

ZUSMAN, V.G.

121-4-5/32

AUTHORS: Zusman, V.G. and Vul'fson, I.A.

TITLE: Certain Problems in Designing Systems of Digital Programme Control for Machine Tools (Nekotoryye voprosy proyektirovaniya sistem tsifrovogo programmogo upravleniya stankami)

PERIODICAL: Stanki i Instrument, 1958, No.4, pp. 9 - 13 (USSR).

ABSTRACT: Digital programme control systems belong to one of three groups: 1) Performing setting-up motions of the working organs; 2) Controlling motions of the working organs by which the component shape is generated; 3) Controlling all machine motions in response to results computed from detecting element signals. In considering the first group, applicable in drilling, jig boring, horizontal boring and punching, the problem is to ensure the required accuracy together with the maximum rapidity of motions, both for setting-up and cutting. A typical control cycle is considered and a simple analysis is applied to determine optimum velocities and the required resolution of the digital control step. The second group is stated to be at the beginning of its technical development with many unsolved problems. A general discussion is devoted to the topics of:
a) reduction of the required volume of information. In the general case, mathematical theory can be used to evaluate the volume of information required in relation to the permitted error

Card1/2

121-4-3/32

Certain Problems in Designing Systems of Digital Programme Control
for Machine Tools

(Kolmogorov, A.N. - "On Certain Asymptotic Properties of Wholly Bounded Metric Spaces", 1956, No.3, Doklady AN SSSR). In practice, the prevalence of straight lines and circles greatly simplifies the problem; b) appropriate dimensioning of drawings. Dimensioning convenient for digital control is illustrated by an example; c) the substitution of special programme control devices and keyboard machines for general electronic computing machines. Fig. 7 shows the configuration diagram of a device designed by ENIMS to translate digital information into impulse form using linear interpolation. The machine transfers the information from a perforated paper strip into a five-way magnetic impulse tape; d) the development of control devices directly associated with the machine tool in order to formulate the digital information by a kind of copying procedure. The third group of programme control system is not discussed. There are 7 figures and 4 Russian references.

AVAILABLE: Library of Congress

Card 2/2

1. Machine tools (Automatic) 2. Machine tools-Control systems

ZUSMAN, V.G.

Requirements of electric equipment used in machine tools.
Stan. instr. 29 no. 11:6-8 N '58. (MIRA 11:11)
(Machine tools--Electric driving) (Electric controllers)

ZUSMAN, V.G.; RATMIROV, V.A.

Digital control systems with step-by-step engines. Stan.i instr.
29 no.12: 4-9 D '58. (MIRA 11:12)
(Machine tools--Numerical control)

ZUSMAN, V.G.

PHASE I BOOK EXPLOITATION SOW/2383

25(1)

Akademiya nauk SSSR. Koslelya po tekhnologii mashinostroyeniya Avtomatizatsiya mashinostroyeniya. t. II: Priyod i upravlentye rabochimi mashinami (Automation of Machine-building Processes, Vol. II: Drive and Control Systems for Process Machinery) Moscow, ed. no AN SSSR, 1959. 370 p. Errata slip inserted. 5,000 copies printed.

Ed.: V.I. Dikushin, Academician; Ed. of Publishing House: D.M. Ioffe; Tech. Ed.: I.P. Kur'min.

PURPOSE: This book is intended for engineers dealing with automation of various machine-building processes.

COVERAGE: This is the second volume of transactions of the second Conference on Overall Mechanism and Automation of Manufacturing Processes held September 25-29, 1956. The present volume consists of three parts. The first dealing with automation of engineering assembly methods. The subjects discussed include automatic control of dimensions of machined parts, inspection methods for automatic production lines, in-process inspection devices, application of electronics in automating linear measuring processes, and machines for automatic inspection of bearing races. The second part deals with automatic application of digital computers in the control of metal-cutting machine tools, reliability of relay systems, application of gas-tube frequency converters in the control of their use in automatic motor speeds, magnetic amplifiers, piezoelectric vibrators, Part three deals with mechanisms of automatic machines and automatic production lines. The subjects discussed include linkage, indexing, loading devices, diaphragm-type pneumatic drives, automatic loading devices for automatic production drives, and methods of design and accuracy of gears. No personalities are mentioned. There are no references.

Generalizatsiya i avtomatizatsiya mashinostroyeniya v mashinostroyeniye 3

Alibekuller, A.K. Determining Optimum Conditions for Controlling the Mean Diameter of Machined Parts 9

Koponovich, M. Ye. Lenin prizvimsya? Inspection Methods for Automatic Production Lines 29

Dvoretzkiy, Ye. B. Standard Devices for Active Control 39

Vilshman, V.S. Application of Electronics in Automating Linear Measuring Methods 45

Kludov, I.A. Neurological and Statistical Checking of Some Automatic Inspection and Sorting Systems 53

Shilov, G.S.; Ye. M. Drankin. Experience Gained in Developing Machines for Automatic Inspection of Bearing Races 62

Martynov, P.V. Digital Computers in Automatic Control of Processes 75

Ehtagurov, Ya. A. Some Problems Concerning Digital Control of Metal-cutting Machine Tools 88

Zusman, V.G., and I.A. Yul'fson. Designing Digital Program Control Systems for Machine Tools 98

Schikov, B.S. Problems Concerning the Reliability of Relay Systems 107

Lebunov, V.A. Application of Gas Tube Frequency Converters in the Control of Induction Motor Speeds by the Frequency Method 117

Mayda, V.A. Controlled Electric Drive for Metal-cutting Lathes. M.I. Development of the Theory of Mechanisms of Automatic Machines 203

Card 5/7

83283

S/121/60/000/009/001/006
A004/A001

28,1000
1,5600

AUTHORS:

Zusman, V.G., Vul'fson, I.A.

TITLE:

The Selection of a Coded Decimal System

PERIODICAL:

Stanki 1 Instrument, 1960, No. 9, pp. 3-6

TEXT:

In their article the authors refer to some special problems of coding which are characteristic for program-controlled machine tools. They enumerate a number of conditions on which the most expedient methods of program coding depend and which are mainly determined by operational requirements. They point out that numerically controlled machine tools of Soviet and foreign manufacture use the following coding systems: the decimal, the "5 x 2", "2 from 5", coded-decimal and binary systems. Their further investigations deal only with the selection of a coded decimal system, the application of which extends more and more, since it gives the most satisfactory results concerning operational requirements. The quantity of numerical combinations in the code is expressed by the formula:

$$C_9^4 = \frac{9!}{(9-4)!4!},$$

while only 16 such combinations, which are presented, would meet the required conditions and only the following 4 of the mentioned combinations

Card 1/3

83283

9/121/60/000/009/001/006
A004/A001

The Selection of a Coded Decimal System

would be suitable for machine tools with pulse circuits of transmission ratio modification: 5211, 4311, 4221, and 3321. It is pointed out that for the selection of the particular values of numbers in the code the following points have to be considered: 1) the least possible value of K (the ratio of the nominal to minimum value of the reciprocal pulse duty factor of the pulse series coming out of the linear interpolator) which ensures the greatest possible coefficient of utilization of machine tool and program carrier:

$$K = \frac{f_{\max}}{f_{\text{nom}}}; \quad f_{\max} = \frac{1}{T_{\min}}; \quad f_{\text{nom}} = \frac{1}{T_{\text{nom}}}$$

- 2) The most reliable program input which is taken to be proportional to the average number of switch-on contacts necessary for the transmission of one decimal digit.
- 3) Simplicity of decade formation in the control circuits. 4) Simplicity of decade formation in the decoder. The authors present pulse succession graphs for a number of decades, including the most important cases, give a detailed description of the simplicity of decade formation in the control circuits and in the decoder and cite a universal ferrotransistor decade system which has been used by the

Card 2/3

83283

S/121/60/000/009/001/006
A004/A001

The Selection of a Coded Decimal System

ENIMS lately. The results of comparing the codes by various criteria show that the code 2421P (2421R) is the optimum one. In this case the value of K is the least, while the other factors mentioned have the optimum values. There are 11 figures and 4 tables.

Card 3/3

S/121/61/000/003/001/006
D040/D112

AUTHORS: Zusman, V. G., and Rozinov, A. G.

TITLE: Electronic pulse devices in numerically controlled machine tools

PERIODICAL: Stanki i instrument, ³²no.3, 1961, 1-5
^

TEXT: A description is given of elements and component units of numerical machine-tool-control systems, developed during recent years at the electro-technical department of ENIMS and built around electron tubes, transistors and ferrites. They have been used for control systems of 6H13PP (6N13PE) and 6M42Π (6M42P) milling machines, 1K62Π (1K62P) and MA-12 (MA-12) lathes, and ЛКП-01-Ф (LKP-01-F) code converter for recording a program on magnetic tape and other devices. The design and operation of the devices are described in detail and illustrated with diagrams. The units have passed prolonged laboratory tests. The following units are described: (1) a one-stage tube pulse amplifier, the simplest elementary unit around which all the other units can be built. It is also widely used as an independent amplifier for pulse voltage, current, or power, and can either

Card 1/2

1.7000

27111
S/121/61/000/004/001/008
D040/D113

AUTHORS: Zusman, V. G., and Rozinov, A. G.

