L 6847-65 EWT(1)/EWA(h)/ Pj-4 ASD(d)/RAEM(a)/AEDC(a)/RAEM(c)/SSD/AFMD(t)/
ACCESSION NR: AP4044106 ASD(f)/AFWL/AFETR/ S/0141/64/007/003/0514/0523
ASD(a)-5/ESD(gs)/ESD(t)/RAEM(t)

60
59

AUTHORS: Belyantsev, A. M.; Freydman, G. I.

TITLE: Finite-amplitude electromagnetic waves in coupled transmission lines with nonlinear parameters

SOURCE: IVUZ. Radiofizika, v. 7, no. 3, 1964, 514-523

TOPIC TAGS: electromagnetic wave, transmission line, shock wave propagation, nonlinear system, shock wave decay

ABSTRACT: Certain peculiarities of electromagnetic waves in coupled (multiconductor) transmission lines with nonlinear parameters are considered. In the linear approximation and at arbitrarily low frequencies, such systems, unlike two-conductor lines, can support several normal modes. Consequently, as in magnetohydrodynamics, such transmission lines can carry several types of either simple electromagnetic waves or electromagnetic shock waves. The shock wave

Card 1/2

L 6847-65
ACCESSION NR: AP4044106

in turn can be nonevolutional in some cases, i.e., they can break up under the action of arbitrarily small perturbations into several discontinuities. It is shown further, in analogy with magnetohydrodynamics, that the structure of stationary non-evolutional shock waves cannot be uniquely determined. Using two coupled transmission lines with nonlinear parameters as an example, it is shown that in two coupled lines a nonevolutional shock wave breaks up into two evolutional shock waves which propagate with equal velocity, whereas the break-up of a nonevolutional shock in an unbounded linear medium produces shock waves that propagate with different velocities. Orig. art. has: 6 figures and 16 formulas.

ASSOCIATION: Nauchno issledovatel'skiy radiofizicheskiy institut pri Gor'kovskom universitete (Scientific Research Radiophysics Institute at the Gor'kiy University)

SUBMITTED: 28Sep63 ENCL: 00

SUB CODE: EC NR REF SOV: 018 OTHER: 000

Card 2/2

BELYANTSEV, A.M.; GAPONOV, A.V.

Waves with complex propagation constants in coupled transmission lines without energy dissipation. Radiotekh. i elektron. 9 no.7:1188-1197 Jl '64 (MIRA 17:8)

L 15710-65 EWT(l)/EEC-4/EEC(t)/EEC(b)-2/EWA(h) Peb ASD-3/ESD-3/RADC/APGC/SSD/ESD(t)/ESD(c)/AEDC(a)/BSD/SSD(b)/AFWL/ASD(a)-5/ASD(f)-2/ASD(p)-3/AFETR/RAEM(a)

ACCESSION NR: AP5000317 S/0056/64/047/005/1699/1710 B

AUTHOR: Belyantsev, A. M.; Gaponov, A. V.; Daume, E. Ya.; Freydman, G. I.

TITLE: Experimental investigation of propagation of finite amplitude electromagnetic waves in ferrite-filled waveguides 25 21

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 47, no. 5, 1964, 1699-1710

TOPIC TAGS: waveguide, waveguide wave propagation, ferrite filled waveguide, electromagnetic shock wave

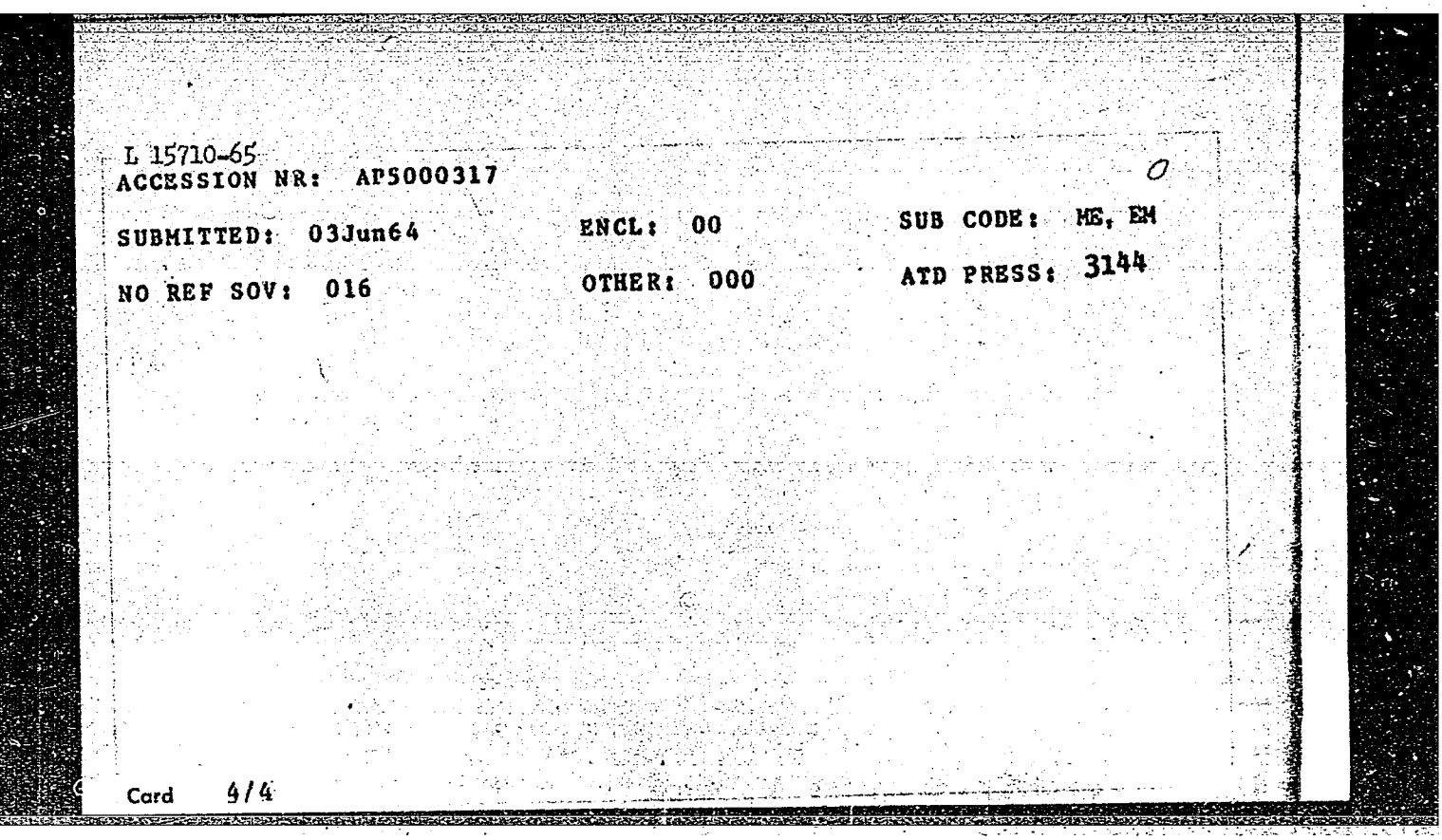
ABSTRACT: Propagation of shock waves in a coaxial ferrite-filled waveguide composed of two sections 90 and 80 cm long was investigated. A high-resistance voltage divider connected to the junction of the sections furnished the controlling voltage to a high-speed oscillograph. The passband of the system permitted measurements of wavefront durations of 1 nsec and more. The sections of the waveguide were contained in two solenoids with a longitudinal field component up to 300 oe. The azimuthal component was formed by current flowing

Card 1/4

in the inner conductor of the coaxial waveguide. Tubes of F-1000 ferrite (with a dielectric constant between 16 and 20) with inner and outer diameters of 8 and 16 mm enclosed the inner conductor. The formation and propagation of shock waves were investigated first with two patterns of permanent ferrite magnetization; longitudinal field only and a field having both longitudinal and azimuthal components. Then, the same investigation was carried out with nonmagnetized ferrite. Furthermore, the structure of shock wave fronts was studied under various conditions of ferrite magnetization. In the case of a longitudinal field, the shock waves were found to result from the evolution of simple waves. Thus, the input pulse would tend toward increasing the rise rate at its front, and flatten the trailing edge as it propagates within the waveguide until (after a time lapse of about 200 nsec) a shock wave ensues. The amplitude dependence of the velocity of the shock wave was measured and plotted for different longitudinal components of the constant field. In the case of a permanently magnetized ferrite filling having the azimuthal field component combined with the longitudinal, disruptions developed under certain conditions at the front as well as at the trailing edge

and within a certain time interval, after which the jumps began to diminish. The phenomenon, however, was not ascribed to evolution of a simple wave; the discontinuities appeared at the very entrance to the waveguide at certain values of the current in the axial conductor of the waveguide due to an irreversible change of magnetization caused by increasing amplitudes of spin waves. The experiments with non-magnetized ferrite confirmed the earlier results obtained by Ostrovskiy (Zhurnal teknicheskoy fiziki, v. 33, 1963, 1080) who assumed that changes in the mean azimuthal magnetization are caused by non-coherent rotation. After a certain time interval, a steepening of the wave front sets in, due to dissipation. The ensuing shock wave is structurally similar to a stationary shock wave. The shock wave front structure is discussed at length under various experimental conditions and with reference to earlier works on the problem. Orig. art. has: 9 figures.

ASSOCIATION: Radiofizicheskiy institut Gor'kovskogo gosudarstvennogo universiteta (Institute of Radiophysics, Gor'kiy State University)



L 15710-65
ACCESSION NR: AP5000317

SUBMITTED: 03Jun64 ENCL: 00 SUB CODE: ME, EM

NO REF SOV: 016 OTHER: 000 ATD PRESS: 3144

Card 4/4

L 52192-65 EWT(l)/EWA(h) Peb

ACCESSION NR: AP5011949 UR/0142/65/008/001/0041/0047
621.3.09

AUTHOR: Belyantsev, A. M.; Bogatyrev, Yu. K.

