exact explanation of the process involved it is necessary to employ new methods using structural sensitivity characteristics and phase composition. The study of paramagnetic susceptibility demands a thorough study of structural and phase changes occurring during cyclic heat treatment. For measurements of susceptibility a special unit was designed which utilized the compensatory method of measurement. The following conclusions were reached: cyclic heat treatment, with cooling in a stream of air, of thin samples 3 mm in diameter merely leads to acceleration of the aging process. With samples of complicated form a considerable stress gradient developed during heat treatment leading to an unbalanced redistribution of elements. Under these conditions the appearance of cracks is more probable. The study of paramagnetic susceptibility of the alloy showed that for 3mm samples susceptibility increases evenly. No anomalies were observed, a fact which is explained by the almost total absence of a gradient of thermal stresses during cooling. Orig. art. has 5 formulas, 7 figures, and 1 table.

ASSOCIATION: Insty*tut metalofizy*ky* AN UkrRSR (Institute of the Metallurgical Physics of Metals AN Ukr RSR)

SUBMITTED: 00 DATE ACQ: 31Jan 64 ENCL: 00

SUB CODE: MM NO REF SOV: 001 OTHER: 002

Card 2/3

L 49038-65 EWT(l)/EWT(m)/EWA(d)/EWP(t)/EPR/EWP(k)/EWP(b)/EWA(c) Pf-4/Ps-4
IJP(c) JD/HW
ACCESSION NR: AP5006901 S/0181/65/007/003/0893/0898

AUTHOR: Dekhtyar, I. Ya.; Fedchenko, R. G. 39 21

TITLE: Effect of plastic deformation and quenching on paramagnetic properties of aluminum 27

SOURCE: Fizika tverdogo tela, v. 7, no. 3, 1965, 893-898

TOPIC TAGS: aluminum, paramagnetic property, plastic deformation, quenching, conduction electron, state density, Fermi end point energy

ABSTRACT: To determine more precisely the cause of the decrease in the paramagnetic susceptibility of aluminum following plastic deformation, the authors make use of earlier results by one of them (Dekhtyar, with V. S. Mikhalenkov, FTT v. 5, 2997, 1963), where it was shown that in the case when the paramagnetism of the metal is determined by the paramagnetism of its ions, the influence of plastic deformation reduces to a change in the exchange interaction and in the magnetic moment, due to a change in the interatomic distance in regions surrounding the dislocations. Tests involving plastic deformation and multiple quenching from different temperatures of pure aluminum (99.99%) have shown that the plastic defor-

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L 49035-65
ACCESSION NR: AP5006901

mation or repeated quenching from 520--650C decreases the paramagnetic susceptibility of aluminum in proportion to the quenching temperature. This phenomenon is explained by assuming that the change in the interatomic distances in aluminum, brought about by the deformation and the quenching, changes the distribution of the density of the electronic states. The change in susceptibility is then calculated on the basis of these assumptions and the assumption that the electron state density of the conduction electrons is altered because of the change in the Fermi end point energy. An estimate shows that for a crystal with dislocation density ~ 2 x 10^{11} cm^{-2} the change in susceptibility is - 10%. Experimental results, made with a set-up similar to that described by Beisswenger and Wachtel (Zs. Metallkunde v 46, 504, 1955) gave a decrease in susceptibility of ~ 8%. "The authors thank M. A. Krivoglaz for a valuable discussion of the results." Orig. art. has: 4 figures and 9 formulas.

ASSOCIATION: Institut metallofiziki AN UkrSSR, Kiev (Institute of the Physics of Metals, AN UkrSSR)

SUBMITTED: 24Feb64 ENCL: 00 SUB CODE: MM, EM

NR REF SOV: 003 OTHER: 006

Card 2/2

DEKHTYAR, I.Ya.; FEDCHENKO, P.G.

Effect of plastic deformation on the magnetic susceptibility of solid solutions. Dokl. AN SSSR 164 no.5:1032-1034 O '65.