TITLE: Electronic pulse ferrotransistor devices in numerically-controlled machine tools

PERIODICAL: Stanki i instrument, ³²no. 4, 1961, 3-9
^

TEXT: This article deals with investigations conducted at ENIMS on the possibility of using ferrite cores in numerically-controlled machine tools. The operating principle of ferrite elements and various arrangements are described, and recommendations are given as to the selection of basic parameters such as numbers of winding turns, load impedance, etc. A ferrotransistor cell is shown in a photograph, and its circuit which is used for different control system combinations (Fig. 3), is described in detail. Its ferrite functions as a memory unit, and the triode as a pulse amplifier. The output pulse cannot be shorter than 1.5-2.0 μ sec and may be prolonged to 3.5-4.5 μ sec, by using more turns in the basic winding. The following numerical control system units with such ferrotransistors are described and illustrated in circuit diagrams: a binary frequency divider; a dual-input coincidence circuit; a rectifier; collector circuits with two and with one

Card 1/3

27141

S/121/61/000/004/001/008
D040/D113

Electronic pulse ferrotransistor...

ferrotransistor; a permissive circuit; a dynamic valve as a memory cell; a delay circuit; a decade code divider; a synchronizing circuit for matching signals received from pickups or from the program with timing pulses. Two circuit diagrams illustrate two types of ferrotransistor cells developed by ENIMS, which are now serially produced in the Soviet industry. Ferrotransistorized circuits have been preliminarily tested and stated to be considerably more dependable than the existing tube and semiconductor circuits. No special selection is needed to match transistors with ferrites, and this facilitates the adjustments. ENIMS has by now completed some ferrotransistorized arrangements and used them for an ЛКП-ОИФ (LKP-OIF) code converter and a 6M42 ПМ (6M42PM) machine tool. Some previously developed numerical control systems will be replaced by them. There are 17 figures and 5 Soviet references. X

Card 2/3

AYZENSHTADT, L.A.; PEN'KOV, P.M.; GLADKOV, B.A.; LIKHT, L.O.;
KRIMMER, T.Ye.; KASHEPAV, M.Ya., kand. tekhn. nauk;
MERPERT, M.P., kand. tekhn. nauk; KOPERBAKH, B.L.;
CHERNIKOV, S.S., kand. tekhn.nauk; BELOV, V.S.; ZHURIN,
B.F.; MONAKHOV, G.A., kand.tekhn.nauk; MOROZOV, I.I.;
MUSHTAYEV, A.F.; OGNEV, N.N.; PALEY, M.B., kand. tekhn.
nauk; FURMAN, D.B.; LIVSHITS, A.L., kand.tekhn.nauk;MECHETNER,
B.Kh.;SOSENKO,A.B;AVDULOV, A.N.; LEVIN, A.A., kand.tekhn.
nauk; YAKOBSON, M.O., doktor tekhn.nauk; MAYOROVA, E.A.,
kand.tekhn.nauk; MOROZOVA, Ye.M.; ZUSMAN, V.G., kand.tekhn.
nauk; NAYDIS, V.A., kand.tekhn.nauk; VLADZIYEVSKIY, A.P., prof.,
doktor tekhn. nauk, red.; BELOGUR-YASNOVSKAYA, R.I., red.;
CHIGAREVA, E.I., red.; ASVAL'DOV, M.Ya., red.; KOGAN, F.L.,
tekhn. red.

[Machine-tool industry in capitalist countries] Stanko-
stroenie v kapitalisticheskikh stranakh. Pod red. i s pre-
disl. A.P.Vladzjevskogo. Moskva, 1962. 822 p. (MIRA 15:7)

1. Moscow. Tsentral'nyy institut nauchno-tekhnicheskoy in-
formatsii mashinostroyeniya. 2. Eksperimental'nyy nauchno-
issledovatel'skiy institut metallovezhushchikh stankov
(for Vladziyevskiy, Belogur-Yasnovskaya, Chigareva, Asval'dov,
Kogan).

(Machine-tool industry)

ZUSMAN, V.G., kand.tekhn.nauk; RATMIROV, V.A., kand.tekhn.nauk

Stepping motors in program control systems. Elektrichestvo
no.10:37-47 0 '62. (MIRA 15:12)

1. Eksperimental'nyy nauchno-issledovatel'skiy institut
metallorezhushchikh stankov.
(Electric motors) (Automatic control)

VUL'FSON, I.A.; ZUSMAN, V.G.; RATMIROV, V.A.

Automatic control of cutting conditions on program controlled milling
machines. Stan. i instr. 36 no.9:1-4 S '65. (MIRA 18:10)

L 05087-67 EWT(d)/EWP(v)/EWP(k)/EWP(h)/EWP(1)

ACC NR: AP6013254

SOURCE CODE: UR/0413/66/000/008/0042/0043

AUTHORS: Zusman, V. G.; Tikhomirov, E. L.; Reshetilov, I. D.; Rozanov, L. V.

ORG: none

TITLE: A device for automatic smooth braking and accelerating according to a linear law for a system of programmed control. (Class 21, No. 180675 /announced by Experimental Scientific Research Institute of Metal Cutting Machine Tools (Eksperimental'nyy nauchno-issledovatel'skiy institut metallorezhushchikh stankov) 7

SOURCE: Izobreneniya, promyshlennyye obraztsy, tovarnyye znaki, no. 8, 1966, 42-43

TOPIC TAGS: linear automatic control system, computer programming, metal cutting machine tool

ABSTRACT: This Author Certificate presents a device for automatic smooth braking and accelerating, based on a linear law, for a system of programmed control. The device includes a linear voltage shaper, a converter from a numerical code to a unitary code, counters, commutators, and a generator with a variable cyclic

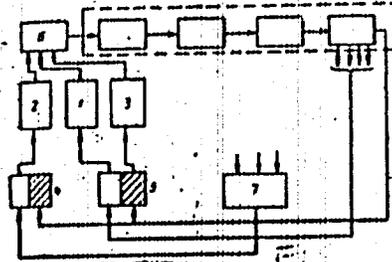
Card 1/2

UDC: 621.3.078.4

I 05087-67

ACC NR: AP6013254

Fig. 1. 1-3 - linear voltage shapers;
4 and 5 - commutators;
6 - cyclic generator;
7 - comparison device



frequency (see Fig. 1). The design provides braking down to a single minimum speed and eliminates bursts of speed when changing from one card of the program to another card. Two auxiliary linear voltage shapers are installed in the device. The commutators are connected to the inputs of the shapers. The outputs of the shapers are connected to the cyclic generator. The comparison device is connected to the inputs of the commutators. A voltage with a frequency corresponding to the minimum speed of motion of the object being regulated is fed to the input of the comparison device. Orig. art. has: 1 figure.

SUB CODE: 09, 13/ SUBM DATE: 06Jul64

Card 2/2 LC

KHARIZOMENOV, I.V., doktor tekhn. nauk, prof.; ZILSMAN, V.G.,
kand. tekhn. nauk, retsenzent; ROZINOV, A.G., inzh.,
retsenzent; MIKHINA, G.K., inzh., red.

[Electrical equipment and automatic control of machine
tools] Elektrooborudovanie i elektroavtomatika metallo-
rezhushchikh stankov. Izd.3., perer. Moskva, Mashino-
stroenie, 1964. 327 p. (MIRA 18:2)

1. ZUSMAN, V. M.
2. USSR (600)
4. Beets and Beet Sugar
7. Control of beet shortages. Sakh. prom. 26, no. 12, 1952.

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

ZUMMAN, V.M.

It is time now to reduce the number of railroad beet receiving
stations. Sakh. prom. 35 no. 5:38 My '61. (MIRA 14:5)

1. Antoninskiy sakharnyy zavod,
(Sugar beets)

ZUSMAN, V.M.

Eliminate causes of increased cost of sugar. Sakh.prom. 27 no.4:36-38 Ap
'53. (MLBA 6:6)

1. Antoninskiy sakharney zavod.

(Sugar industry)

ZUSMAN, V.S., inzh.

Development of refrigeration in the Moldavian S.S.R. Khol.
tekh. 40 no.2:1-3 Mr-Apr '63. (MIRA 16:4)

1. Gosudarstvennyy komitet Soveta Ministrov Moldavskoy SSR
po koordinatsii nauchno-issledovatel'skikh rabot.
(Moldavia—Refrigeration and refrigerating machinery)

VISHNEVSKIY, V.M., kand.istor.nauk; GAYDASHENKO, K.P.; DUDOROV, V.M.;
KLEYMAN, T.Ye.; KRUSHANOV, A.I., kand.istor.nauk; KUCHERYAVENKO,
V.T.; LEVITSKIY, V.L.; OKSYUZ'YAN, D.V.; POLYAKOV, V.V.;
SAMOKHVALOV, V.A.; SWIN'IN, V.V.; STEPANOVA, L.F.; SUSHKOV, B.A.;
FISHER, Ye.L.; BKLYKH, D.P., otv.red.; AVERKIN, B.Z., red.;
KUSMAN, Ye.I., red.; MAYOROV, V.M.; red.; KIREYEVA, T.R.,
vedushchiy red.; BUZOVA, L.A., tekhn.red.

Vladivostok, 1860-1960. Vladivostok, Primorskoe knizhnoe
izd-vo, 1960. 271 p. (MIRA 13:11)
(Vladivostok)

DERYAGIN, B.V.; ZAKHAVAYEVA, N.N.; ZUSMAN, Ye.Ye.; TALAYEV, M.V.; FILIPPOV-
SKIY, V.V.

Air permeability method for the determination of the specific surface
of disperse systems. Zhur.fiz.khim.29 no.5:860-866 My'55.

(MLRA 8:12)

1. Akademiya nauk SSSR., Institut fizicheskoy khimii
(Dispersiometry)

FRIDMAN, I.D., kand.tekhn.nauk; MAMEDOV, G.M., inzh.; KHODAYKINA, Ye.D.,
inzh.; ZUSMAN, Ye.Ye., inzh.

Using pyrite cinders as a raw material for the production of
weighted material. Trudy AzNII DN no.5:162-179 '57. (MIRA 12:4)

(Oil well drilling)

ZUSMANOVICH, G.G.

Continuous determination of the thickness of nickel-phosphorus coatings. Zav.lab. 26 no.7:838-839 '60.

(MIRA 13:7)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut mekhanizatsii sel'skogo khozyaystva.

(Thickness measurement)

(Nickel-phosphorus alloys)

ZUSMANOVICH, D.M.

Estimating the contact surface between air and water in spray
chambers. Vod. i san. tekhn. no.7:2-7 JI '61. (MIRA 14:7)
(Air conditioning)

VISHENKOV, S.A., kand. tekhn. nauk; KASPAROVA, Ye.V., inzh.; Priznima-
li uchastiye: RYABCHENKOV, A.V., doktor khim. nauk, prof.;
VELEMITSINA, V.I., inzh.; ZUSMANOVICH, G.G., kand. tekhn.
nauk; TUTOV, I.Ye., kand. tekhn. nauk, rezensent; KUBAREV,
V.I., inzh., red.; TAIROVA, A.L., red. izd-va; MAKAROVA, L.A.,
tekhn. red.; MEL'NICHENKO, F.P., tekhn. red.