10
B

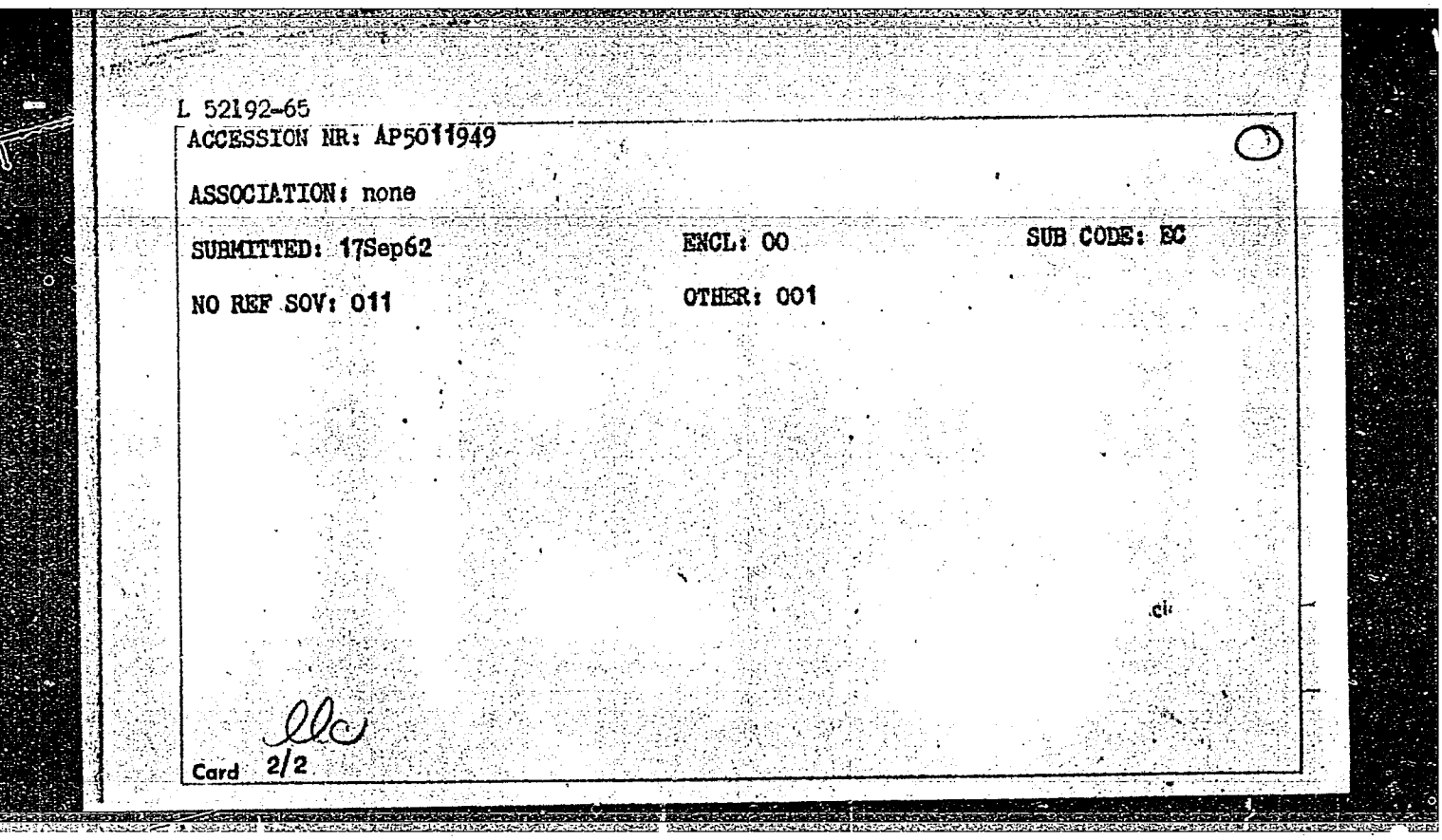
TITLE: Calculation of nonlinear ferrite shaping lines

SOURCE: IVUZ. Radiotekhnika, v. 8, no. 1, 1965, 41-47

TOPIC TAGS: pulse shaper, pulse shaping line

ABSTRACT: A procedure is given for calculating (step- or pulse-)shaping lines of these two types: (a) a ferrite-filled coaxial line and (b) an LC-distributed-parameter line representable by a ladder of l-f k-sections; nonlinear elements have the form of ferrite-core toroidal coils. The calculations cover the case of rapid change of the voltage and current in the pulse front, when the rate-of-change of the magnetic field in ferrite exceeds 10^8--10^9 oer/sec, and the field strength is much higher than the coercive field value. Instructions for selecting the ferrite initial, saturation, and remanent magnetizations and the dissipation factor are also given. Orig. art. has: 3 figures and 20 formulas.

Card 1/2



L 52192-65
ACCESSION NR: AP5011949

ASSOCIATION: none

SUBMITTED: 17Sep62 ENCL: 00 SUB CODE: EC

NO REF SOV: 011 OTHER: 001

Card 2/2

L 49248-65 EWT(l)/EWP(m)/EWA(d)/EPR/FCS(k)/EWA(h)/EWA(c) Pd-1/Pl-4 WW

ACCESSION NR: AP5010806 UR/0057/65/035/004/0677/0689

AUTHOR: Belyantsev, A.M.; Gaponov, A.V.; Freydman, G.I.

TITLE: On the structure of electromagnetic shock fronts in nonlinear transmission lines

SOURCE: Zhurnal tekhnicheskoy fiziki, v. 35, no. 4, 1965, 677-689

TOPIC TAGS: shock wave, shock front structure, electromagnetic wave, nonlinearity, transmission line

ABSTRACT: Stationary solutions of the telegraphic equation with nonlinear parameters are discussed in general terms. The system is specified by a pair of nonlinear functionals giving the linear densities of charge and flux in terms of the current and potential. Most attention is given to stationary shock waves, i.e., to disturbances that propagate at constant velocity with unchanged form but with different asymptotic values of the current far in front and far behind. Conditions are derived for the existence of shock waves in two-conductor transmission lines. Several simple specific cases, representative of general types of transmission line,

Card 1/2

L 49248-65

ACCESSION NR: AP5010806

are discussed in more detail and the solutions are obtained. These include transmission lines with space dispersion (i.e., for which the defining functionals contain derivatives with respect to the coordinate measured along the transmission line), and lines exhibiting certain peculiarities that can be realized by the use of ferrites. Orig. art. has: 40 formulas and 8 figures.

ASSOCIATION: Nauchno-issledovatel'skiy radiofizicheskiy institut pri Gor'kovskom universitete im. N.I.Lobachevskogo (Radiophysics Scientific Research Institute at Gorkiy University)

SUBMITTED: 22Jul63 ENCL: 00 SUB CODE: EM

NR REF SOV: 010 OTHER: 002

Card 2/2

L 49247-65 ENT(l)/EWP(m)/EWA(d)/EPR/ECS(k)/EWA(h)/EWA(c) Pd-1/Pi-4 MW

ACCESSION NR: AP5010807 UR/0057/65/035/004/0690/0704

AUTHOR: Belyantsev,A.M.; Gaponov,A.V.; Freydman,G.I. 44 B

TITLE: On the structure of shock waves in nonlinear transmission lines with delayed excitation of internal degrees of freedom

SOURCE: Zhurnal tekhnicheskoy fiziki, vol.35, no. 4, 1965, 690-704

TOPIC TAGS: shock wave, shock front structure, electromagnetic wave, transmission line, nonlinearity, nonlinear differential equation

ABSTRACT: This paper is a sequal to the preceding paper (ZhTF, 34, 677, 1965 /see abstract AP5010806/) in which the authors discussed solutions of the telegraphic equation with nonlinear parameters. In the present paper the authors discuss transmission lines for which the nonlinear functionals giving the charge and flux densities in flux densities in terms of the current and potential involve two very different time constants. Methods are developed for the approximate separate treatment of the slow and fast processes. It is shown that the approximato equations containing only the slow processes have discontinuous solutions corresponding to shock waves when and only when the phase space contains

Card 1/2

L 49247-65

ACCESSION NR: AP5010807

singular surfaces of a certain type. The important features of the discontinuous solutions can be determined from these singular surfaces, and the structure of the continuous shock wave can be subsequently calculated by including the fast processes. Several special cases are discussed in considerable detail. An oscillogram is presented of the shock front in a transmission line involving a saturating ferrite inductance and two RC shunt circuits with 1 and 20 μsec time constants; this oscillogram illustrates features of the calculated shock front structure. Orig. art. has: 29 formulas and 12 figures.

ASSOCIATION: Nauchno-issledovatel'skiy radiofizicheskiy institut pri Gor'kovskom universitete im. N.I.Lobachevskogo (Radiophysics Scientific Research Institute, Gor'kiy University)

SUBMITTED: 03Jan64 ENCL: 00 SUB CODE: EM

NR REF SOV: 006 OTHER: 002

Card 2/2

BELYANUSHKIN, Yuriy Petrovich; FISHMAN, Z.A.; CHAPLYGIN, V.A.; HANNIKOV, N.A., redaktor; GOR'KOVA, Z.D., tekhnicheskiy redaktor;

[Collective farm production plan and debit and credit estimate for 1957: practice of the "Novaia zhizn'" Collective Farm of Kamensk District in Sverdlovsk Province] Proizvodstvennyi plan i prikhodo-raskhodnaia smeta kolkhoza na 1957 god; opyt kolkhoza "Novaia zhizn'" Kamenskogo raiona Sverdlovskoi oblasti. Moskva, Gos. izd-vo sel'khoz. lit-ry, 1956. 123 p. (MLRA 10:4)
(Collective farms--Farm management)

BELYANUSHKIN, Yuriy Petrovich

[Standard production and wage norms on collective farms]
Primernye normy vyrabotki i rastsenki rabot v kolzhozakh.
Sverdlovskoe knizhnoe izd-vo, 1958. 167 p. (MIRA 12:3)
(Wages) (Collective farms)

BELYANUSHKIN, Yuriy Petrovich; FISHMAN, Z.A.; CHAPLYGIN, V.A.