(MIRA 18:10)

1. Institut metallofiziki AN UkrSSR. Submitted June 3, 1965.

L 15388-66 EWT(1)/EWT(m)/EWP(j)/T/EWP(t)/EWP(b)/ETC(m)-6 LJP(c) WW/RM/JD
ACC NR: AP5026983 SOURCE CODE: UR/0020/65/164/005/1032/1034

AUTHOR: Dekhtyar, I. Ya.; Fedchenko, R. G. 69

ORG: Institute of the Physics of Metals, Academy of Sciences UkrSSR (Institut metallofiziki Akademii nauk UkrSSR) B

TITLE: The influence of plastic deformations on the magnetic susceptibility of solid solutions 21,44,55

SOURCE: AN SSSR. Doklady, v. 164, no. 5, 1965, 1032-1034

TOPIC TAGS: plastic deformation, magnetic susceptibility, solid solution, lattice defect

ABSTRACT: The present article discusses experimental results describing the influence of plastic deformations on the paramagnetic susceptibility of diluted solid solutions of Fe in Pt. Results are summarized in Figure 1 and Table 1. 44,55 15

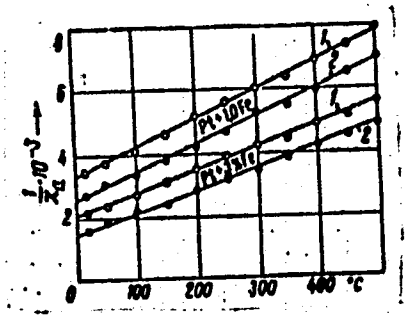
CARD 1/3

UDC: 538.214:539.374

L 15388-66

ACC NR: AP5026983

C



1 - when annealed;

2 - when deformed.

Figure 1. Temperature dependence of the reciprocal of the iron susceptibility of iron in alloys.

ε, %	30	65	80
$(\Delta\chi/\chi_0)_{max}$, %	6,9	10,4	16,2
$\Delta p/p_0$, %	5,2	10,5	17

Table 1. Changes in the susceptibility of the Pt + 1 wt % Fe at 250C and of the magnetic moment per iron atom within the alloy as a result of plastic deformation.

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L 15388-66
ACC NR: AP5026983

The results are in good agreement with previous theoretical predictions (Fiz. tverd. tela, 7, 893 (1965)). Plastic deformation of solid solutions does not only affect the atomic structural state, but the electronic state of the solutions as well. The paper was presented by Academician G. V. Kurdyumov, 3 Jun 65. Orig. art. has: 2 formulas, 2 figures, and 1 table.

SUB CODE: 20/ SUBM DATE: 27May65/ ORIG REF: 006/ OTH REF: 004

CARD 3/3

DEKHTYAR, I.Ya.; FEDCHENKO, R.G. [Fedchenko, R.H.]

Effect of plastic deformation and hardening on the paramagnetic properties of palladium and platinum alloys with localized magnetic moments. Ukr. fiz. zhur. 10 no. 11:1261-1263 N '65.
(MIRA 18:12)

1. Institut metallofiziki AN UkrSSR, Kiyev. Submitted May 10, 1965.

ACC NR: AT7005257 SOURCE CODE: UR/0000/66/000/000/0049/0064

AUTHORS: Dekhtyar, I. Ya.; Fedchenko, R. G.

ORG: Institute of Physics of Metals, AN UkrSSR (Institut metallofiziki AN UkrSSR)

TITLE: Change in the magnetic properties of dilute solid solutions based on Pd and Pt in hardening and in plastic deformation

SOURCE: AN UkrSSR. Elektronnyye svoystva metallov i splavov (Electronic properties of metals and alloys). Kiev, Izd-vo Naukova dumka, 1966, 49-64

TOPIC TAGS: magnetic susceptibility, paramagnetic susceptibility, metal heat treatment, plastic deformation, palladium base alloy, platinum base alloy, silver containing alloy, iron containing alloy, magnetic property

ABSTRACT: The effect of cyclic heat treatment and plastic deformation on the paramagnetic properties of alloys based on palladium and on platinum is investigated. The compositions were: Pd + 1 at. % Fe and Pd + 25 at. % Ag + 1 at. % Fe and Pt + 1 at. % Fe and Pt + 3 at. % Fe. The alloys were prepared in an arc furnace. The paramagnetic susceptibility was measured with a pendulum balance, and the susceptibility was [illegible] as a function of temperature to 500C. The starting state was achieved by [illegible]ing the specimens at 1100C for 2 hrs. Hardening was produced with cyclic h[illegible]g to 900, 1000, and 1100C, followed by rapid cooling in water. The paramagnetic susceptibility of palladium alloys at room temperature increases as a result of multiple hardening