[Increasing the reliability and durability of machine parts by
chemically nickel coating] Povyshenie nadazhnosti i dolgovech-
nosti detalei mashin khimicheskim nikelirovaniem. Moskva,
Mashgiz, 1963. 205 p. (MIRA 16:6)

(Protective coatings) (Nickel)

ZUSMANOVICH, G. G., Cand Tech Sci -- Study of the method of restoring piston couples of tractor engines by means of chemical nickel plating." Mos 1961. (Min of Higher and Sec Spec Ed RSFSR. Mos Forest^y/Eng Inst) (KL, 8-61, 243)

- 232 -

26576
S/129/61/000/008/009/015
E073/E335

18 8200 1045 2808

AUTHORS:

Lozinskiy, M.G., Doctor of technical Sciences,
Zusmanovich, G.G. and Mirotvorskii, V.S., Engineers

TITLE:

Dependence of the Microhardness of Wear-resistance
Coatings on Temperature

PERIODICAL:

Metallovedeniye i termicheskaya obrabotka metallov,
1961, No. 8, pp. 37 - 39

TEXT:

For evaluating the performance of the wear-resistant coatings, it is useful to determine their microhardness at elevated temperatures. A. Brenner (Ref. 1 - Journal of Research, Nat. Bureau Standards, Vol. 46, No. 2, 1951) published results on microhardness tests at 300 °C in an inert gas carried out on chromium-plating using loads of 30 - 200 g.

Apparatus was built in 1958 at the institute of the authors which enabled determining the microhardness of the authors alloys at temperatures up to 1300 °C in vacuum at loads of 5 - 100 g and tensile tests with stresses of 0 - 60 kg/mm².

The authors studied with this equipment the influence of temperature on the microhardness of nickel-phosphor and of

26576
S/129/61/000/008/009/015
E073/E335

X

Dependence of the

chromium coatings using a load of 100 g. The coatings were produced on specimens of commercial iron HV 100 kg/mm². The nickel-phosphor coatings were deposited from a solution consisting of 21 g/l. of nickel chloride, 24 g/l. sodium hyperphosphite and 10 g/l. sodium acetate. The coatings contained about 9% phosphor and were 40 - 50 μ thick. The chromium coatings (35-40 μ thick) were deposited from a standard electrolyte at 55 °C, using a current density of 35 A/dm². The thickness of the coatings was more than 2.5 times the depth of the indentation at the maximum test temperature. The microhardness of the nickel-phosphor coatings was tested at elevated temperatures directly after the coatings were produced and after heating to 400 °C and holding them at that temperature for 1 hour, followed by cooling in air. Such a heat-treatment ensures better adhesion between the coating and the surface of the component and increases the hardness. The chromium coatings were not heated. The hot microhardness of specimens from

Card 2/5

26576
S/129/61/000/008/009/015
E073/E335

Dependence of the

the steel XБГ (KhVG) was tested after quenching and low-temperature tempering (HRC 63-64). The obtained results enable comparing the temperature dependence of the hardness of this steel with that of the coatings. 15 indentations were made at each test temperature with a sapphire indenter (pyramid with an angle of 136°). The results, H_μ , kg/mm² versus temperature, °C, are plotted in Fig. 1 (Curve 1 - nickel-phosphor coatings without heat-treatment; Curve 2 - nickel-phosphor coatings after heat-treatment at 400 °C for 1 hour; Curve 3 - chromium-plating; 4 - steel KhVG, HRC 63). The results show that nickel-phosphor coatings have the highest hardness in the temperature range 150 - 350 °C and should be used for improving the resistance-to-wear of components operating at these temperatures. It is advisable to use chromium-plated or hardened steels for components operating at temperatures above 350 °C.

X

Card 3/5

26576
S/129/61/000/008/009/015
E073/E335

Dependence of the

There are 1 figure, 1 table and 6 references: 4 Soviet and 2 non-Soviet. The two English-language references quoted are: Ref. 1 (in text) and Ref. 3 - M. Hansen, Constitution of Binary Alloys, New York, 1958,

ASSOCIATIONS: Institut mashinvedeniye AN SSSR (Institute of Machine Science of the AS USSR)
Vsesoyuznyy nauchno-issledovatel'skiy institut mekhanizatsii sel'skogo khozyaystva (All-Union Scientific Research Institute for Mechanisation of Agriculture)

Card 4/5

26577
S/129/61/000/008/010/015
E073/E535

1.1800

1045 2808 2208

AUTHOR:

Zusmanovich, G. G., Engineer

TITLE:

Influence of the heat treatment on the strength of the bond between nickel-phosphor coatings and quenched steel X8Г (KhVG)

PERIODICAL: Metallovedeniye i termicheskaya obrabotka metallov, 1961, No.8, pp.40-42

TEXT:

According to I. L. Chinn (Ref.4: Materials and Methods, No.5, 1955) the high bond strength appears to be the result of the combined effect of chemical and mechanical bonds. K.M.Gorbunova and A.A.Nikiforova explain the increase in the mechanical bond of nickel-phosphor coatings with the base metal by the possibility of formation of a deposit in the microcavities of the surface, not observed in electrolytic precipitates due to the limited dispersion ability of the electrolysis (Ref.1: Physical and chemical bases of chemical-nickel plating, Izd-vo AN SSSR, 1960). According to published data, the strength of the bond between nickel-phosphor coatings and the base metal is 20 to 40 kg/mm². However, the bond strength also depends on the acidity of the solution and, according
Card 1/6

X

Influence of the heat treatment ...

26577

S/129/61/000/008/010/015
E073/E535

X

to W. Wesley (Ref.6: Plating, No.7, 1950), the bond of coatings from acidic solutions is approximately twice as strong as from alkaline solutions. Since the bond strength cannot be easily determined directly by tensile tests, it is convenient to substitute these by simpler shear tests. According to the energy theory of strength, the relation between the normal and the tangential stresses can be expressed by:

$$\tau = 0.6 \sigma$$

In shear tests on circular specimens

$$\sigma = \frac{P}{0.6 \pi r d h}$$

where P - load, d - specimen diameter, h - height of the belt coated. Since the bond strength depends to a considerable extent on the nature and state of the base material, the investigations were made on steel specimens with a certain hardness and a certain surface quality. As specimens, precision pairs were used - cylinders and bushings of 8.5 mm diameter and 15 mm, with a hardness HRC 63, a surface quality of $\nabla 11.6$ according to the Soviet specification POCT (GOST) 2789-51. The ends of the
Card 2/6

Influence of the heat treatment ...

26577
S/129/61/000/008/010/015
E073/E535

cylinders were isolated by means of chlorovinyl tubes so as to expose in the middle a non-isolated strip 1 to 1.2 mm high. Following that, the specimens were chemically nickel-plated and on the non-isolated belt a nickel phosphor coating was deposited in the form of a ring 0.05 mm thick. The nickel plating was in an acidic solution, pH = 5, of the following composition: nickelous chloride 30 g/l, sodium hypophosphate 10 g/l and sodium acetate 10 g/l. The P content in the coating was about 9%. After nickel plating, the coated specimens were soaked at 300, 400, 500, 600 and 700°C for 60 min and, in addition, at 400°C for 30 and 120 min. Some specimens were not heat treated. Following that, the belts with nickel-phosphor coatings were machined to ensure that the front surface of the ring-shaped belt is perpendicular to the generating line of the specimen and that a uniform height of the ring-shaped belts is obtained (0.5 mm for heat treated specimens and 1 mm for specimens non-heat treated). The machined specimens fitted into the bushings and, due to the precision machining, accurate centering was achieved excluding the possibility of wedging. Thus, prepared specimens were subjected to compression

Card 3/6

Influence of the heat treatment ...

26577
S/129/61/000/008/010/015
E073/E535

X

tests which were applied with a uniform speed equalling 50 mm/min. At the instant of appearance of a crack in the nickel-phosphor coating and during shearing off of the ring-shaped belt, the loads were measured with an accuracy of ± 0.5 kg. It was found that coatings which have not been heat treated are brittle and do not bond intensively with the base metal; compression with a force of 50 to 60 kg causes cracking and peeling off of the coating. Heat treatment improves considerably the ductility and strength of the bond. The increase in ductility is due to structural transformations and diffusion processes in the transition zone. Fig. 2 shows the influence of the heat treatment temperature on the ductility and the bond strength of nickel-phosphor coatings with steel KhVG (heating duration 60 min). Up to 500°C the force at which cracks appear (P_{mp}) increases. If the heating temperature is increased further, the plasticity of the coatings increases to such an extent that under the applied test conditions no cracks formed. With increasing heat treatment temperature, the loads ($P_{c\delta B}$) also increase at which the ring-shaped belt coating shears

Card 4/6

Influence of the heat treatment ...

²⁶⁵⁷⁷
S/129/61/000/008/010/015
E073/E535

off. The bond strength reaches a maximum at about 500°C amounting to 32 kg/mm². The optimum heat treatment from the point of view of ensuring maximum bond strength is heating for 1 hour at 450 to 500°C. However, from the point of view of obtaining a higher hardness, it is preferable to apply a heat treatment temperature of 400 to 450°C. There are 2 figures and 7 references: 4 Soviet and 2 non-Soviet. The other English-language reference reads as follows: G. Gutzeit and E. Mapp, Corrosion Technology, V.3, No.10, 1956.

ASSOCIATION:

Vsesoyuznyy nauchno-issledovatel'skiy institut
mekhanizatsii sel'skogo khozyaystva
(All Union Scientific Research Institute for
the Mechanization of Agriculture)

Card 5/6

ZUSMANOVICH, G.G.

Reconditioning piston pairs by chemical nickel plating. Sbor.
rab. GOSNITI no.16:54-67 ['61]. (MIRA 16:12)

ZUSMANOVICH, G.G., inzh.