[How to draw up a production and finance plan for a collective farm] Kak sostavit' proizvodstvenno-finansovyi plan kolkhoza. Moskva, Gos.izd-vo sel'khoz.lit-ry, 1959. 174 p.
(MIRA 13:10)

(Collective farms--Finance)

ELIAN, L. (Gor'kiy); BELYAROV, A. (Gor'kiy); YEMEL'YANOV, N. (Gor'kiy)

Device for testing IPT-1 transistors. Radio no.3:39-41 Mr '61.
(MIRA 14:8)

(Transistors--Testing)

BELYASHEVSKIY, N. N.

Belyashevskiy, N. N. - "The collapsible chamber locks of Prof. N. V. Terpugov", Izvestiya Inta gidrologii i gidrotekhniki (Adad. nauk Ukr. SSR), Vol. IV, 1948, p. 95-106, (In Ukrainian, resume in Russian).

SO: U-3042, 11 March 1953, (letopis 'nykh Statey, No. 10, 1949).

BELYASHEVSKIY, N.N., kand. tekhn. nauk.

Seepage along the line of contact between the clay blanket and the headwater facing of a dam structure. Izv. Inst. gidrol. i gidr. AN URSR 8:67-72 '51. (MIRA 11:4)

(Soil percolation) (Dams)

BELYASHEVSKIY, N.N., kand. tekhn. nauk.

Calculating conjugation of headrace and tailrace at low-head spillway dams. Izv. Inst. gidrol. i gidr. AN URSR 8:56-66 '51. (MLRA 11:4)
(Dams)

BELYASHEVSKIY, N. N.

USSR/Engineering - Hydraulics, Dams May 52

"Metal Arch-Type Gate for Spillway Section of a Dam," N. N. Belyashevskiy, Cand Tech Sci

"Gidrotekh Stroit" No 5, pp 39-41

Suggests design for arch gate which, having operational indexes basically similar to those of existing flat gates, shows considerable economy in metal due to incorporation of shell and auxiliary beam network into carrying construction of gate and because major gate elements are working for compression and tension. States that application of this type of gate is most efficient in

230T18

cases when head-span ratio is in 1 to 1/3 range and head is higher than 4-5 m. Conservation of metal amounts to 20-30 % under such conditions.

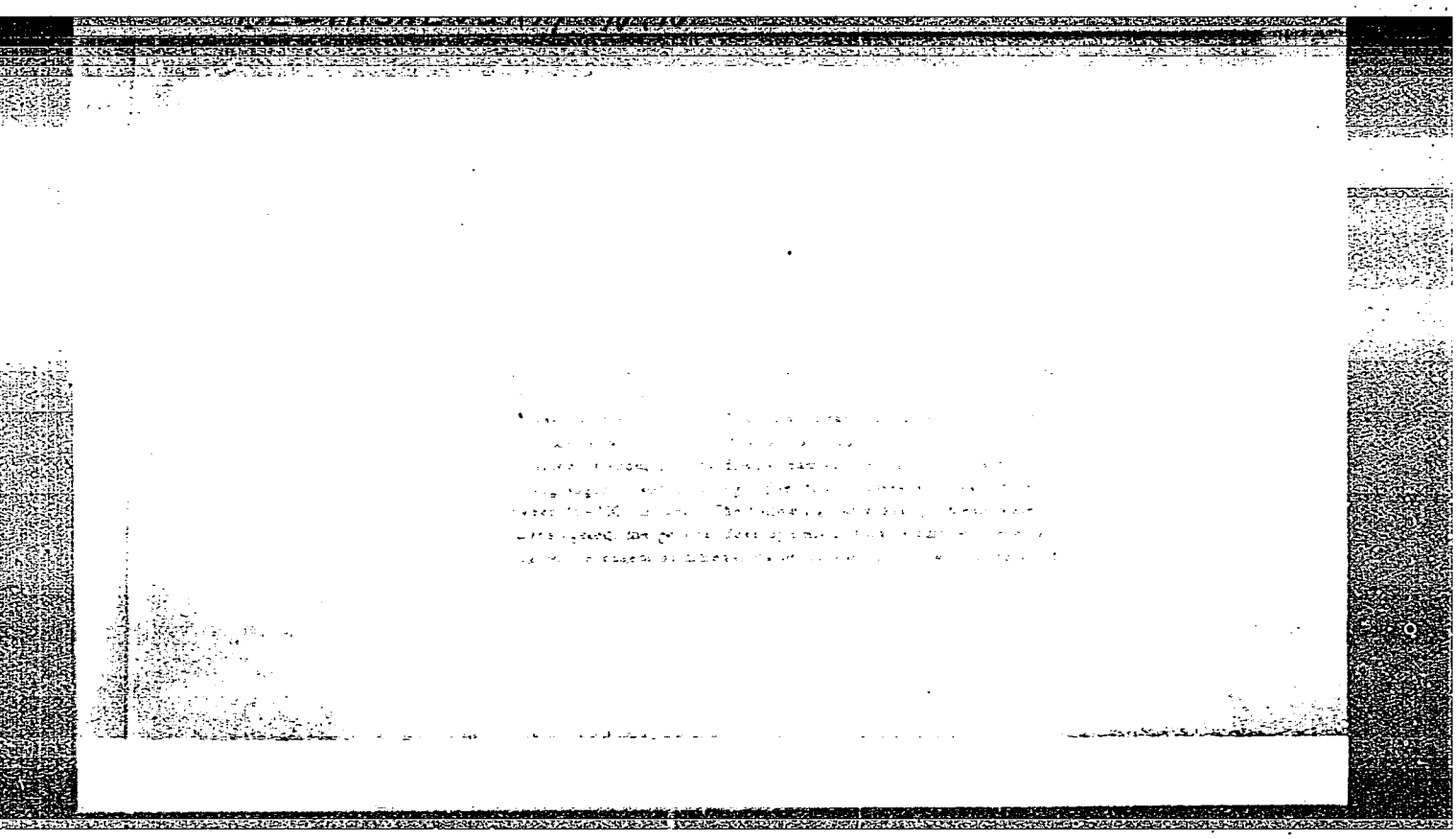
230T18

DEBRASHEVSKIY, N. N.

Uluchshennyye tipy vodoslivnykh plotin iz kamennoy nabroski (Improved types of spillway dams from stone rubble) Pod red. B. A. Pyshkina. Kiyev, Izd-vo Akademii Nauk Ukrainskoy SSR, 1953.
119 p. illus., diagrs., graphs.
At head of title: Akademiya Nauk Ukrainskoy SSR. Instytut Hidrologiyi i hidrotekhniky.
"Literatura": p. (120).

BELYASHEVSKIY, N.N., kand. tekhn. nauk.

Hydraulic principles of designing base reinforcements for low-head spillway dams. Izv. Inst. gidrol. i gidr. AN URSR 9:94-110 '53.
(Dams) (MIRA 11:4)



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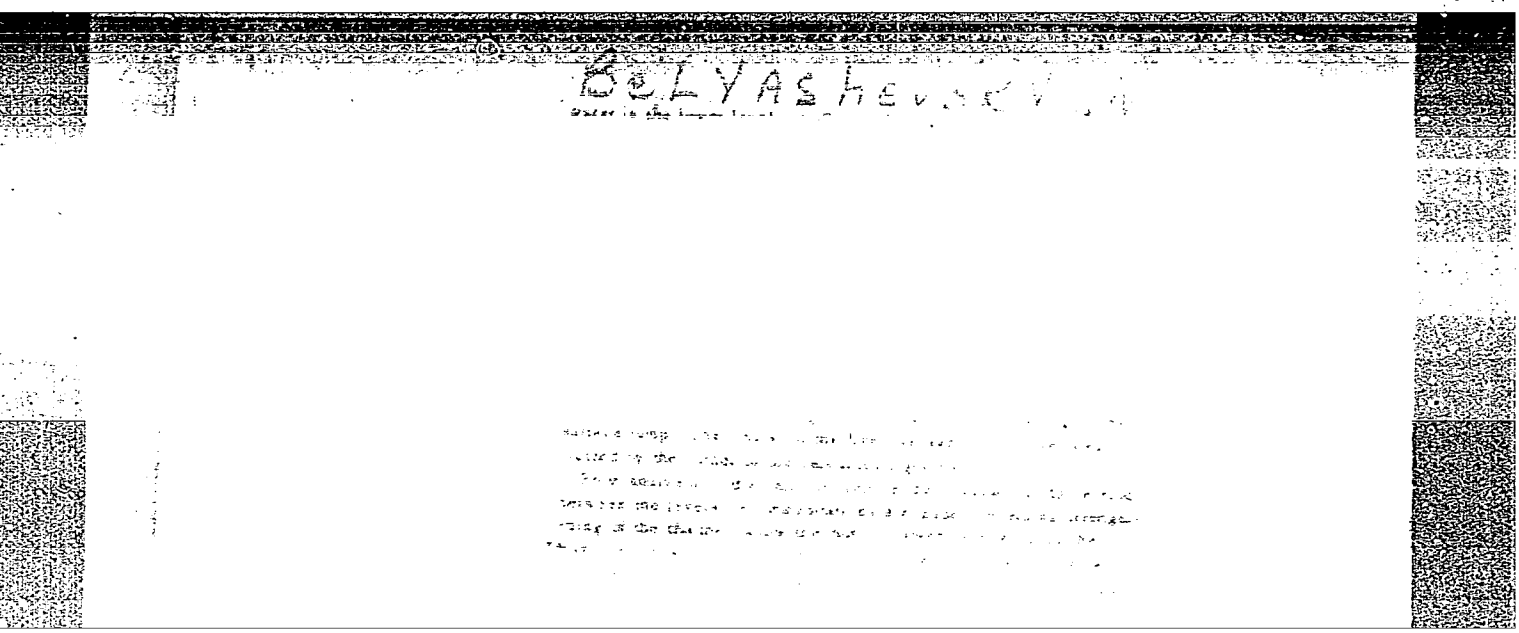

BELYASHEVSKIY, N.N., kandidat tekhnicheskikh nauk; PYSHKIN, B.A., redaktor; KAPLAN, Ya.L., redaktor; SIVACHENKO, Ye.K., tekhnicheskiy redaktor

[The impact of tread water and tail water below overflow weirs with a bucket lip] Sopriazhenie b'efov za vodoslivnymi plotinami s noskom. Pod red. B.A.Pyshkina. Kiev, Izd-vo Akademii nauk Ukrainskoi SSR, 1953. 206 p. (MLRA 7:10)

1. Chlen-korrespondent AN USSR (for Pyshkin)
(Hydraulics) (Spillways)

BELYASHEVSKIY, N.N. [Biliashevs'kyi, M.M.]