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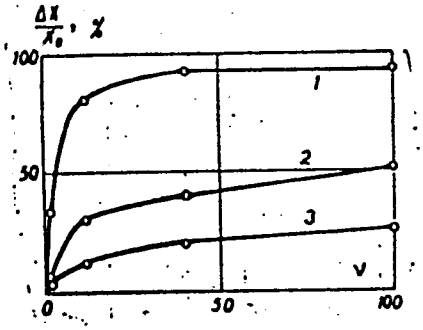
ACC NR: AT7005257

Fig. 1. Relative change in paramagnetic susceptibility as a function of number of cycles ν and temperature of hardening for Pd + 1 at. % Fe as measured at room temperature: 1 - 1100C; 2 - 1000C; 3 - 900C



(see Fig. 1). Plastic deformation of the palladium alloys did not markedly affect the paramagnetic susceptibility or the magnetic moment. No significant increase in paramagnetic susceptibility was observed in the platinum alloys after plastic deformation. Hardening did not change the susceptibility of the Pt-Fe alloys. Orig. art. has: 13 graphs and 12 formulas.

SUB CODE: 20/11/SUBM DATE: 16Jun65/ ORIG REF: 006/ OTH REF: 009

Card 2/2

L 44453-66 EWT(m)/EWP(t)/ETI IJP(c) JD/JG

ACC NR: AP6018940 SOURCE CODE: UR/0126/66/021/006/0833/0842

4-1

AUTHORS: Dekhtyar, I. Ya.; Fedchenko, R. G. 13

ORG: Institute for Metal Physics, AN UkrSSR (Institut metallofiziki AN UkrSSR)

TITLE: Influence of quenching on the magnetic susceptibility of palladium alloys containing small amounts of iron

SOURCE: Fizika metallov i metallovedeniye, v. 21, no. 6, 1966, 833-842

TOPIC TAGS: palladium alloy, magnetic alloy, magnetic susceptibility, magnetic structure

ABSTRACT: The effect of quenching (from high temperature) of Pd + 1 at. % Fe and Pd + 25 at. % Ag + 1 at. % Fe alloys on the paramagnetic susceptibility of these alloys was investigated. The experimental procedure employed is described by I. Ya. Dekhtyar and V. S. Mikhalenkov (Sb. Voprosy fiziki metallov i metallovedeniya, No. 12, Kiyev, Izd. AN UkrSSR, 1961, str. 46). The experimental results are presented graphically (see Fig. 1). It was found that repeated quenching of the alloys leads to an anomalous increase in the magnetic susceptibility of the alloys, which is ascribed to the formation of stable complexes between iron atoms and vacancies. The latter are believed to have been formed during the cyclic quenchings. This conclusion is supported by results on positron annihilation reported by A. T. Stewart (Canad. J. Phys., 1957, 35, 168).

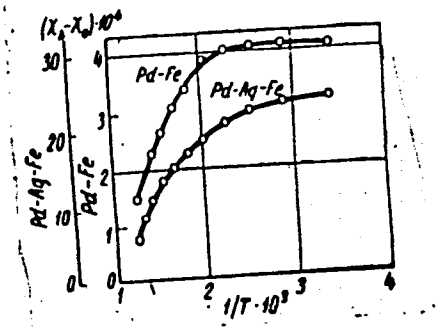
UDC: 538.22:546.621

Card 1/2

L 44453-66

ACC NR: AP6018940

Fig. 1. Temperature dependence of the change in magnetic susceptibility after 100 quenching cycles from 1000C.



Orig. art. has: 10 graphs and 11 equations.

SUB CODE: 11,20/SUBM DATE: 10May65/ ORIG REF: 006/ OTH REF: 011

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L 10777-66 EWT(1)/EWT(m)/EWP(t)/EWP(k)/EWP(b)/EWA(c) LJP(c)
ACC NR: AP5028924 JD/HW/JG SOURCE CODE: UR/0185/65/010/011/1261/1263

AUTHOR: Dekhtyar, I. Ya.; Fedchenko, R. H.