Application of chemical nickel-plating in repairing the fuel pump piston pairs. Mekh. i elek. sots. sel'khoz. 19 no.6:38-41 '61. (MIRA 14:12)

1. Gosudarstvennyy vsesoyuznyy nauchno-issledovatel'skiy tekhnologicheskii institut remonta i ekspluatatsii mashinno-traktornogo parka.

(Fuel pumps--Maintenance and repair)
(Nickel plating)

ARTEM'YEV, Yu.N., kand. tekhn. nauk; ASTVATSATUROV, G.G., inzh.;
BARABANOV, V.Ye., inzh.; BARYKOV, G.A., inzh.; BLSNOVATYY, S.I.,
inzh.; GALAYEVA, L.M., inzh.; GAL'PERIN, A.S., kand. tekhn. nauk;
GAL'CHENKO, I.I., inzh.; GONCHAR, I.S., kand. tekhn. nauk;
DEGTYAREV, I.L., kand. tekhn. nauk; DYADYUSHKO, V.P., inzh.;
YERMAKOV, I.N., inzh.; ZHOTKEVICH, T.S., inzh.; ZUSMANOVICH, G.G.,
inzh.; KAZAKOV, V.K., inzh.; KOZLOV, A.M., inzh.; KOHOLEV, N.A.,
inzh.; KRIVENKO, P.M., kand. tekhn. nauk; LAPITSKIY, M.A., inzh.;
LEBEDEV, K.S., inzh.; LIBERMAN, A.R., inzh.; LIVSHITS, L.G., kand.
tekhn. nauk; LOSEV, V.N., inzh.; LUKANOV, M.A., inzh.; LYUBCHENKO,
A.M., inzh.; MAMEDOV, A.M., kand. tekhn. nauk; MATYEV, V.A.,
inzh.; ORANSKIY, N.N., inzh.; POLYACHENKO, A.V., kand. tekhn. nauk;
POPOV, V.P., kand. tekhn. nauk; PUSTOVALOV, I.I., inzh.;
PYTCHENKO, P.I., inzh.; PYATETSKIY, B.G., inzh.; RAHOCHIY, L.G.,
kand. tekhn. nauk; ROL'BIN, Ye.M., inzh.; SELIVANOV, A.I., doktor
tekhn. nauk; SEMENOV, V.M., inzh.; SKOROKHOD, I.I., inzh.; SLABODCHIKOV,
V.I., inzh.; STORCHAK, I.M., inzh.; STRADYMOV, F.Ya., kand. tekhn.
nauk; SUKHINA, N.V., inzh.; TIMOFEYEV, N.D., inzh.; FEDOSOV, I.M.,
kand. tekhn. nauk; FILATOV, A.G., inzh.; KHODOV, L.P., inzh.;
KHROMETSKIY, P.A., inzh.; TSVETKOV, V.S., inzh.; TSEYTLIN, B.Ye.,
inzh.; SHARAGIN, A.M., inzh.; CHISTYAKOV, V.D., inzh.; BUD'KO, V.A.,
red.; PESTRYAKOV, A.I., red.; GUREVICH, M.M., tekhn. red.

(Continued on next card)

ARTEM'YEV, Yu.N.--- (continued) Card 2.

[Manual on the repair of machinery and tractors] Spravochnik po
remontu mashinno-traktornogo parka. Pod red. A.I.Selivanova.
Moskva, Sel'khozizdat. Vols.1-2. 1962. (MIRA 15:6)
(Agricultural machinery—Maintenance and repair)
(Tractors—Maintenance and repair)

80200

S/129/60/000/04/011/020
E073/E535

18.7400

AUTHOR:

Zusmanovich, G. G., Engineer/
Influence of Heat Treatment on the Hardness of Nickel-
Phosphor Coatings

TITLE:

PERIODICAL: Metallovedeniye i termicheskaya obrabotka metallov,
1960, No 4, pp 48-50 + 1 plate (USSR)

ABSTRACT: The investigations were aimed at determining the optimum regime of heat treatment of Ni-P coatings. As specimens which a 15 to 16 micron thick layer was deposited by 30 g/litre nickelous chloride, 10 g/litre sodium hypophosphate and 10 g/litre sodium acetate. Prior to heat treatment the microhardness of the coatings was studied at 150, 200, 250, 300, 350, 400, 500, 600, 700, 750 and 800°C. The influence of heat treatment was of the heating in an electric furnace, followed by cooling in air, a thin oxide film formed for heating temperatures above 300°C. The thickness, density and

card 1/4

80200

S/129/60/000/04/011/020
E073/E535

Influence of Heat Treatment on the Hardness of Nickel-Phosphor Coatings

colour of the film varied depending on the temperature and the heating duration. The investigations have shown that at 400°C the film was denser than at 600°C; with increasing temperature the density of the oxide film decreased and at 750°C the oxide film was very soft and loose. The graph, Fig 1, shows curves of the changes in the microhardness of the coatings as a function of the heat treatment regimes. Changes in the microhardness of the coating are attributed to changes in the structure of the Ni-P alloy. The layer structure which exists prior to heat treatment ceases to exist after heat treatment (see Fig 2, plate). The X-ray patterns of the material after heat treatment are also appreciably different from those prior to heat treatment (Fig 3, plate). Visual analysis of the X-ray patterns (carried out by D. K. Khakimova, Institute of Metallurgy, Ac.Sc., USSR)

Card 2/4 showed that changes in the soaking temperature between

80200

S/129/60/000/04/011/020
E073/E535

Influence of Heat Treatment on the Hardness of Nickel-Phosphor
Coatings

400 and 750°C do not result in phase transformations of the Ni-P coating, i.e. the formed phase is sufficiently stable. The changes in hardness are due to the formation of a phosphide, the composition of which has to be further investigated; the slight increase in the microhardness for soaking temperatures between 150 and 200°C is attributed to the fact that at that temperature this phosphide still forms but incompletely. The changes in the properties of the coatings caused by changes in the heat treatment in the higher temperature range is explained by phosphide coagulations and this is confirmed by the changes in the microstructure (Fig 4); after holding at 750°C for 5 mins a relatively finely dispersed structure can be observed. In Fig 5 the dependence is graphed of the microhardness on the temperature for heating durations of 15, 30 and 60 mins respectively. It was found that the optimum heat

Card 3/4

80200

5/129/60/000/04/011/020
E073/E535

Influence of Heat Treatment on the Hardness of Nickel-Phosphor
Coatings

treatment regime from the point of view of hardness
and bond strength is heating to 400-450°C for a
duration of 40 to 45 mins.
There are 5 figures and 5 references, 2 of which are
Soviet and 3 English.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut
mekhanizatsii sel'skogo khozyaystva
(All Union Scientific Research Institute for the
Mechanization of Agriculture)

Card 4/4

ZUSMANOVICH, G.G., inzh.

Effect of heat treatment on the strength of bonding nickel-phosphorous coatings to hardened KhVG steel. Metalloved. i term. obr. met. no. 8:40-42 Ag '61. (MIRA 14:8)

1. Vseoyuznyy nauchno-issledovatel'skiy institut mekhanizatsii sel'skogo khozyaystva.

(Case hardening) (Steel alloys--Heat treatment)

SOV/66-59-3-11/31

14(1)

AUTHOR: Zusmanovich, L., Engineer

TITLE: On the Calculation of the Cooling and Drying Processes of Air in Spray Chambers

PERIODICAL: Kholodil'naya tekhnika, 1959, Nr 3, pp 44 - 50 (USSR)

ABSTRACT: The author comments on the existing methods of making spray chamber calculations, which employ so-called "coefficients of performance", based on a comparison between the actual process taking place in the spray chamber and the ideal, or conditional process, which occurs under the same conditions, but terminates in a complete saturation of the air with moisture. The analysis of the coefficients of performance has not only revealed certain faults in the method, but has also shown that they do not reflect the essence of the phenomena of jointly occurring processes of heat and mass exchange. The article refers to works by Ye.Ye. Karpis, Ye.S. Kurylev, I.N. Kuranov, V.V. Mukhin and others, who have observed, in the course of experiments certain deviations of the actual cooling and drying process of the air from that predicted theoretically. The value of these coefficients not only fails to permit the evaluation of the joint flow direction of heat and mass, upon contact between air and

Card 1/3

SOV/66-59-3-11/31

On the Calculation of the Cooling and Drying Processes of Air in Spray Chambers

water, but also the correlation of these flows in the joint processes. The article also mentions A.A. Gogolin, who was the first to offer a well founded solution to the problem of finding a second parameter of the air at the end of the process, introducing the concept of a coefficient of deviation, which represents the deviation of the actual process from the conditional process. The article describes the laboratory investigations carried out in 1956-1957 by the author, pertaining to the heat and mass exchange processes taking place in air, while it is cooling and drying in spray chambers. The analysis of the experimental findings made it possible to determine the initial parameters of the interacting media on the final result of the joint processes. It was ascertained that basically three factors affect the summary flows of heat and moisture, viz: 1 - initial driving force of the mass exchange; 2 - initial state of air; 3 - intensity of spraying. For the calculation of the effect of the initial potentials of the heat and mass exchange on the final results and on the course of the joint processes, which take place during simultaneous cooling and drying of air, the author has proposed parameter M, equal to the ratio of the amount of heat which water can absorb in heating up to dew point to the amount of heat which a certain initial mixture of

Card 2/3

SOV/66-59-3-11/31

On the Calculation of the Cooling and Drying Processes of Air in Spray Chambers

steam and air has to liberate while it cools off to the same dew point temperature. The author gives several formulae and equations making possible the solution of a number of problems, such as the final parameters of air and water at the end of the process of cooling and drying air in a twin-row spray chamber.

There are: 4 graphs, 1 table and 7 Soviet references.