Professor N.V. Terpuhov's collapsible chamber sluiceway. Trudy GGI no.37:95-106 '53. (MIRA 11:6)
(Ukraine--Rivers) (Sluices)

BELYASHEVSKIY, B. N., ROZOVSKIY, I. L., and TSVETKOV, P. K.

"Hydraulic Investigation of the Spillway Dam and the Under Water of the Kakhovksk Hydroelectric Station," Vopr. nauch. obosnovaniya str. va Kakhovskogo gidrouzla. Kiev. Izd-stvo AN USSR, pp 5-12, 1954

Reports results of laboratory investigations conducted in 1951 in the Academy of Sciences Ukranian SSR for rendering aid to the Planning of the Kakhova Hydroelectric Netwoek. (RZhMekh, No 5, May 55)

Sum. No. 681, 7 Oct 55

BELYASHEVSKIY, N.N.

AID P - 2126

Subject : USSR/Engineering

Card 1/1 Pub. 35 - 15/20

Author : Belyashevskiy, N. N.

Title : On methods of study of tailwater below spillway installations

Periodical: Gidr. stroi., no.3, 40-43, 1955

Abstract : The article brings forth the problem of the hydraulic jump without a sufficient absorber. The author presents some suggestions supported by equations on the design of tailwater reinforcements. One diagram. Sixteen Russian references, 1929-1955.

Institution: None

Submitted : No date

BELYASHEVSKIY, N.N., kandidat tekhnicheskikh nauk.

Designing concrete protection back of spillway dams. Gidr. stroi. 26 no.5:41-45 My '57. (MLRA 10:6)
(Spillways)

BELYASHEVSKIY, Nikolay Nikolayevich, kandidat tekhnicheskikh nauk; PYSHKIN, B.A., professor, redaktor; PECHKOVSKAYA, O.M., redaktor izdatel'stva; ZHUKOVSKIY, A.D., tekhnicheskiy redaktor

[Experience in constructing and operating improved types of spillway dams made of rock fill] opyt stroitel'stva i ekspluatatsii uluchshennykh tipov vodoslivnykh plotin iz kamennoi nabroski. Pod red. B.A.Pyshkina. Kiev, Izd-vo Akad.nauk USSR, 1957. 128 p. (MIRA 10:8)

1. Chlen-korrespondent Akademii nauk Ukrainskoy SSR (for Pyshkin) (Dams)

BELYASHEVSKIY, N. N., Doc Tech Sci -- (diss) "Improved types of spillway dams formed by a stone apron ~~[illegible]~~ and ~~conjunction~~ linking of the ~~upper and under water on their sides~~ reservoirs behind them by surface regimes." Mos, 1958.

31 pp with ills (Min of Agriculture USSR, Mos Inst of Engineers of ~~Economy~~ Resources Water im V. R. Vil'yams), 100 copies (KL, 15-58, 114)

BELYASHEVSKIY, Nikolay Nikolayevich [Biliashevs'kyi, M.M.]; PISHKIN, B.A., otv.red.; MEL'NIK, G.F. [Mel'nyk, H.F.], red.izd-va; MIL'OKHIN, I.D., tekhn.red.

[Tail-water calculations for low-head spillway structures provided with aprons] Rozrakhunok nyzhn'oho b'iefu za nyz'konapirnymy vodoskydnymy sporudamy, obladnanymy slyvnymy polamy. Kyiv, Vyd-vo Akad.nauk URSR, 1959. 177 p.
(MIRA 13:3)

1. Chlen-korespondent AN URSR (for Pishkin).
(Spillways)

BELYASHEVSKIY, N.N. [Biliashevs'kyi, M.M.], doktor tekhn.nauk

Hydraulic investigation of rooflike gates of river dams. Visti Inst.gidrol.i gidr.AN URSR 18:24-37 '61. (MIRA 15:3)
(Sluice gates)

BELYASHEVSKIY, N.N., doktor tekhn.nauk

The problem of ice loads on concrete slope paving during fluctuations in the water level. Gidr.stroi. 32 no.9:44-46 S '62. (MIRA 16:2)

(Ice on rivers, lakes, etc.)

BELYASHEVSKIY, Nikolay [redacted] Nikolayevich[Biliashevs'kyi, M.M.]
PIVOVAR, Nikolay Grigor'yevich[Pyvovar, M.H.]; PECHKOVSKAYA, O.M.[Piechkovs'ka, O.M.], red.izd-va; DAKHNO, Yu.B., tekhn.red.

[Design of bottom linings below low-pressure shield spillways] Rozrakhunok kriplen' dna za niz'konapirnymy shchytovymy vodoskydamy. Kyiv, Vyd-vo AN URSR, 1962. 61 p. (MIRA 16:3)
(Spillways)

BELYASHEVSKIY, N.N. [Biliasheve'kyi, M.M.]; PIVOVAR, M.G. [Pyvovar, M.H.]; BUGAY, M.G. [Buhai, M.H.]

Study of the contact stability of inverted filters under drained concrete linings subject to pressure fluctuations. Visti Inst. hidrol. i hidr. AN URSR 21:43-55 '62. (MIRA 16:4)
(Dams)

BELYASHEVSKIY, N.N. [Biliashevs'kyi, M.M.]; PIVOVAR, N.G. [Pyvovar, M.H.]

Effect of a dentated sill on the depth of the scouring beyond low-pressure wicket dams. Visti Inst. hidrol. i hidr. AN URSR 23:38-43 '63. (MIRA 17:12)

BELYASHOV, N.M.; GLEBOV, A.V.; NGUYEN, T'YEN FUONG; RYZHKOV, I.P.; KAZANTSEV, M.I., glav. red.; TOPORKOV, D.D., otv. red.; IVKIN, N.M., red.; KOBZAR', P.N., red.; YEFIMOV, I.A., red.; SAGUNOV, P.G., red.

[Iron and titanium ore deposits in the Democratic Republic of Vietnam] Mestorozhdeniia zheleznykh i titanovykh rud Demokraticheskoi Respubliki V'etnam. [By] N.M.Beliashov i dr. Alma-Ata, Kazakhskii nauchno-issl. in-t mineral'nogo syr'ia, 1963. 83 p. (MIRA 17:9)

BELYASHOV, N.M.; PLEKHOVA, K.R.

Effect of sedimentary anhydrite on metasomatic processes in the formation of the Kachar magnetite deposit (Tourgay trough). Geol. rud. mestorozh. 7 no.2:38-49 Mr-Ap '65. (MIRA 18:7)

1. Kazakhskiy nauchno-issledovatel'skiy institut mineral'nogo syr'ya, Alma-Ata.

YURKOV, V.N., inzh.; BELYASHOV, V.N., inzh.

Loading and transporting unit. Mekh.trud.rab. 12 no.3:30-31 Mr '58. (MIRA 11:4)
(Mine haulage) (Coal-handling machinery)

BELYASHOV, V.N.

118-58-3-11/21

AUTHORS: Yurkov, V.N., and Belyashov, V.N., Engineers

TITLE: A Loading and Transportation Aggregate (Pogruzochno-transportnyy agregat)

PERIODICAL: Mekhanizatsiya Trudoyemkikh i Tyazhelykh Rabot, 1958, # 3, pp 30-31 (USSR)

ABSTRACT: In order to speed up the transportation of rock and to raise labor efficiency, the engineers K.D. Volkov, B.M. Grudin and N.F. Baklitskiy of the Belousovskiy rudnik (Belousovo Mine) have designed a level-driving bunker train with a scraper conveyor of the type PML-5, which mechanizes completely the loading, transportation and unloading of excavated material.

The basic parts of the aggregate are: the bunker train, the scraper crane, the loading device and the electric locomotive. The bunker train consists of 15 cars, holding capacity is 25 cu m and the length of the train is 31 m.

There are 2 graphs.

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BELYASHOV, V.N., inzh.; YURKOV, V.N., inzh.

Mechanized operations in sinking small cross-section shafts. (MIRA 12:4)
Shakht.stroi. no.3:29-31 Mr '59.
(Shaft sinking--Equipment and supplies)

GRUDIN, B.M., inzh.; YURKOV, V.N., inzh.; BELYASHOV, V.N., inzh.

What was made apparent by the use of roof bolting in mining. Shakht.stroi. no.11:24-27 N '59. (MIRA 13:3)

1. Blubochanskoye shakhtostroyupravleniye, Vostochno-Kazakhstanskaya oblast'.
(Mine roof bolting)

YURKOV, V.N., inzh.; ZYRYANOV, T.P., inzh.; KOROGOD, G.A., tekhnik; BELYASHOV, V.N., inzh.

Working capacity of rod-type timber joints. Shakht. stroi. no.8:21-25 Ag '60. (MIRA 13:11)

1. Altayskiy gorno-metallurgicheskiy nauchno-issledovatel'skiy institut (for Yurkov). 2. Maslyanskiy rudnik Zyryanovskogo svintsovogo kombinata (for Zyryanov, Korogod). 3. Glubochanskoye shakhtostroyupravleniye (for Belyashov).

(Mine timbering)

ZYRYANOV, T.P., inzh.; TURGAMBAYEV, B.M., inzh.; BELYASHOV, V.N., inzh.; YURKOV, V.N., inzh.

Use of rock ammonite in Altai Mountain mines. Shakht.stroi. 4 no.2:19-20 F '60. (MIRA 13:5)
(Altai Mountains--Mining engineering)
(Explosives)

BELYASHOV, V.N., inzh.; YURKOV, V.N., inzh.