ORG: Institute of Metal Physics, AN UkrSSR, Kiev (Instytut metalofizyky AN URSR)

TITLE: The effect of plastic deformation and hardening of palladium and platinum alloys with localized magnetic moments on their paramagnetic properties

SOURCE: Ukrayins'kyy fizychnyy zhurnal, v. 10, no. 11, 1965, 1261-1263

TOPIC TAGS: palladium alloy, platinum alloy, magnetic susceptibility, magnetic moment, iron, silver, plastic deformation, metal property

ABSTRACT: This work was performed as a result of increasing interest in the magnetic behavior of very dilute alloys with localized magnetic moments. In this investigation a study was made of the effect of plastic deformation and tempering on paramagnetic properties of alloys containing 1 and 3 atom % of Fe. It was found that after multiple hardening of Pd + 1 at. % Fe and Pd + 25 at. % Ag + 1 at. % Fe at. 900, 1000, and 1100C, their paramagnetic susceptibility increases with the increasing number of tempering cycles and temperature (Fig. 1).

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ACC NR: AP5028924

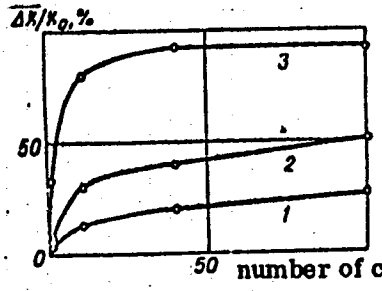

Figure 1. Relative changes of paramagnetic susceptibility of Pd + 1 at. % Fe alloy as a function of the number of cycles and tempering temperature. 1 - T = 900G, 2 - 1000C, 3 - 1100C.

The large increase in magnetic susceptibility due to heat treatment is explained on the basis of the interaction between iron atoms and the defects produced during high-temperature treatment. Iron atoms pass into the supermagnetic state. The size of the supermagnetic particles was found to be several angstroms. Plastic deformation has no effect on the magnetic susceptibility of palladium and its dilute solutions. The nature of changes of the magnetic susceptibility of dilute solutions of Pt under the influence of deformation and hardening differs from those of Pd. This is explained by the difference of the interaction of Fe atoms with Pd and with Pt as well as by the difference in the nature of the solvents. Orig. art. has: 2 figures and 1 formula.

SUB CODE: 11 / SUBM DATE: 10May65 / ORIG REF: 002 / OTH REF: 003

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PROTSENKO, P.I.; FEDCHENKO, T.I.

Interaction of lithium, rubidium, and cesium nitrates in melts. (MIRA 14:10)
Uch.zap.RGU no.60:135-142 '59.
(Alkali metal nitrates) (Systems (Chemistry))

L 25610-65 EED(b)-3/EWT(l)/EWP(j)/EWT(m)/T Pc-4/Pae-2 IJP(c) RM
ACCESSION NR: AP5003788 S/0029/64/000/007/0032/0036

AUTHORS: Zakharov, V.; Korop, P.; Skryagin, L.; Fedchenko, V.; Il'in, D.; Massayev, K.; Strelkov, V.

TITLE: From aqualung to sport submarine

SOURCE: Tekhnika - molodezhi, no. 7, 1964, 32-36

TOPIC TAGS: submarine photography, aqualung, swimming, underwater equipment

ABSTRACT: Underwater sporting equipment which can be handcrafted is reported on in this collection of articles. To record underwater scenes, a metal waterproof case has been designed, intended for use with the motion picture camera "Kiev-16." A waterproof flash lamp "EV-5" has been developed which is effective under water up to distances of 0.5 m. It uses two flashlight batteries and has a power of 40 w. Several units can be linked by a synchronizing circuit which fires all lamps when the first lamp flashes. To assist in underwater navigation, a "submerged pilot" has been developed which contains a compass and a log. The log is a four-bladed aluminum 120-mm diameter propeller which turns 300-400 rev in 100 m of path. The blades are set at $\sim 45^{\circ}$ to the direction of motion and can be twisted slightly