ASSOCIATION: Nauchno-issledovatel'skiy institut sanitarnoy tekhniki Akademii stroitel'stva i arkhitektury SSSR (Scientific Research Institute of Sanitation Engineering of the Academy of Construction and Architecture, USSR)

Card 3/3

S/066/60/000/006/007/009
A003/A029

AUTHOR: Zusmanovich, L., Engineer

TITLE: General Method for Evaluating Heat and Moisture Exchange in Air Washers in Decreasing Heat Contents of the Air

PERIODICAL: Kholodil'naya tekhnika, 1960, No. 6, pp. 35-41

TEXT: The motive force of mass-exchange processes in air washers Δp is determined by the formula $\Delta p = P_{pa} - P_w = a(t_p - t_w)$ atm (1), where a is the coefficient of proportionality, atm/degree; $(t_p - t_w)$ is the temperature analogue of the motive force of the mass-exchange. [Abstractor's note: Subscripts p_a (partial) and w (water) are translations from the Russian π (partial'nyy) and v (voda)]. Similar formulae are derived for the interaction of air with water showing that the contact surface is proportional to the quantity of the atomized water (2); for the coefficient l characterizing the contact surface (3); for the motive force of the heat-exchange processes taking place simultaneously with the heat- and moisture-exchange (4), (5). Finally, an equation for the relative changes of the heat contents $\frac{\Delta I}{\Delta p}$ is obtained (7). For the cooling processes with lowering of the heat

Card 1/3

S/066/60/000/006/007/009
A003/A029

✓

General Method for Evaluating Heat and Moisture Exchange in Air Washers in Decreasing Heat Contents of the Air

content of the air in air washers with constant design characteristics equation (7) takes the following form:

$$\Delta T = \phi \left[(1+M_1); \frac{H_w}{W_1} \right] (11), \text{ where } M_1 = \frac{t_d - t_w}{t_{dr} - t_d}$$

t_d - the dew point of the air; t_w is the temperature of the surface of the water; t_{dr} is the temperature of the air on a dry thermometer; $\frac{H_w}{W_1}$ is the sprinkling coefficient, characterizing the surface of the contact per unit of air to be treated. The relative change of the temperature ΔT_0 is found by the equation: $\Delta T_0 = \psi \left[(1+M_1); \frac{H_w}{W_1} \right] (13)$. Further equations are developed for the boundary conditions between drying and humidifying of unsaturated air, for complete and apparent heat exchange and for the humidity control in deep coal mines. The data obtained allow for rating air washers of various cross sections and designs for dehumidification, dry cooling and humidification of air under various initial states. There are 4 figures and 7 Soviet references.

Card 2/3

S/066/60/000/006/007/009
A003/A029

General Method for Evaluating Heat and Moisture Exchange in Air Washers in
Decreasing Heat Contents of the Air

ASSOCIATION: Nauchno-issledovatel'skiy institut sanitarnoy tekhniki Akade-
mii stroitel'stva i arkhitektury SSSR (Scientific Research
Institute of Sanitary Engineering of the USSR Academy of Con-
struction and Architecture)

Gard 3/3

KARPIS, Ye., kandudat tekhnicheskikh nauk; ZUSHANOVICH, J., inzhener.

New individual conditioners. Khol.tekh.33 no.3:17-25 J1-8 '56.
(Air conditioning--Equipment and supplies) (MIRA 9:10)

ZUSMANOVICH, I.B., inzh.

Results of the modernization of the VK-100-2 turbine, Energ.
1 elektrotekh. prom. no.3:50-52 J1-S '65. (MIRA 18:9)

ZUSMANOVICH, L.M., inzh.

Studying the cooling and dehumidification of air in spray chambers.
Sbox. turd NIIST no. 6:107-145 '60. (MIRA 14:4)
(Air conditioning)

Yurganov, V. V., and Zusmanovich, M. V. INFLUENCE OF HIGH TEMPERATURE ON PROSYANAYA KAOLIN. Trans. Ceram Research Inst. (U.S.S.R.) 21, 28-55 (1929) (in German 56-57). At a burning temperature of 880° reagents cause no changes in kaolin differing from those caused in similar materials. At this temperature kaolin acid anhydride (metakaolin) apparently exists. At 980° kaolinite decomposes into free SiO₂ and the difficultly soluble form of clay and shows the first sign of formation of one or more Al silicates. At 1050° to 1100° there is little change except further combination of free SiO₂ and Al₂O₃. No sillimanite was found. At 1200° the difficultly soluble residue increases; it has the composition of 5Al₂O₃ 4SiO₂. At 1320° the ratio is Al₂O₃:SiO₂ = 2.70:2, or 4Al₂O₃ 3SiO₂. Kaolin burned at 1400° shows some crystals when examined in thin layers, increasing at 1470°. At 1400° and above Al₂O₃:SiO₂ = 3:2 (approximate).

BOYKO, V.I., inzh; ZUSMANOVICH, L.B., inzh; SIZIN, P.R., inzh

Setup for cleaning turbine condensers by means of rubber balls.
Elek.sta. 29 no.9:20-24 S '58. (MIRA 11:11)
(Condensers(Steam) --Maintenance and repair)

ZUSMANOVICH, L.M., inzh.

Method of comparing and making calculations for one- and two-
stage nozzle air coolers. Vod. i san. tekhn. no.12:8-14 D
'61. (MIRA 15:6)

(Air conditioning)

ZUSHMANOVSKAYA, L.L.; LITVINOVA, L.M.

Manufacture of machine parts from polyamides. Sbor. nauch.
trud. EMI 2:251-252 '62. (MIRA 16:8)

(Polyamides)
(Electric locomotives--Equipment and supplies)

S/081/62/000/007/014/033
B156/B101

AUTHOR: Zusmanovich, L. M.
TITLE: Assessment of the contact surface between air and water
in spray coolers
PERIODICAL: Referativnyy zhurnal. Khimiya, no. 7, 1962, 341-342,
abstract 7185 (Vodosnab. i san. tekhn., no. 7, 1961, 2-7)

TEXT: The results of experimental research on coolers are analyzed; it is shown that the value of αl , which is the product of the surface area of the droplets formed when 1 kg of water is atomized and the coefficient of heat transfer relating to that surface, does not depend on the water pressure in the 1-2.5 atm range. A relationship is given between αl and the spraying factor, for values of the latter between 0.8 and 2.5. This relationship can be used for calculating cooling chambers with a design similar to the designs investigated but with different cross-sectional areas. [Abstracter's note: Complete translation.]

Card 1/1

ZUSMANOVICH, Mark Abramovich [Zusmanovych, M.A.]; LEVIN, Genrikh
Yefimovich [Levin, H.IB.]; SIZIN, Petr Romanovich [Syzin, P.R.];
KOVAL'CHUK, O., red.; GORKAVENKO, L. [Horkavenko, L.], tekhn.red.

[From the experience in the operation of the Mironovka State
Regional Electric Power Plant] Z dosvidu ekspluatatsii Miro-
niva'koi DRES. Kyiv, Dersh.vyd-vo tekhn.lit-ry URSR, 1960. 50 p.
(MIRA 13:12)

(Ukraine--Electric power plants)

PROCESSED AND REPRODUCED UNDER

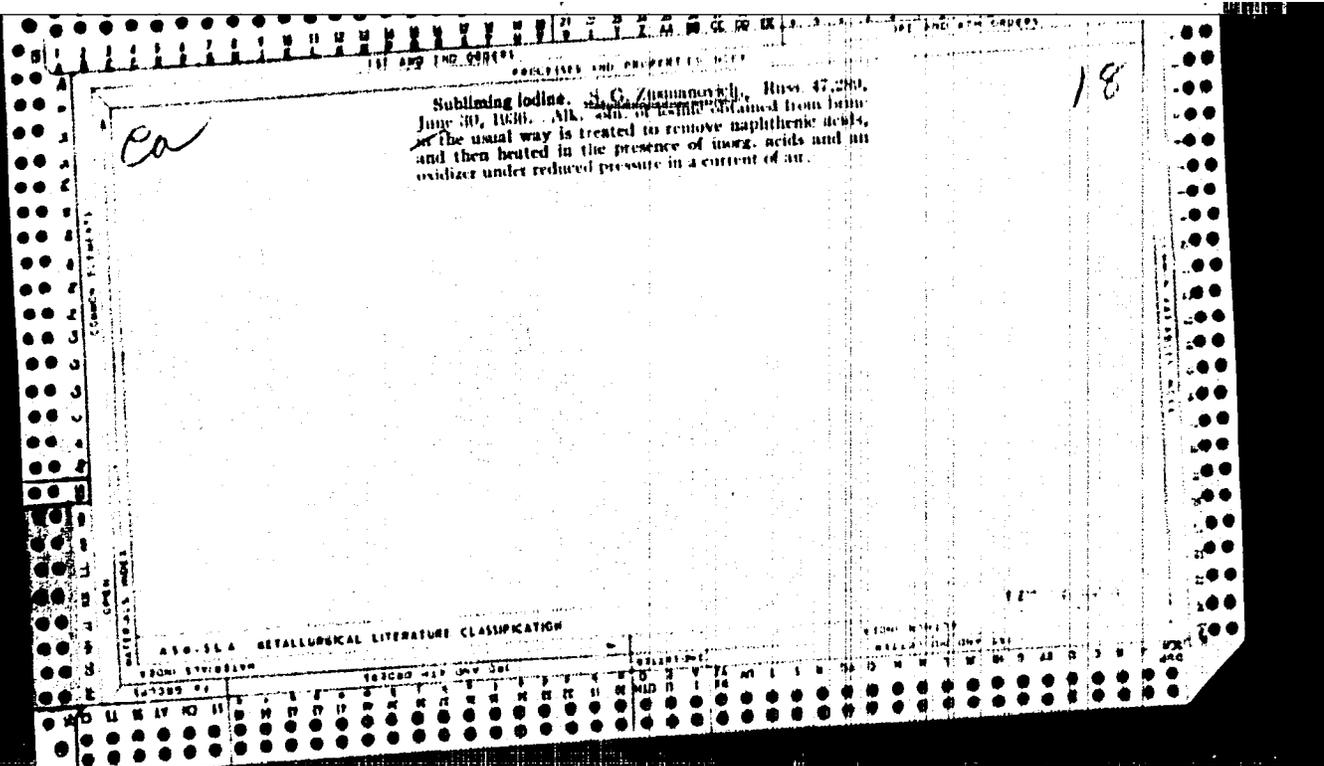
197 AND 190, 200(C)

7

ca

Influence of high temperature on Procyonite kaolin. V. V. Vesilov and M. V. ZUMANNIKH. *Trans. Ceramic Research Inst. (Moscow) 1959, No. 11, 28-32 (in Russian 53-7).*—At a burning temp. of 800° reagents cause no changes in kaolin differing from those caused in similar materials. At this temp. kaolinic acid anhydride (metakaolin) apparently exists. At 900° kaolinite decomposes into free SiO₂ and the difficultly sol. form of clay and shows the first sign of formation of one or more Al silicates. At 1040-1100° there is little change except further combination of free SiO₂ and Al₂O₃. No gibbsite was found. At 1200° the difficultly sol. residue becomes: it has the composition 5Al₂O₃.4SiO₂. At 1320° the ratio is Al₂O₃:SiO₂ = 2.70:1, or 4(Al₂O₃).3SiO₂. Kaolin burned at 1400° shows some crystals when examd. in thin layers, increasing at 1470°. At 1400° and above, Al₂O₃:SiO₂ = 3:2 (anorth.).