Utilization of a sectional hole for sinking twin uprising shafts. Shakht.stroi. 6 no.1:19-21 Ja '62. (MIRA 14:12)

1. Glubochanskoye shakhtostroyupravleniye (for Belyashov).
2. Altayskiy gorno-metallurgicheskiy nauchno-issledovatel'skiy institut (for Yurkov).
(Coal mines and mining)

GRUDIN, B.M., inzh.; BELYASHOV, V.N., inzh.; YURKOV, V.N., inzh.

Use of a bunker train in drifting. Shakht.stroi. 6 no.4:4-5 Ap '62. (MIRA 15:4)

1. Kazgiprotsvetmet (for Grudin). 2. Altayskiy gornometallurgicheskiy nauchno-issledovatel'skiy institut AN KazSSR (for Belyashov, Yurkov).

(Kazakhstan—Mine railroads)

ZAKHAROV, B.P., inzh.; YURKOV, V.N., kand.tekhn.nauk; BELYASHOV, V.N., inzh.

Using a bunker train in tunneling. Shakht. stroi. 7 no.4:23-25 Ap '63. (MIRA 16:3)

1. Glubochanskoye shakhtostroyupravleniye (for Zakharov). 2. Altayskiy torno-metallurgicheskiy nauchno-issledovatel'skiy institut (for Yurkov, Belyashov).

BELYASHOV, V.N.

Kinematics and dynamics of power-driven units for mining upraise shafts. Trudy Alt. GMNII AN Kazakh. SSR 15:146-157 '63.(MIRA 17:3)

SOV/124-58-1-853

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 1, p 114 (USSR)

AUTHORS: Kachurin, L. G., Aleshina, G. I., Belyashova, M. A., Zalivina, V. I., Kudryavtseva, V. I., Nesterova, M. I., Serebryakova, A. A., Seryakova, L. P.

TITLE: Analysis of the Precipitation Zones of Stratiform Frontal Clouds (Analiz zon osadkov iz frontal'nykh oblakov sloistykh form)

PERIODICAL: Tr. Leningr. gidrometeorol. in-ta, 1956, Nr 5-6, pp 208-241

ABSTRACT: An investigation of the conditions of precipitation from As, Ns, and Sc type clouds of frontal origin. The first three sections are devoted to a description of the process of the conversion of cloud droplets into precipitation particles. The authors consider therein the problems of the condensational and coagulational growth of the droplets, the dissipation of cloud masses due to subsiding motions and the re-evaporation of the falling precipitation; also described are the conditions conducive to ice-crystal formation in clouds. The reasonings and graphs adduced in these sections are used further on in the analysis of the evolution of cloud masses and precipitation. The vertical motions are calculated according to the

Card 1/3

Analysis of the Precipitation Zones of Stratiform Frontal Clouds

method of N. I. Bureyev [Rukovodstvo po kratkosrochnym prognozam pogody (Short-range Forecasting Manual), Part I, Gidrometeoizdat, 1955] and, using a suitable graph, the authors determine the temperature level of intense ice-crystal formation for specific instances. The authors compare the location of the isotherm of intense ice-crystal formation with the location of the zone of cloud formation on vertical cross sections and arrive at the conclusion that the location of the boundaries of precipitation zones is much more accurately defined by the points of intersection between the upper boundary of a cloud formation and the line of intense ice-crystal formation than by the boundaries of the vertical currents. Utilizing the model of a specific synoptic situation the authors pose for themselves the task of clarifying the role of the ascending air currents in the process of changes in the precipitation zones. They analyze the effect of the vertical air currents on the location of the surface of intense ice-crystal formation and the altitude level of the upper cloud-mass boundary and arrive at a model of the evolution of the precipitation zones. Here they conclude that the vertical currents should be correlated not just with the fact of precipitation or nonprecipitation, but with the change in the dimensions of the precipitation zones. The last part of the paper is concerned with the confirmation of the proposed calculation scheme; it does so by means of a comparison of the actually obtaining precipitation zones

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000204530010-6"

with the calculated patterns. As pointed out by the authors, an analysis of 21 instances, during 1951 and 1952, has confirmed the existence of an immediate tie between the vertical currents within the boundaries of precipitation zones and the changes of their dimensions; here the degree of agreement between the boundaries of the calculated and the actually obtaining precipitation zones is determined to a significant degree by the reliability of the calculated horizontal air-mass transfer at the level of the upper cloud-mass boundary. The Appendix contains a description of the quantitative-prediction procedure for the precipitation zones of stratiform frontal clouds. Bibliography: 15 references.

K. G. Abramovich

BELYASHOVA, M.A.

Some characteristics of the concentration of condensation nuclei in the boundary layer of the atmosphere. Trudy GGO no.141:19-27 '63. (MIRA 17:4)

BELYAKOVA, M.A.

Some preliminary results of the observations of condensation nuclei in the Far East of the U.S.S.R. Trudy GGO no.154:11-19 '64. (MIRA 17:7)

BELYASHOVA, M.A.

Some data on the distribution of condensation nuclei in the vicinity of the Shchekino State Regional Electric Power Plant. Trudy GGO no.158:88-94 '64. (MIRA 17:9)

PETRENCHUK, O. P.; DROZDOVA, V. M.; BELYASHOVA, M. A.; LAVRINENKO, R. F.

"On Chemical Composition of Cloud Water."

report presented at mtg of Comn on Atmospheric Chemistry and Radioactivity of the Intl Assn of Meteorology & Atmospheric Physics, Visby, Sweden, 18-25 Aug 1965.

BELYASHOVA, M.A.; VASIL'CHENKO, I.V.; ORACHEVA, V.P.

Data on the form of a smoke jet in relation to the characteristics of the structure of the boundary layer. Trudy GGO no.172:86-93 '65. (MIRA 18:8)

BELYASOV, D.N.; LIPKIN, K.M.

Realization of a close relationship between the teaching of physics and work activity of the students. Fiz. v shkole 20 no.6:77-79 '60. (MIRA 14:2)

1. 67-ya srednyaya shkola, Moskva.
(Physics--Study and teaching)

25(5) SOV/117-59-11-5/35

AUTHOR: Belyasov, I.G., Engineer

TITLE: New Engineering and Technology at the Automobile Plant Imeni Likhachev

PERIODICAL: Mashinostroitel', 1959, Nr 11, pp 6-8 (USSR)

ABSTRACT: The article describes the innovations that have been introduced at the Moskovskiy avtozavod imeni Likhacheva (Moscow Automobile Plant Imeni Likhachev) in the field of equipment, mechanization and automation. The forge shop has mechanized the handling of materials by introducing more than 130 apron and chain conveyers. According to the seven-year plan, most of the stamping presses will be replaced by mechanical forging presses. This will increase the efficiency of work by 25-30 %, reduce metal consumption and improve working conditions. In 1958 and 1959, 4000, 2500 and 1500 - ton mechanical forging presses were installed in the forge shop. A

Card 1/5

New Engineering and Technology at the Automobile Plant Imeni Likhachev

4000-ton press, employing the flow method of forging, was installed in the production line for the stamping of stearing knuckles for the "ZIL-164" automobiles (Figure 1). This line also includes a 315-ton press for the trimming of hot fins after stamping and a high-frequency electric heater, working from a 700 kw motor-generator set, for the heating of blanks 120 mm in diameter. There is another similar line with a 2500-ton press, where journals for the new three-axle "ZIL-157" automobile are stamped. A horizontal 2000-ton forging press has been made at the plant for extruding axle housings and other parts of the "ZIL-157" automobile, and forging axle shafts for the bus "ZIL-127". The machine is serviced by two chamber heaters and has a pneumatic pedal-controlled manipulator for feeding the blanks from pass to pass. A new continuous normalization furnace with a suspension conveyer uses

New Engineering and Technology at the Automobile Plant Imeni Likhachev

the residual heat from hot stamping for the normalization of crankshaft forgings and has a triple production capacity of the usual continuous normalization furnaces. Sandblast machines are now widely used in the plant's foundries for making small and medium size cores. This has increased the productivity of labor by 20-25%. The sandblast "C-216" machine fitted with an automatic pneumatic edging-pulling device (Figure 2) produces up to 150 cores per hour. There are 12 such sets. Water cooling used for the smelting belts of the cupolas and new recuperators preheating the air to 450°C have raised the cupolas' output up to 20%, cut the coke consumption up to 20% and raised the temperature of the molten iron, which is important for the casting of thin-walled and small castings. The annealing time for wrought iron has been shortened from 80 to 50 hours by using 0.015% of

New Engineering and Technology at the Automobile Plant Imeni Likhachev

secondary aluminum for modification. Some other improvements are briefly mentioned. In 1958, an automatic high-frequency furnace (Figure 3) was installed for the heat treatment of steel piston pins. The introduction of this furnace helped the setting up of a single technological line for the machining and heat treatment of piston pins, and two automatic lines for the grinding of raw and heat treated piston pins. The productivity of the furnace is 960 work pieces per hour. The plant has developed automatic machines for the quick cementation of gears, using induction heating, and a new process of quick gas cementation that lasts 45 minutes. An automatic muffleless nitrocementation furnace with a 310 kg per hour capacity, is heated to 840° C by gas burning in vertical pipes and uses a mixture of generator, town and ammonia gases for the work medium. In the machine shops, semiautomatic and automatic machine tools and units are being widely introduced. Among them

New Engineering and Technology at the Automobile Plant Imeni Likhachev

is the semiautomatic machine tool "1722" of the zavod imeni Ordzhonikidze (Plant Imeni Ordzhonikidze). During 1958, up to 200 special machine tools were installed. 10 automatic and several automated and mechanized lines are now working at the plant. For the final checking of mass produced parts, high-capacity automatic machines are used that are able to check and sort out by sizes up to 4500 parts per hour. The loading of finished trucks in inclined position on each other on to RR platforms is done by three 10-ton gantry cranes with a 30 m jib (Figure 4). There are 4 photos.

Card 5/5

SKRIPKIN, Viktor Vasil'yevich; NEKRUTMAN, Semen Veniaminovich; BELYASOVA, L.P., inzh., retsenzent; LYSENKO, N.Ye., inzh., retsenzent; BAKRADZE, Yu.M., inzh., retsenzent; SARANTSEV, Yu.S., inzh., red.; USENKO, L.A., tekhn. red.