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L 25610-65
ACCESSION NR: AP5003788

for precise calibration of the instrument. Since a swimmer cannot travel much faster than 2.8 km/h, submerged transportation has been developed. The simplest device for underwater travel is a sled towed by a launch, provided with hand controls for depth regulations. A new underwater plastic glider with narrow wings measures 3.5 x 2.4 x 0.8 m. It reaches a speed of 15 km/h when towed, is controlled by horizontal rudders and heeling rudders, and is steered by a rudder on the keel. A device called an aquaped carries bicycle-type pedal gear which turns a screw propeller. The driver, strapped to a saddle, can reach a speed of 5.2 km/h. A more elaborate device called a "submarine scooter," is strapped to the back of a swimmer wearing an aqualung, or is held before him by hand grips. The body is made in two plastic sections covered by thin layers of wood and iron. One compartment contains a 72-amp-h, 24-v storage battery. The other compartment contains the small 350-700-w electric motor and reducing gears. A shaft leads from the rear of this compartment to the screw which can drive it at 10 km/h. The most sophisticated device is the sporting submarine, either the "dry" or the "wet" type. In the "wet" type the submarine is flooded, and the sportsmen wear aqualungs. A one- or two-man type, with an airplane-like cabin, is powered by either a bicycle-type pedal (one man - 5.5 km/h, two man - 9 km/h) or by a 1-hp electric motor (15 km/h). Such a submarine may operate at depths of up to 50 m. A model of the "dry" type

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(hermetically sealed) called the "Hermaid," is still in the "dream" stage. It would have a steel hull 4.6 m long and 1.5 m wide and would weigh 1125 kg. A glass conning tower would provide 360-degree visibility. Speeds of 12 km/h would be possible from a 2-hp electric motor supplied by lead storage batteries. The Hermaid could make 24-km trips, and its air supply would be sufficient for 24 hours. The craft would be well supplied with safety features (including compressed gas for emergency surfacing) and with provisions for the sportsman to be able to abandon a disabled submarine. Orig. art. has: 11 figures.

ASSOCIATION: none

SUBMITTED: 00 ENCL: 00 SUB CODE: PH, ES

NO REF SOV: 000 OTHER: 000

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EKONOMOV, Lev Arkad'yevich; KOLIN, V., nauchn. red.;
FEDCHENKO, V., red.

[Commanders of fiery arrows; word about rocket engineers and rockets] Povelitel'i ognennykh strel; slovo o raketchikakh i raketakh. Moskva, Molodaia gvardiia, 1962. 318 p. (MIRA 16:1)

BUYANOV, Aleksandr Fedorovich; FEICHENKO, V., red.

[Masters of the atoms] Vlastelliny atomov. Moskva, Molodaia gvardiia, 1962. 237 p. (MIRA 17:8)

FEDCHENKO, V.

Call Nr: Not given

AUTHOR: Zyuzin, Dmitriy Vasil'yevich and Markusha, Anatoliy Markovich

TITLE: The TU-104 in the Sky (V nebe TU-104)

PUB. DATA: Izdatel'stvo Tsentral'nogo komiteta Vsesoyuznogo Leninskogo kommunisticheskogo soyuza molodezhi "Molodaya gvardiya, "Moscow, 1957, 62 pp., 100,000 copies

ORIG. AGENCY: None given

EDITOR: Fedchenko, V.; Tech. Ed.: Shuvalov. I.

PURPOSE: Publicity.

COVERAGE: The author states that the TU-104 is the first multi-passenger, high-speed airplane to have opened a new era in air transportation the era of jet aviation. This booklet describes how this airplane was designed, built and tested and how a Soviet design group works in creating new aircraft prototypes.

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Call Nr: Not given

The TU-104 in the Sky (cont.)

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FEDCHENKO, V.

At the Mutual Economic Assistance Council. Plast.massy no.10:77 '61. (MIRA 15:1)
(Polymers--Congresses)

IL'IN, Viktor Andreyevich; FEDCHENKO, V., red.