METALLURGICAL LITERATURE CLASSIFICATION



GOLOVANOVA, E.N., kand.biolog.nauk; ZUSMANOVICH, T.G.; GAVRILOV, E.I.

Poisoned grain baits against sparrows. Zashch. rast. ot vred.
i bol. 6 no.3:34-35 Mr '61. (MIRA 15:6)

1. Kazakhskiy institut zashchity rasteniy, Alma-Ata (for Gavrilov).
(Soviet Central Asia--Sparrows--Extermination)

KATS, I.M.; ZUSMANOVICH, V.A. (Krivoy Rog)

Severe anaphylactic reaction caused by the prolonged use of penicillin and streptomycin. Vrach. delo no. 8:132-133 Ag'63.
(MIRA 16:9)

1. Terapevticheskoye otdeleniye meditsinskoy sanitarnoy chasti rudoupravleniya imeni XX partiynogo s"yezda, Krivoy Rog.

(ANAPHYLAXIS) (PENICILLIN—TOXICOLOGY)
(STREPTOMYCIN—TOXICOLOGY)

ZUSMANOVICH, V.M.

Experiments based on the "new theory of color." Tekh.kino i telev.
4 no.6:57-59 Je '60. (MIRA 13:7)
(Color sense) (Color television)

GUBINA, A.A.; ZAKCEYM, Ye.N.; ZUSMANOVICH, V.M.; IVANOV, K.N.;
LISITSYN, S.N.; MOZGOV, A.Ya.; PAVLOV, A.S.; PISKORSKIY,
B.N. [deceased]; USHOMIRSKAYA, A.I.; FINKEL'SHTEYN, S.M.;
CHISTOVSKIY, V.B.; SHER, S.Yu.; ADAMOV, O.V., nauchn. red.;
BEYZERMAN, A.N., nauchn. red.; ZHIVOV, M.S., nauchn. red.;
POGORELYY, P.P., nauchn. red.; STAROVEROV, I.G., nauchn. red.;
STESHENKO, A.L., nauchn. red.; TSEYTLIN, M.M., nauchn. red.;
KOKHANENKO, N.A., inzh., red.; VOLNYANSKIY, A.K., glav. red.

[Assembling interior sanitary equipment] Montazh vnutren-
nikh sanitarno-tekhnicheskikh ustroystv. Moskva, Stroizdat,
1964. 725 p. (MIRA 17:8)

ZUSMANOVICH, V.M., inzh.

Analysis of the operation of radiators of air inlet chambers
and their control. Vod.1 san.tekh. no.4:18-23 Ap '65.
(MIRA 19:1)

ZUSMANOVICH, V. M.

В. С. Павлов
Современные вопросы в перспективе прикладной телеграфии и радиотелеграфии, курсы в России и СССР.

И. Е. Ковале
Разработка унифицированного телеграфного и радиотелеграфного оборудования различного назначения для телеграфов.

Р. Е. Винод,
С. В. Гурвич
Применение амплитудных и импульсных вращающихся элементов в телеграфном аппарате.

Р. Е. Винод,
С. В. Гурвич
О выборе оптимальной формы сигнала при передаче сигнала рельефа в телеграфии.

II номер
(с 10 до 16 часов)

В. А. Буланов
Студийная камера телеграфного аппарата.

В. Н. Завитин
Аппаратура телеграфного аппарата для Мичманского телеграфа.

20

В. Ф. Ефремов
Современность системы защиты телеграфов и радиотелеграфов от помех, вызванных деятельностью ОМР и РМДР.

Г. М. Сидоров
Предварительные стандарты системы телеграфов.

II номер
(с 10 до 22 часов)

О. В. Виноградский
Общая теория аппаратов и аппаратурных систем для телеграфного телевидения.

А. М. Шерин,
А. Я. Суворовский
Применение устройств телеграфного телевидения.

А. Н. Шварц
Выбор оптимального сигнала для систем телеграфного и радиотелеграфного телевидения.

А. Г. Бурунов,
В. М. Успенский

Краткая теория системы и аппаратуры телеграфного телевидения при передаче рельефа.

20

report submitted for the Confidential Meeting of the Scientific Technological Society of
Radio Engineering and Electrical Communications Dr. A. G. Popov (VUKHSM), Moscow,
8-10 June, 1959

ZUSMANOVICH, V. M. (Engineer)

"Problems of Analytic Comparison of Price and Economic Development of Single-Pipe Systems for Central Heating." Cand Tech Sci, Inst of Organic Chemistry imeni N. D. Zelinskiy, Acad Sci USSR, 28 Dec 54. (VM, 17 Dec 54)

Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (12)

SO: SUM No. 556, 24 Jun 55

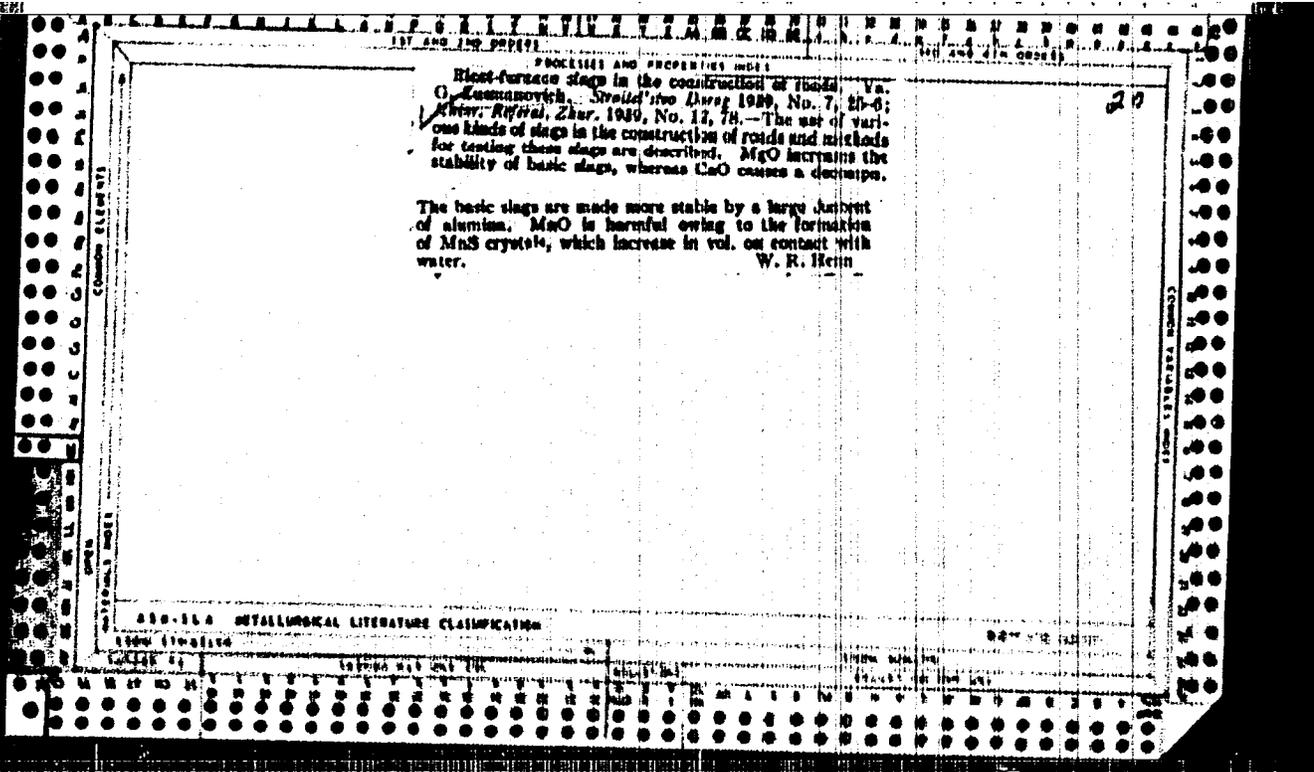
ZUSMANOVICH, V.M.

Single-pipe hot-water heating system. Vop.otopl. i vent. no.3:34-
48 156. (MIRA 10:3)
(Hot water heating) (Heating pipes)

GOLIGORSKIY, S.D.; ZUSMANOVICH, F.H.

Synthomycin in the treatment of urological diseases. Sov.med. 21
Supplement:25 '57. (MIRA 11:2)

1. Iz gospital'noy khirurgicheskoy kliniki Kishenovskogo meditsin-
skogo instituta.
(CHLOROMYCETIN) (URINARY ORGANS--DISEASNS)



BRUNOVA, R.Ya.; BURYAKOV, A.G.; ZUSHANOVICH, V.M.

Reproduction of semitones in the black-and-white television image.
Tekh. kino i telev. no. 8:9-18 Ag '58. (MIRA 11:8)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut televideniya.
(Television--Transmitters and transmission)

ZUSMANOVICH, V.M., Inzh.