[Electric equipment of refrigerator cars] Elektrooborudovanie izotermicheskogo podvizhnogo sostava. Moskva, Transzheldorizdat, 1962. 294 p. (MIRA 15:9)
(Refrigerator cars—Electric equipment)

BELYASHOVA, M.A.

Methodology of observations of condensation nuclei from a helicopter. Trudy GGO no.140:95-101 '63. (MIRA 16:12)

VASIL'KOVSKIY, S.V.; BELYAT, E.S., arkhitektor; KOROVKEVICH, V.V., inzh.

Houses of a new design. Biul.tekh.inform.po stroi. 5 no.10:5-9 O '59. (MIRA 13:3)

1. Chlen-korrespondent Akademii stroitel'stva i arkhitektury (for Vasil'kovskiy).
(Apartment houses) (Precast concrete construction)

BELYATKO, A.

Brief news. Zdrav. Bel. 7 no.3:78 Mr '61. (MIRA 14:3)
(WHITE RUSSIA—COMMUNICABLE DISEASES—PREVENTION)
(WHITE RUSSIA—WINTER SPORTS)
(WHITE RUSSIA—MEDICAL PERSONNEL)
(WHITE RUSSIA—PUBLIC HEALTH—STUDY AND TEACHING)

SVERDLOV, F., polkovnik; BELYATKO, L., podpolkovnik; SHERSHIN, A., podpolkovnik; BALASHEV, F., podpolkovnik; LOBANTSEV, A., kapitan.

Important problem. Voen.vest. 39 no.5:64-69 My '60. (MIRA 14:2)
(Russia--Army--Noncommissioned officers)

18.1200,18.8100

77708
SOV/148-60-1-31/34

AUTHORS: Belyatskaya, I. S., Livshits, B. S.

TITLE: Study of Phase-Transformation Kinetics in Heat-Resistant Alloy EI617

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Chernaya metallurgiya, 1960, Nr 1, pp 175-179 (USSR)

ABSTRACT: Heat-resistant Ni-base alloy, containing 15.3% Cr, 1.99% Ti, 1.78% Al, 5.22% W, 0.26% V, 3.89% Mo, 1.38% Fe, 0.05% B, 0.09% C, was subjected to a 4-stage treatment, i.e., homogenizing by annealing for 2 hr, quenching in water from 1,200° C, retarded tempering at 100 to 1,050° C for 0.5 to 100 hr, and rapid cooling in water. The electric resistance, hardness, and volume of the specimens were measured in the course of treatment. A precipitation hardening at a certain critical rate and subsequent tempering in previous experiments had increased the heat resistance of alloy EI437, whose strength is lower than that of EI617. The temperature drop from 900 to 700° C

Card 1/5

led to the precipitation hardening of EI437 and caused the formation of α'-phase, then at 750 to 400° C increased the electrical resistance because of Cr segregation, and below 650° C brought the alloy into the so called K-state in which the interatomic-bond strength and heat resistance rise and diffusion drops (H. Thomas, Z. S. Physik, 129, 219, 1951). Thus, it was known, that the heat resistance of alloys can be improved by taking advantage of K-state at the temperatures of industrial use. Some elements such as Mo were known to contribute to the formation and intensification of K-state of Ni-base alloys, while others such as Al and Ti proved to elevate the temperature at which K-state occurs. In view of these facts, the authors sought elevation of the temperature and intensification of the K-state by adding to Nichromes Ti, Al, Mo, W, and V in amounts given above. The K-state was found to exist at 450 to 950° C, and α'-phase at 800 to 1,050° C. Both intervals showed electrical resistance of the alloys above normal

(Fig. 1). The drop of the electrical resistance above and below the temperatures of K-phase apparently points to the formation of a homogenous solid solution after diminishing of K-phase both at rising and dropping temperatures. However, the higher position of the cooling curve obviously indicates that K-state remains to a certain extent preserved even at room temperatures. The higher content of alloying elements proved to shift K-state to higher temperatures and to elevate its intensity. The maximum intensities of Nichrome EI437 and EI617 lay at 550, 650, and 725° C and were elevated by 4, 4.5, and 9%, respectively. Tempering at 100 to 400° C did not alter the physical properties of the alloys. Tempering at 600° C increased their electrical resistance and hardness to a maximum and reduced the volume of specimens to a minimum. K-state began to diminish above 600° C; at 800 to 100° C the electrical resistance due to K-state dropped below that of age hardened specimens, whose somewhat higher electrical resistance is related to α'-phase.

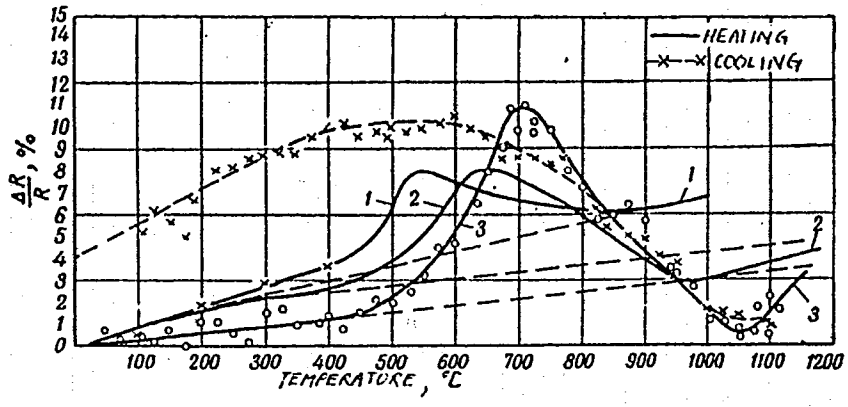

Fig. 1. Change in the electrical resistance of Nichrome EI437 and EI617 during continuous heating and cooling: (1) Nichrome 80-20, heating rate - 200° C per hr; (2) alloy EI437, heating rate - 200° C per hr; (3) alloy EI617, heating and cooling rate 150° C per hr.

Card 4/5

Study of Phase-Transformation Kinetics in Heat-Resistant Alloy EI617

77708
SOV/148-60-1-31/34

There are 4 figures; and 6 references, 5 Soviet, 1 German.

ASSOCIATION: Moscow Steel Institute (Moskovskiy institut stali)

SUBMITTED: October 22, 1958

Card 5/5

80595

18.7500
18.1250

S/148/60/000/005/004/009

AUTHORS: Belyatskaya, I.S., Livshits, B.G.

TITLE: The K-State and Durability of Nickel-Chrome Base Alloys

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Chernaya metallurgiya, 1960, Nr 5, pp 99 - 101

TEXT: The K-state, revealed in a number of single-phase alloys, entails strengthering of interatomic forces in the solid solution. Apparently, the K-state impedes diffusion processes in heat resistant alloys, in particular, coagulation of the strengthening phase, and consequently may improve their heat resisting properties. This was studied by continuous heating and cooling of ЭИ437 (EI437) and ЭИ617 (EI617) alloys. To reveal the effect of the K-state on heat resisting properties of EI617 alloy, specimens were subjected to standard treatment and preliminary standard tempering up to the K-state (Table 1). Table 1 shows that tempering up to the K-state almost doubles the durability of the alloys. The positive effect of the K-state on the heat resistance of EI437 specimens was established by cooling the specimens and by tempering them at 700°C [Ref 7]. Table 2 shows that delayed

Card 1/2

80595

S/148/60/000/005/004/009

The K-State and Durability of Nickel-Chrome Base Alloys

cooling down to 600°C increased the durability of the specimen. The experiments confirmed G.V. Kurdyumov's theory on the effect of interatomic forces on heat resisting properties. The K-state probably improves also the heat resisting properties during intermittent tempering; this is explained by the fact that nuclei of the α'-phase, forming during cooling periods between the tempering times, grow only slightly, since their coagulation is impeded by the submicroheterogeneity of the solid solution (K-state). This state arises during the multiple cooling and heating processes and is maintained at high temperatures. On the other hand the separation of the α'-phase furthers a fuller development of the K-state, since Al and Ti are eliminated from the solution which becomes more durable during each cycle of tempering. This impedes coagulation of the α'-phase. The use of tempering up to the K-state or the replacement of continuous tempering at 800°C by intermittend tempering may raise the operational temperature or the admissible strain. There are: 2 tables and 7 references, 5 of which are Soviet and 2 German.

ASSOCIATION: Moskovskiy institut stali (Moscow Steel Institute)

SUBMITTED: June 22, 1959

Card 2/2

86070
S/180/60/000/005/011/033
E073/E535

18.1150

AUTHORS: Belyatskaya, I. S. and Livshits, B. G. (Moscow)

TITLE: On the Theory of Phase Transformations in Refractory Nickel-Chromium Base Alloys

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Metallurgiya i toplivo, 1960, No.5, pp.122-127

TEXT: The authors investigated phase transformations in an industrial nichrome base alloy. The high refractory properties of this alloy are achieved on the one hand by alloying Fe-Cr-Ni solid solution with such high melting point elements as molybdenum and tungsten, which increase the strength of the interatomic bonds of the crystal lattice of a solid solution and slow down the process of softening at elevated temperature and, on the other hand, by introducing titanium and aluminium intensive dispersion hardening is achieved as a result of formation of a considerable quantity of a thermally stable inter-metallide of the hardening phase $Ni_3(Al,Ti)$ of the α-type. In addition to studying the kinetics of formation of the K-state in the alloy, the temperature range and the kinetics of other phase transformations were studied. All these specimens were quenched in water after holding for 2 hours at 1200°C for the

Card 1/4

86070

S/180/60/000/005/011/033
E073/E535

On the Theory of Phase Transformations in Refractory Nickel-Chromium Base Alloys

purpose of obtaining a practically uniform solid solution. To establish the temperature ranges of phase transformations, the electric resistance was measured of the quenched specimen in the process of continuous heating and cooling by a compensation method using potentiometric apparatus. The K-state was very highly pronounced (curve 3, Fig.1). Up to 450°C the electric resistance increased continuously in accordance with the temperature coefficient of the resistance; between 450 and 900°C an increase in the electric resistance was observed, which is characteristic for the K-state. To study in greater detail the kinetics of the transformations in an alloy quenched from 1200°C, various specimens were tempered at 100, 200, 300, 400, 500, 600, 700, 800, 900, 1000 and 1050°C for durations of 0.5, 1.5, 3, 5, 10, 16, 20, 25, 50 and 100 hours followed by cooling in water, after which the hardness and the electric resistance were measured (Fig.2). Tempering at 100, 200, 300 and 400°C does not produce any appreciable change in the physical properties; at 450 to 800°C the electric resistance increased, reaching a maximum at 600°C. Above 600°C the resistance