[On the border between two elements] Na grani dvukh stikhii. Moskva, Molodaia gvardiia, 1964. 139 p. (MIRA 18:3)

AZERNIKOV, V.; ARLAZOROV, M.; ARSKIY, F.; BAKANOV, S.; BELOUSOV, I.; BILENKIN, D.; VATEL', I.; VLADIMIROV, L.; GUSHCHEV, S.; YELAGIN, V.; YERESHKO, F.; ZHURBINA, S.; KAZARNOVSKAYA, G.; KALININ, Yu.; KELER, V.; KONOVALOV, B.; KREYNDLIN, Yu.; LEBEDEV, L.; PODGORODNIKOV, M.; RABINOVICH, I.; REPIN, L.; SMOLYAN, G.; TITARENKO, V.; TOPILINA, T.; FEDCHENKO, V.; EYDEL'MAN, N.; EFME, A.; NAUMOV, F.; YAKOVLEV, N.; MIKHAYLOV, K., nauchn. red.; LIVANOV, A., red.

[Little stories about the great cosmos] Malen'kie rasskazy o bol'shom Kosmose. Izd.2., Moskva, Molodaia gvardiia, 1964. 368 p. (MIRA 18:4)

ZUBKOV, Boris Vasil'yevich; MUSLIN, Yevgeniy Salimovich; FEDCHENKO, V., red.

[About the elements, "cido" and the reality of fantastic visions] O stikhiiakh, "tsido" i real'nosti fantastiki. Moskva, Molodaia gvardiia, 1965. 151 p. (MIRA 18:12)

KITAYGORODSKIY, Aleksandr Isaakovich, nauchn. issledovatel', prof. doktor fiz.-matem. nauk; FEDCHENKO, V., red.

[Physics, my profession] Fizika .. moia professiia. Mo.. skva, Molodaia gvardiia, 1965. 174 p. (MIRA 18:5)

GALLAY, Mark Lazarevich, Geroy Sovetskogo Soyuza, zasl. letchik-ispytatel' SSSR; FEDCHENKO, V., red.

[Through invisible barriers. Tested in the sky; from the notes of a test pilot] Cherez nevidimye bar'ery. Ispytano v nebe; iz zapisok letchika-ispytatelia. Moskva, Molodaia gvardiia, 1965. 445 p. (MIRA 19:1)

ABDULIN, A.; ALEKSEYEV, I.; BANTLE, O.; BOBROV, L.; BOZHANOV, B.; BOYKO, V.; BONDAREV, K.; BORZOV, V.; VERKHOVSKIY, N.; GUBAREV, V.; GUSHCHEV, S.; DEBABOV, V.; DIKS, R.; DMITRIYEV, A.; ZHIGAREV, A.; ZEL'DOVICH, Ya.; ZUBKOV, B.; IRININ, A.; IORDANSKIY, A.; KITAYGORODSKIY, P.; KLYUYEV, Ye.; KLYACHKO, V.; KOVALEVSKIY, V.; KNORRE, Ye.; KONSTANTINOVSKIY, M.; LADIN, V.; LITVIN-SEDOY, M.; MALEVANCHIK, B.; MANICHEV, G.; MEDVEDEV, Yu.; MEL'NIKOV, I.; MUSLIN, Ye.; NATARIUS Ya.; NEYFAKH, A.; NIKOLAYEV, G.; NOVOMEYSKIY, A.; OL'SHANSKIY, N.; OS'MIN, S.; PODOL'NYY, R.; RAKHMANOV, N.; REPIN. L.; RESHETOV, Yu.; RYBCHINSKIY, Yu.; SVOREN', R.; SIFOROV, V.; SOKOL'SKIY, A.; SPITSYN, V.; TEREKHOV, V.; TEPLOV, L.; KHAR'KOVSKIY, A.; CHERNYAYEV, I.; SHAROL', L.; SHIBANOV, A.; SHIBNEV, V.; SHUYKIN, N.; SHCHUKIN, O.; EL'SHANSKIY, I.; YUR'YEV, A.; IVANOV, N.; LIVANOV, A.; FEDCHENKO, V.; DANIN, D., red.

[Eureka] Evrika. Moskva, Molodaia gvardiia, 1964. 278 p. (MIRA 18:3)

FEDCHENKO, V.P.; GUBRENKO, D.V.; ZHUK, T.I.