Standard inflow ventilation chambers. Vod. 1 ser. tekhn. no. 1:
31-34 Ja '64 (MIRA 18:2)

ZUSMANOVICH, Vera Mikhaylovna; GOS, M.E., red.

[Light and color in television] Svet i tsvet v televidenii. Moskva, Izd-vo "Energia," 1964. 204 p.
(MIRA 17:6)

ZUSMANOVICH, Ya.T., inzh.

Several problems in designing general plans for machinery plants.
Prom. stroi. 41 no.10:41-43 0 '63. (MIRA 16:11)

ZUSMANOVICH, Y. A. T.

General plans for industrial plants Moskva, Gos. izd-vo
lit-ry po stroitel'stvu i arkhitekture, 1953. 301 p. (54-32082)

TH4511.287

ZUSMANOVICH, Ya. T., inzhener; ZOLOFUKHIN, G. I., dotsent; MELLINGER, A. N.,
inzhener, redaktor.

[General plans for industrial plants] General'nye plany promysh-
lennykh ploshchadok. Moskva, Gos. izd-vo lit-ry po stroitel'stvu
i arkhitekture, 1953. 301 p. (MLRA 7:7)
(Factories--Design and construction)

ZUSMANOVICH, Ya.T., inzh.

Indices of the design of general plans for machinery
manufacturing plants. Prom. stroi. 41 no.5:13-15 My '64.
(MIRA 18:11)

KUROCHKA, A.L., inzh.; ZUSMANOVSKAYA, L.L., inzh.

Using new materials in electric locomotive construction. Zhel.dor.
transp. 40 no.10:60-62 0 '58. (MIRA 11:12)
(Electric locomotives--Construction)

ALIKIN, R.I.; GORDIYENKO, P.I.; BESPROZVANNYY, I.G.; ZHIBTSOV, P.P.;
ZOLOTAREV, P.A.; ZUSMANOVSKAYA, L.L.; IBRAGIMOV, K.G.; KOZOREZOV,
M.A.; KOKOREV, A.I.; KUPRIANOV, Yu.V.; KUROCHKA, A.L., kand.
tekh. nauk; LITVINOVA, L.M.; LOZANOVSKIY, A.L., kand. tekh.
nauk; MAVDRIKOV, F.I.; MAKHAN'KOV, L.V.; PUKALOV, V.I.; RAYLYAN,
A.F.; SVERDLOV, V.Ya.; SKLYAROV, B.S.; SOLOV'YEV, K.M., kand.
tekh. nauk; STUKALKIN, A.M.; SUROVIKOV, A.A.; TIKHONOV, N.G.;
SHEPENKO, P.K.; YANOV, V.P.

[V180 electric locomotive.] Electrovoz VA80. Novocherkassk. Nauchno-
issledovatel'skii institut elektrovozostroyeniya. Sbornik nauchnykh
trudov, vol. 5) (MIRA 18:5)

ZUSMANOVSKIY, M. K.

KARATYGIN, A.M., kandidat tekhnicheskikh nauk, dotsent; KORSHUNOV, B.S.,
kandidat tekhnicheskikh nauk; PRUMIN, Yu.L., inzhener, retsentsent;
ZUSMANOVSKIY, M.K., inzhener, retsentsent; ZATULOVSKIY, D.I., kan-
didat tekhnicheskikh nauk, redaktör.

[Sharpening and lapping cutting tools] Zatochka i dovodka rezhu-
shchego instrumenta. Moskva, Gos. nauchno-tekhn. izd-vo mashino-
stroitel'noi i sudostroitel'noi literatury, 1954. 206 p. (MLRA 7:7)
(Cutting tools)

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200

201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300

301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400

401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500

501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600

601 602 603 604 605 606 607 608 609 610 611 612 613 614 615 616 617 618 619 620 621 622 623 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639 640 641 642 643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658 659 660 661 662 663 664 665 666 667 668 669 670 671 672 673 674 675 676 677 678 679 680 681 682 683 684 685 686 687 688 689 690 691 692 693 694 695 696 697 698 699 700

701 702 703 704 705 706 707 708 709 710 711 712 713 714 715 716 717 718 719 720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 736 737 738 739 740 741 742 743 744 745 746 747 748 749 750 751 752 753 754 755 756 757 758 759 760 761 762 763 764 765 766 767 768 769 770 771 772 773 774 775 776 777 778 779 780 781 782 783 784 785 786 787 788 789 790 791 792 793 794 795 796 797 798 799 800

801 802 803 804 805 806 807 808 809 810 811 812 813 814 815 816 817 818 819 820 821 822 823 824 825 826 827 828 829 830 831 832 833 834 835 836 837 838 839 840 841 842 843 844 845 846 847 848 849 850 851 852 853 854 855 856 857 858 859 860 861 862 863 864 865 866 867 868 869 870 871 872 873 874 875 876 877 878 879 880 881 882 883 884 885 886 887 888 889 890 891 892 893 894 895 896 897 898 899 900

901 902 903 904 905 906 907 908 909 910 911 912 913 914 915 916 917 918 919 920 921 922 923 924 925 926 927 928 929 930 931 932 933 934 935 936 937 938 939 940 941 942 943 944 945 946 947 948 949 950 951 952 953 954 955 956 957 958 959 960 961 962 963 964 965 966 967 968 969 970 971 972 973 974 975 976 977 978 979 980 981 982 983 984 985 986 987 988 989 990 991 992 993 994 995 996 997 998 999 1000

1001 1002 1003 1004 1005 1006 1007 1008 1009 1010 1011 1012 1013 1014 1015 1016 1017 1018 1019 1020 1021 1022 1023 1024 1025 1026 1027 1028 1029 1030 1031 1032 1033 1034 1035 1036 1037 1038 1039 1040 1041 1042 1043 1044 1045 1046 1047 1048 1049 1050 1051 1052 1053 1054 1055 1056 1057 1058 1059 1060 1061 1062 1063 1064 1065 1066 1067 1068 1069 1070 1071 1072 1073 1074 1075 1076 1077 1078 1079 1080 1081 1082 1083 1084 1085 1086 1087 1088 1089 1090 1091 1092 1093 1094 1095 1096 1097 1098 1099 1100

1101 1102 1103 1104 1105 1106 1107 1108 1109 1110 1111 1112 1113 1114 1115 1116 1117 1118 1119 1120 1121 1122 1123 1124 1125 1126 1127 1128 1129 1130 1131 1132 1133 1134 1135 1136 1137 1138 1139 1140 1141 1142 1143 1144 1145 1146 1147 1148 1149 1150 1151 1152 1153 1154 1155 1156 1157 1158 1159 1160 1161 1162 1163 1164 1165 1166 1167 1168 1169 1170 1171 1172 1173 1174 1175 1176 1177 1178 1179 1180 1181 1182 1183 1184 1185 1186 1187 1188 1189 1190 1191 1192 1193 1194 1195 1196 1197 1198 1199 1200

1201 1202 1203 1204 1205 1206 1207 1208 1209 1210 1211 1212 1213 1214 1215 1216 1217 1218 1219 1220 1221 1222 1223 1224 1225 1226 1227 1228 1229 1230 1231 1232 1233 1234 1235 1236 1237 1238 1239 1240 1241 1242 1243 1244 1245 1246 1247 1248 1249 1250 1251 1252 1253 1254 1255 1256 1257 1258 1259 1260 1261 1262 1263 1264 1265 1266 1267 1268 1269 1270 1271 1272 1273 1274 1275 1276 1277 1278 1279 1280 1281 1282 1283 1284 1285 1286 1287 1288 1289 1290 1291 1292 1293 1294 1295 1296 1297 1298 1299 1300

1301 1302 1303 1304 1305 1306 1307 1308 1309 1310 1311 1312 1313 1314 1315 1316 1317 1318 1319 1320 1321 1322 1323 1324 1325 1326 1327 1328 1329 1330 1331 1332 1333 1334 1335 1336 1337 1338 1339 1340 1341 1342 1343 1344 1345 1346 1347 1348 1349 1350 1351 1352 1353 1354 1355 1356 1357 1358 1359 1360 1361 1362 1363 1364 1365 1366 1367 1368 1369 1370 1371 1372 1373 1374 1375 1376 1377 1378 1379 1380 1381 1382 1383 1384 1385 1386 1387 1388 1389 1390 1391 1392 1393 1394 1395 1396 1397 1398 1399 1400

1401 1402 1403 1404 1405 1406 1407 1408 1409 1410 1411 1412 1413 1414 1415 1416 1417 1418 1419 1420 1421 1422 1423 1424 1425 1426 1427 1428 1429 1430 1431 1432 1433 1434 1435 1436 1437 1438 1439 1440 1441 1442 1443 1444 1445 1446 1447 1448 1449 1450 1451 1452 1453 1454 1455 1456 1457 1458 1459 1460 1461 1462 1463 1464 1465 1466 1467 1468 1469 1470 1471 1472 1473 1474 1475 1476 1477 1478 1479 1480 1481 1482 1483 1484 1485 1486 1487 1488 1489 1490 1491 1492 1493 1494 1495 1496 1497 1498 1499 1500

1501 1502 1503 1504 1505 1506 1507 1508 1509 1510 1511 1512 1513 1514 1515 1516 1517 1518 1519 1520 1521 1522 1523 1524 1525 1526 1527 1528 1529 1530 1531 1532 1533 1534 1535 1536 1537 1538 1539 1540 1541 1542 1543 1544 1545 1546 1547 1548 1549 1550 1551 1552 1553 1554 1555 1556 1557 1558 1559 1560 1561 1562 1563 1564 1565 1566 1567 1568 1569 1570 1571 1572 1573 1574 1575 1576 1577 1578 1579 1580 1581 1582 1583 1584 1585 1586 1587 1588 1589 1590 1591 1592 1593 1594 1595 1596 1597 1598 1599 1600