Card 2/4

On the Theory of Phase Transformations in Refractory Nickel-Chromium Base Alloys

decreased both as a result of destruction of the K-state and also as a result of the beginning of the decomposition of the solid solution. The authors also carried out experiments on the processes taking place during a secondary quenching of nichrome base high temperature alloys. The aim of the first series of experiments was to study the speed of dissolution of the hardening α-phase at 1050°C (secondary quenching temperature). Specimens which were quenched from 1200°C and aged at 800°C for 16 hours were held at 1050°C for 30 min to 24 hours and then quenched in water. Following that, the specific resistance and the hardness were measured. Then, the specimens were again aged for 16 hours at 800°C and the resistance and hardness measured. The results, Table 2, indicate that the hardness does not change appreciably as a result of the holding time at 1050°C. Long run strength tests have shown that the optimum temperature for secondary quenching of the alloy is 1000 to 1050°C; the microstructure of such specimens shows a relatively uniformly distributed network of relatively large carbide particles along the grain boundaries. The best refractory

86070
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E073/E535

On the Theory of Phase Transformations in Refractory Nickel-Chromium Base Alloys

properties of nickel-chrome base alloys are obtained in the case of the following transformations taking place successively in the uniform solid solution after quenching from a high temperature: rejection of the hardening grain boundaries of the carbide phase; ageing which leads to rejection of an inter-metallide hardening phase throughout the body of the grain and formation of a fine sub-microscopic non-uniformity (K-state) in the basic solid solution. The role of the K-state reduces to that of hardening to some extent the basic solid solution by influencing mainly the slowing down of diffusion processes in the alloy and preventing coagulation of the strengthening α-phase. There are 3 figures, 2 tables and 8 references: 6 Soviet, 1 German and 1 English.

SUBMITTED: July 6, 1960

Card 4/4

83291

1.1710 also 2208

S/148/60/000/007/012/015
A161/A029

AUTHORS: Belyatskaya, I.S.; Livshits, B.G.

TITLE: Investigation of Secondary Quenching Effect on the Structure and Properties of the EI617 Alloy

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Chernaya metallurgiya, 1960, Nr 7, pp 156-162

TEXT: The purpose of the experiments described was the investigation of phenomena in secondary quenching of heat resistant "ЭИ617" (EI617) alloy (15.3% Cr; 1.99% Ti; 1.78% Al; 5.22% W; 0.26% V; 3.89% Mo; 1.38% Fe; 0.05% B; 0.09% C, the base Ni). The alloy develops dispersion hardening at 700-900°C, with separation of an intermetalloid phase of $Ni_3(Al,Ti)$ type; the K- state at lower temperatures remains apparently to 800-900°C. The standard heat treatment of this alloy are two air quenchings (1,200°C, 2 hours and 1,050°C, 4 hours) and subsequent 16-hours annealing at 800°C with cooling in air. It is known that quenching from 1,200°C only, with subsequent annealing, drastically reduces the heat resistance of the alloy,

Card 1/3

S/148/60/000/007/012/015
A161/A029

Investigation of Secondary Quenching Effect on the Structure and Properties of the EI617 Alloy

the cause of which is not yet elucidated definitively. The investigation consisted in two series of experiments. In the first the dissolving rate of the strengthening α'-phase at 1,050°C (the secondary quenching temperature) was investigated, and in the second the effect of the secondary quenching temperature on the physical properties of the alloy, i.e., long-time heat resistance and microstructure was studied. The experimental techniques are described. The results (Table 1) proved that the hardness did not perceptibly change at different duration of holding at 1,050°C, hence it may be concluded that the dissolving rate of the α'-phase is comparatively high, and the usual 4 hours holding for secondary quenching are sufficient for its complete dissolution. The microstructure investigation under electronic microscope after different quenching conditions and subsequent annealing at 800°C for 16 hours also did not reveal any marked effect of the quenching method on the distribution of intermetallic α' phase (Figure 1). Changes of hardness and electric resistance in the holding process at 1,050°C after quenching from 1,200°C in water and in air were also studied, but no considerable changes

S/148/60/000/007/012/015
A161/A029

Investigation of Secondary Quenching Effect on the Structure and Properties of the EI617 Alloy

were revealed. The lattice parameter (3.575 kX) remained unchanged. The following conclusions were drawn: 1) The effect of secondary quenching of the EI617 alloy apparently does not consist in formation of crystallization centers of the intermetalloid strengthening phase only. 2) A carbide phase of Ni_nMe_mC type segregates on the grain boundaries during the second quenching. 3) The results of long-time strength tests prove that the optimum temperature for secondary quenching of this alloy is 1,000°C. Such treatment results in the appearance of an evenly distributed chain of comparatively large carbide particles along the grain boundaries. 4) It is possible that the improved alloy properties after secondary quenching are partly due to facilitated formation of K-state because of the transfer of carbon from solution into carbide phase. There are 4 figures, 2 tables and 8 references: 5 are Soviet and 3 English.

ASSOCIATION: Moskovskiy institut stali (Moscow Steel Institute)

SUBMITTED: July 7, 1959

Card 3/3

18.1170

37245
S/148/62/000/003/010/011
E073/635

AUTHORS: Belyatskaya, I.S., Kostin, L.K., Livshits, B.G.

TITLE: The influence of the K - state on the creep strength of nickel-chromium base alloys

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Chernaya metallurgiya, no. 3, 1962,135

TEXT: Earlier investigation of the authors of this paper showed that a nickel base alloy containing 15.8% Cr; 1.99% Ti; 1.78% Al; 5.22% W; 0.26% V; 3.89% Mo; 1.39% Fe; 0.05% B; 0.09% C had a time-to-failure twice as long after additional treatment for the K - state than the same specimens after standard heat treatment. However, no such an improvement in properties occurred in the nickel base alloy containing 14.55% Cr; 1.93% Ti; 1.93% Al; 5.52% W; 0.25% V; 3.40% Mo; 1.08% Fe; 0.005% B; 0.07%C. Two heats of the alloy ЭИ617 (EI 617) subjected to a heat treatment as proposed by the authors were also investigated for creep strength. The specimens of one of the heats were additionally treated to achieve the K - state and, after being tested for creep strength for a period twice as long as specimens subjected

Card 1/2

The influence of the K - state ...

to standard heat treatment, they were removed from the test machine unfractured. The time-to-failure of the specimens of the second heat did not increase appreciably after additional treatment to achieve the K - state. Apparently, the improvement of the properties of the material of some heats due to treatment to achieve the K - state depends on the existence of a certain quantitative ratio of the alloying elements in the alloy or on metallurgical factors which arise during the maufacture of the alloy. This factor should be elucidated by further investigations. However, the authors consider that heat treatment for achieving the K - state undoubtedly tends to improve the properties of nickel-chromium base alloys.

[Abstractor's Note: This is an almost complete translation.]

ASSOCIATION: Moskovskiy institut stali (Moscow Steel Institute).

SUBMITTED: January 1962.

BELYATSKAYA, N.G.

KUDRYAVTSEVA, A.I.; POKHITONOVA, M.P.; OYFEBACH; BERKOS, K.P.; BELYATSKAYA, N.G.

Healing in primary tuberculosis in children. Prof.tuberk., Moskva no.2:23-31 Mr-Ap '50. (CIML 19:3)

1. Of the Institute of Tuberculosis of the Academy of Medical Sciences USSR (Director -- Z.A.Lebedeva; Scientific Director -- Prof. A.Ye.Rabukhin).

ZAKHAROVA, M.I.; BELYATSKAYA, N.S.

Substructure of crystals of a supersaturated solid solution of silver in aluminum during the decomposition process. Fiz.met.i metalloved. 14 no.5:678-682 N '62. (MIRA 15:12)

1. Moskovskiy gosudarstvennyy universitet im. M.V.Lomonosova.
(Solutions, Supersaturated)
(Aluminum-silver alloys--Metallography)

ACCESSION NR: AP4024989 S/0070/64/009/002/0219/0226

AUTHORS: Fomin, V. G.; Mil'vidskiy, M. G.; Grishina, S. P.; Belyatskaya, N. S.; Gurevich, M. A.

TITLE: Some structural features of highly doped single crystals of silicon

SOURCE: Kristallografiya, v. 9, no. 2, 1964, 219-226

TOPIC TAGS: silicon, single crystal growth, crystal structure, metallographic study, x ray study, crystal pulling, impurity content

ABSTRACT: Metallographic and x-ray studies have shown several distributional patterns of impurities in the body of a silicon rod, including cellular substructure. An increase in impurity concentration substantially affects the structure of the crystal and, to a considerable degree, determines growth characteristics. All else being the same, increased impurity concentration in a melt and in the solid rod apparently increases periodic fluctuations in growth rate during pulling and produces associated periodic irregularities in impurity distribution. These irregularities appear in longitudinal sections and in spiral growth rings in transverse sections. Such highly doped crystals show a greater tendency to grow

Card 1/2

ACCESSION NR: AP4024989

along definite crystal faces. At a certain impurity concentration, crystals begin to show a distinct knobby surface, then a cellular substructure. The general pattern of development of the cellular substructure is the same as in highly doped crystals of Ge. No dislocations were detected in the investigated single crystals. This and the presence of cellular structure are anomalous features when coexisting in the same crystals. Actually, the edge of a cell may be considered a dislocation, and the disorientation angle may give an approximate evaluation of impurity desegregation along this zone. Block structure is responsible for this cellular development. Orig. art. has: 4 figures and 1 table.