Stylus for checking recorders. Energetik 4 no.6:21-22 Je '56.
(MLRA 9:8)

(Recording instruments)

SEREDA, M.S., agronom; BOGOSLOVSKIY, D.L., agronom; VORONTSOVA, V.P., agronom; FEDCHENKO, V.P., agronom; LYZHIN, K., red.; GIL'DEBRANT, Ye., tekhn.red.

[Catalog of regionally adapted field crop varieties for Krasnoyarsk Territory] Katalog raionirovannykh sortov sel'skokhoziaistvennykh kul'tur po Krasnoiarskomu kraiu. Krasnoiarsk, Krasnoiarskoe knizhnoe izd-vo, 1960. 55 p. (MIRA 14:4)

1. Russia (1923- U.S.S.R.) Gosudarstvennaya komissiya po sortoispytaniyu sel'skokhozyaystvennykh kul'tur po Krasnoyarskomu krayu. 2. Inspektor Gosudarstvennoy komissii po sortoispytaniyu sel'skokhozyaystvennykh kul'tur po Krasnoyarskomu krayu pri Ministerstve sel'skogo khozyaystva SSSR (for Sereda). 3. Inspektura Gosudarstvennoy komissii po sortoispytaniyu sel'skokhozyaystvennykh kul'tur po Krasnoyarskomu krayu pri Ministerstve sel'skogo khozyaystva SSSR (for Bogoslovskiy, Vorontsova, Fedchenko).
(Field crops--Varieties)

36896

S/191/62/000/005/003/012
B110/B101

15.8062

AUTHORS: Dzhagatspanyan, R. V., Zetkin, V. I., Fedchenko, V. S.

TITLE: Radiation-chemical sulfochlorination of polyisobutylene

PERIODICAL: Plasticheskiye massy, no. 5, 1962, 6-9

TEXT: Since vulcanized chlorosulfonized polyethylene has good technical properties, the authors wanted to improve the cheap, accessible, but technically imperfect polyisobutylene by sulfochlorination. The solution of polyisobutylene in dry carbon tetrachloride was sulfochlorinated in the K-1400 (K-1400) radiation unit by means of a Co^{60} radiation source (90 r/sec) according to the following reactions:
$RH \longrightarrow R^{\cdot} + H$; $R + SO_2 \longrightarrow RSO_2^{\cdot}$; $RSO_2^{\cdot} + Cl_2 \longrightarrow RSO_2Cl + Cl^{\cdot}$;
$R^{\cdot} + Cl_2 \longrightarrow RCl + Cl^{\cdot}$. Reaction with a mixture of sulfur dioxide and chlorine under the effect of γ-rays sets in at once and proceeds at a high rate, limited only by the rate of heat dissipation, the efficiency of the supply and the degree of mixing of the liquid and gaseous phases. After termination of the reaction, nitrogen is blown through in order to remove the dissolved gases, and the same volume of methyl alcohol is then added

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Radiation-chemical sulfochlorination ...

under stirring. Sulfochlorinated polyisobutylene is precipitated here in the form of flakes or a gelatinous mass, according to the degree of sulfochlorination. Maximum SO_2Cl content was obtained at a ratio SO_2/Cl_2 = 2:1. Adopting a ratio higher than 3:1 did not increase the SO_2Cl content, since at most only one chlorosulfone group can split into four molecules of initial monomer. This is due to steric and polar effects. Temperature and duration of the reaction, as well as polyisobutylene concentration in the initial solution affected the reaction only slightly. According to sulfur and chlorine content, the reaction products were white substances varying from rubberlike to solid. They showed good adhesion owing to the presence of polar groups and atoms. Varnish films of sulfochlorinated polyisobutylene dry out without using an accelerator, in 1.5-2.5 days. Their hardness (tested with the pendulum apparatus) changes with decreasing chlorine content between 0.9 to 0.4. They have an impact strength of 50 kg/cm^2. Their elasticity changes from 20 to 1 (НИИЛК (NIILK) scale) with decreasing chlorine content. They show good resistance to water, alkali and acid. Properties offering a practical value are, however, only to be expected after vulcanization of sulfochlorinated polyisobutylene. There are 2 tables.

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