ASSOCIATION: Gosudarstvenny*y nauchno-issledovatel'skiy i proyektny*y institut redkometallicheskoy prom*shlennosti (State Scientific Research and Planning Institute of the Rare-Metal Industry)

SUBMITTED: 10May63 DATE ACQ: 16Apr64 ENCL: 00

SUB CODE: SS NO REF SOV: 004 OTHER: 010

Card 2/2

L 6725-65 EWT(m)/EWP(q)/EWP(b) IJP(c)/AFWL/AS(mp)-2/RAEM(t) JD 48 48

ACCESSION NR: AP4046468 S/0032/64/030/010/1227/1229

AUTHORS: Fomin, V. G.; Shchegol'kova, L. A.; Belyatskaya, N. S.; Tsyegan, V. T.

TITLE: X-ray micrographic phenomena of dislocations in silicon 18 27

SOURCE: Zavodskaya laboratoriya, v. 30, no. 10, 1964, 1227-1229

TOPIC TAGS: x-ray crystallography, dislocation net, silicon/ URS-50 IM instrument, BSV 6Cu tube, GUR 4 instrument

ABSTRACT: The setup used by the authors (Fig. 1 on the Enclosure) is designed to obtain topographic images of defects in silicon crystals. A beam of x-rays from the tube f has an angle of divergence α that is much greater in the plane of the figure than in the plane normal to it. The extreme rays are shown. The crystal K, with reflecting planes ($1\bar{1}0$) at right angles to the planes of the polished specimen (111), is positioned for proper reflection by measuring transmitted rays with the Geiger counter G. A nickel filter cuts out beta radiation. To reduce exposure time, high voltage is applied to the tube, but this generates some radiation of undesirable wavelength. The diaphragm is collimated to pass only the desirable part of the spectrum. The x-ray source for this work was an

Card 1/3

L 6725-65
ACCESSION NR: AP4046468

URS-50 IM instrument with a BSV-6Cu tube. The basic instrument was a GUR-4 with a special device for x-ray diffraction micrography. The operational constants were: voltage 25-26 kv, current 10 ma, exposure time 7-8 hrs; tube-specimen focal length 250 mm, specimen-film distance 10 mm. Photographs obtained by this method clearly show the pattern and orientation of dislocations in the crystal. Orig. art. has: 3 figures.

ASSOCIATION: Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut redkometallicheskoy promyshlennosti (State Scientific Research and Planning Institute of the Rare Metal Industry)

SUBMITTED: 00 ENCL: 01

SUB CODE: SS NO REF SOV: 003 OTHER: 002

Card 2/3

L 6725-65
ACCESSION NR: AP4046468

ENCLOSURE: 01

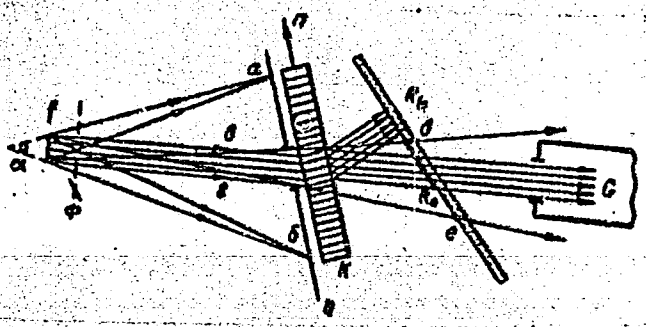

Fig. 1. Setup for x-ray diffraction micrography.

Card 3/3

BELYATSKAYA, O. N.

BELYATSKAYA, O. N.--"Investigation of Vulcanization in the Presence of Benzothiazol Sulfene Diethylamide as an Accelerator." Min Higher Education USSR. Moscow Inst of Fine Chemical Technology imeni M. V. Lomonosov. Moscow, 1955. (Dissertation for the Degree of Candidate in Chemical Science).

SO Knizhnaya letopis'
No 2, 1956.

DOGADKIN, B.A.; BELYATSKAYA, O.N.; DOBROMYSLOVA, A.V.; FEL'DSHTEYN, M.S.

Vulcanization of rubber in the presence of N,N-diethyl-2-benzothiazylsulfenamide as accelerator. Vysokom. soed. 1 no.6:878-888 Je '59. (MIRA 12:10)

1.Moskovskiy institut tonkoy khimicheskoy tekhnologii im. Lomonosova.
(Vulcanization)

S/190/61/003/004/001/014
B101/B207

AUTHORS: Dogadkin, B. A., Dobromyslova, A. V., Belyatskaya, O. N., Gyul'-Nazarova, T. A.

TITLE: Study of the early vulcanization (scorching) of rubber mixtures. 1. Structural changes of non-filled and filled mixtures when heated

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 3, no. 4, 1961, 497-504

TEXT: The present study deals with the structural changes occurring in the scorching of rubber mixtures as well as with the effect of various factors upon this process. The investigation was conducted by means of a plastometer of the NIIShP (Scientific Research Institute of the Tire Industry) at 120°C. The mixtures were heated in the plastometer for seven minutes and then, at constant pressure, pressed through a capillary; every two minutes, the quantity leaving the capillary was weighed. The moment at which no more mixture left the capillary, was defined as scorching point. Preliminary tests proved that the data obtained by means of the plastometer are in good

Card 1/7

Study of ...

agreement with those obtained by the SP-1 (VR-1) viscosimeter. Moreover, the kinetics of sulfur addition and the change of the solubility in benzene were tested. A) Non-filled mixtures. The experiments were made with a mixture of (in weight %) 100 CKC-30A (SKS-30A) rubber, 3 sulfur, 1.2 N,N-diethyl-benzothiazyl sulfenamide, 1.2 dibenzothiazyl disulfide; 2 zinc oxide, 2.0 stearic acid. Fig. 1 shows the results obtained. The curve of S addition does not go through the origin of coordinates, since the initial rubber contains already 0.2% S. In the scorching point, the S addition amounts to about 0.5%. B) Filled mixtures. Carbon black served as filler. The mixture consisted of (in weight %) 100 SKS-30A rubber, 3.0 sulfur, 1.2 sulfenamide BT (BT), 1.2 altax, 5.0 ZnO, 1.0 colophonium, 3.0 rubrax, 1.0 stearic acid, 5.0 polydienes, 40 spray burner black, 15.0 carbon black. The results are listed in Fig. 2. In the presence of highly surface-active carbon black, the scorching point occurred already after the addition of 0.25-0.30% sulfur, while in the presence of coarse-disperse carbon black, 0.4-0.5% S is added. C) The authors studied the effect exerted by various types of carbon black the properties of which are listed:

Card 2/7

Study of ...

Table 1.

Type of carbon black	pH of the carbon black suspension in water-alcohol mixture	specific surface m^2/g	scorching time min
Carbon black	3.2 - 3.3	90	94
Carbon black, reduced	8.4 - 8.6	-	62
Chimney soot	8.0 - 8.2	30	62
Chimney soot oxidized	6.2 - 6.4	-	98
Spray burner black	7.4 - 7.6	25	70
Thermal carbon black	7.4 - 7.6	15	76

Fig. 4 shows the effect of the pH of carbon black upon the sulfur addition. The effect of the degree of dispersion of carbon black manifested itself by the fact that carbon black, already when masticated with rubber, forms rubber - black gel (approximately 42%), while in the case of coarse-disperse

Card 3/7

Study of ...

chimney soot this effect was not observed. Heating of carbon black in N_2 to eliminate the oxygen-containing groups, had no effect upon this phenomenon, led, however, due to the pH increase, to a quicker sulfur addition. The network formation with fine-disperse carbon black was also observed in mixtures with natural rubber. Thus, scorching is caused by interaction of rubber with sulfur and other vulcanizing substances. The only means of a successful elimination is an inhibition of the mentioned processes. V. A. Zhukova participated in the experiments. There are 6 figures, 2 tables, and 14 references: 2 Soviet-bloc and 12 non-Soviet-bloc. The 2 references to English language publications read as follows: M. L. Studebaker, L. G. Nabors, Rub. Age 80, 5, 837, 1957; W. H. Watson, Industr. and Engng. Chem. 47, 1281, 1955.

ASSOCIATION: Moskovskiy institut tonkoy khimicheskoy tekhnologii im. M. V. Lomonosova (Moscow Institute of Fine Chemical Technology imeni M. V. Lomonosov). NII shinnoy promyshlennosti (Scientific Research Institute of Tire Industry)

SUBMITTED: June 10, 1960

Card 4/7

S/190/61/003/004/001/014
B101/B207

Study of ...

Fig. 1: Change of the flow and the amount of bound sulfur when heating non-filled butadiene-styrene rubber to 120°C.
Legend: 1) flow; bound sulfur; a) time of heating, min; b) flow; c) bound sulfur, %.

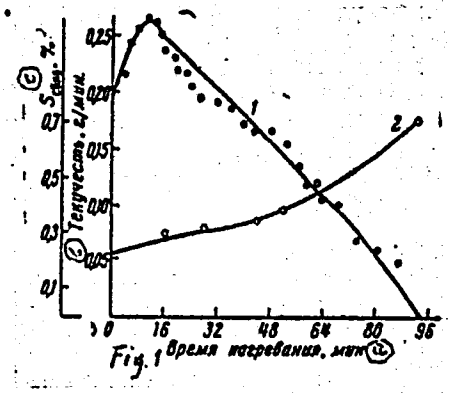

Fig. 1

Card 5/7

Study of ...

Fig. 2: Change of the flow, solubility and amount of bound sulfur when heating filled rubber to 120 °C.
Legend: flow; 2) solubility; 3) bound sulfur; a) time of heating, min;
b) insoluble portion; c) bound sulfur.

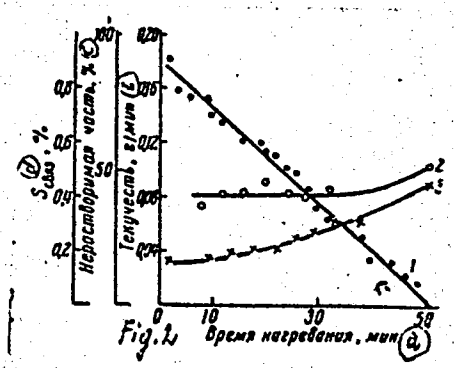

Fig. 2

Card 6/7