1601 1602 1603 1604 1605 1606 1607 1608 1609 1610 1611 1612 1613 1614 1615 1616 1617 1618 1619 1620 1621 1622 1623 1624 1625 1626 1627 1628 1629 1630 1631 1632 1633 1634 1635 1636 1637 1638 1639 1640 1641 1642 1643 1644 1645 1646 1647 1648 1649 1650 1651 1652 1653 1654 1655 1656 1657 1658 1659 1660 1661 1662 1663 1664 1665 1666 1667 1668 1669 1670 1671 1672 1673 1674 1675 1676 1677 1678 1679 1680 1681 1682 1683 1684 1685 1686 1687 1688 1689 1690 1691 1692 1693 1694 1695 1696 1697 1698 1699 1700

1701 1702 1703 1704 1705 1706 1707 1708 1709 1710 1711 1712 1713 1714 1715 1716 1717 1718 1719 1720 1721 1722 1723 1724 1725 1726 1727 1728 1729 1730 1731 1732 1733 1734 1735 1736 1737 1738 1739 1740 1741 1742 1743 1744 1745 1746 1747 1748 1749 1750 1751 1752 1753 1754 1755 1756 1757 1758 1759 1760 1761 1762 1763 1764 1765 1766 1767 1768 1769 1770 1771 1772 1773 1774 1775 1776 1777 1778 1779 1780 1781 1782 1783 1784 1785 1786 1787 1788 1789 1790 1791 1792 1793 1794 1795 1796 1797 1798 1799 1800

1801 1802 1803 1804 1805 1806 1807 1808 1809 1810 1811 1812 1813 1814 1815 1816 1817 1818 1819 1820 1821 1822 1823 1824 1825 1826 1827 1828 1829 1830 1831 1832 1833 1834 1835 1836 1837 1838 1839 1840 1841 1842 1843 1844 1845 1846 1847 1848 1849 1850 1851 1852 1853 1854 1855 1856 1857 1858 1859 1860 1861 1862 1863 1864 1865 1866 1867 1868 1869 1870 1871 1872 1873 1874 1875 1876 1877 1878 1879 1880 1881 1882 1883 1884 1885 1886 1887 1888 1889 1890 1891 1892 1893 1894 1895 1896 1897 1898 1899 1900

1901 1902 1903 1904 1905 1906 1907 1908 1909 1910 1911 1912 1913 1914 1915 1916 1917 1918 1919 1920 1921 1922 1923 1924 1925 1926 1927 1928 1929 1930 1931 1932 1933 1934 1935 1936 1937 1938 1939 1940 1941 1942 1943 1944 1945 1946 1947 1948 1949 1950 1951 1952 1953 1954 1955 1956 1957 1958 1959 1960 1961 1962 1963 1964 1965 1966 1967 1968 1969 1970 1971 1972 1973 1974 1975 1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000

2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043 2044 2045 2046 2047 2048 2049 2050 2051 2052 2053 2054 2055 2056 2057 2058 2059 2060 2061 2062 2063 2064 2065 2066 2067 2068 2069 2070 2071 2072 2073 2074 2075 2076 2077 2078 2079 2080 2081 2082 2083 2084 2085 2086 2087 2088 2089 2090 2091 2092 2093 2094 2095 2096 2097 2098 2099 2100

2101 2102 2103 2104 2105 2106 2107 2108 2109 2110 2111 2112 2113 2114 2115 2116 2117 2118 2119 2120 2121 2122 2123 2124 2125 2126 2127 2128 2129 2130 2131 2132 2133 2134 2135 2136 2137 2138 2139 2140 2141 2142 2143 2144 2145 2146 2147 2148 2149 2150 2151 2152 2153 2154 2155 2156 2157 2158 2159 2160 2161 2162 2163 2164 2165 2166 2167 2168 2169 2170 2171 2172 2173 2174 2175 2176 2177 2178 2179 2180 2181 2182 2183 2184 2185 2186 2187 2188 2189 2190 2191 2192 2193 2194 2195 2196 2197 2198 2199 2200

2201 2202 2203 2204 2205 2206 2207 2208 2209 2210 2211 2212 2213 2214 2215 2216 2217 2218 2219 2220 2221 2222 2223 2224 2225 2226 2227 2228 2229 2230 2231 2232 2233 2234 2235 2236 2237 2238 2239 2240 2241 2242 2243 2244 2245 2246 2247 2248 2249 2250 2251 2252 2253 2254 2255 2256 2257 2258 2259 2260 2261 2262 2263 2264 2265 2266 2267 2268 2269 2270 2271 2272 2273 2274 2275 2276 2277 2278 2279 2280 2281 2282 2283 2284 2285 2286 2287 2288 2289 2290 2291 2292 2293 2294 2295 2296 2297 2298 2299 2300

2301 2302 2303 2304 2305 2306 2307 2308 2309 2310 2311 2312 2313 2314 2315 2316 2317 2318 2319 2320 2321 2322 2323 2324 2325 2326 2327 2328 2329 2330 2331 2332 2333 2334 2335 2336 2337 2338 2339 2340 2341 2342 2343 2344 2345 2346 2347 2348 2349 2350 2351 2352 2353 2354 2355 2356 2357 2358 2359 2360 2361 2362 2363 2364 2365 2366 2367 2368 2369 2370 2371 2372 2373 2374 2375 2376 2377 2378 2379 2380 2381 2382 2383 2384 2385 2386 2387 2388 2389 2390 2391 2392 2393 2394 2395 2396 2397 2398 2399 2400

2401 2402 2403 2404 2405 2406 2407 2408 2409 2410 2411 2412 2413 2414 2415 2416 2417 2418 2419 2420 2421 2422 2423 2424 2425 2426 2427 2428 2429 2430 2431 2432 2433 2434 2435 2436 2437 2438 2439 2440 2441 2442 2443 2444 2445 2446 2447 2448 2449 2450 2451 2452 2453 2454 2455 2456 2457 2458 2459 2460 2461 2462 2463 2464 2465 2466 2467 2468 2469 2470 2471 2472 2473 2474 2475 2476 2477 2478 2479 2480 2481 2482 2483 2484 2485 2486 2487 2488 2489 2490 2491 2492 2493 2494 2495 2496 2497 2498 2499 2500

2501 2502 2503 2504 2505 2506 2507 2508 2509 2510 2511 2512 2513 2514 2515 2516 2517 2518 2519 2520 2521 2522 2523 2524 2525 2526 2527 2528 2529 2530 2531 2532 2533 2534 2535 2536 2537 2538 2539 2540 2541 2542 2543 2544 2545 2546 2547 2548 2549 2550 2551 2552 2553 2554 2555 2556 2557 2558 2559 2560 2561 2562 2563 2564 2565 2566 2567 2568 2569 2570 2571 2572 2573 2574 2575 2576 2577 2578 2579 2580 2581 2582 2583 2584 2585 2586 2587 2588 2589 2590 2591 2592 2593 2594 2595 2596 2597 2598 2599 2600

2601 2602 2603 2604 2605 2606 2607 2608 2609 2610 2611 2612 2613 2614 2615 2616 2617 2618 2619 2620 2621 2622 2623 2624 2625 2626 2627 2628 2629 2630 2631 2632 2633 2634 2635 2636 2637 2638 2639 2640 2641 2642 2643 2644 2645 2646 2647 2648 2649 265

ZUSMANOVSKAYA, L.L.; PUKALOV, V.I.

Investigating the characteristics of the EPK class thermosetting
lacquer with "P" heat resistance. Sbor. nauch. trud. EINII
2:229-236 '62. (MIRA 16:8)

(Electric insulators and insulation)
(Lacquer and lacquering)

ANISIMOVA, Ye.K., inzh.; ZUSHANOVSKAYA, L.L., inzh.; KALITVIANSKIY, kand.
tekh.nauk

Heat resistant insulation of the traction motor of a mainline electric
locomotive. Vest. elektroprom. 32 no.1:14-18 Ja 161. (MIRA 14:3)
(Electric railway motors) (Electric insulators and insulation)

BOHDAREV, P.G.; ZUSEMANOVSKAYA, L.L.; KUT'KOV, A.A.; LITVINOVA, I.M.;
PYATNITSKI, A.R.

Mechanical properties of capron at low temperatures. Plast. massy
no.12:43-45 '60. (MIRA 13:12)
(Nylon--Testing) (Polyamides)

KUROCHKA, Aleksandr Leont'yevich; ZUSHANOVSKAYA, Lyubov' L'vovna; SIDOROV,
N.I., inzh., red.; USENKO, L.A., ~~tekhn. red.~~

[New insulation for traction motors] Novaia izoliatsiia tiagovykh
dvigateli. Moskva, Vses. izdatel'sko-poligr. ob'edinenie M-va
putei soobshcheniia, 1961. 94 p. (MIRA 14:7)
(Electric railway motors) (Electric insulators and insulation)

ZUSMANOVSKAYA, L.L. PHASE I BOOK EXPLOITATION

SOW/3990

Kurochka, Aleksandr Leont'yevich, Aleksandr Leont'yevich Lozanovskiy, and Lyubov' L'vovna Zusmanovskaya.

Ispytaniya tyagovykh mashin i apparatov elektricheskikh lokomotivov i teplovozov .
(Testing of Traction Machinery and Apparatus of Electric and Diesel Locomotives)
Moscow, Transzheldorizdat, 1959. 215 p. 5,000 copies printed.

Ed.: L.S. Sokolov, Engineer; Tech. Ed.: G.P. Verina.

PURPOSE: This monograph is intended for technical personnel engaged in the production, operation, and maintenance of electric traction equipment, and for students of transportation schools of higher education.

COVERAGE: The book describes methods used in testing electric machines and apparatus of electric locomotives, electric train sections, and diesel locomotives in all stages of manufacture and repair. In addition, the book discusses equipment design and electric circuit diagrams of test stations. The authors thank Candidate of Technical Sciences N.N. Sidorov and Engineer B.G. Kuznetsov. There are 30 references, all Soviet.

Card 1/5

Testing of Traction Machinery and Apparatus (Cont.) SOV/3990

TABLE OF CONTENTS:

From The Authors	3
Ch. I. Operating Procedure and Conditions of Electric Traction Equipment	5
1. Operating conditions of electric traction machinery and apparatus	5
2. Operating conditions of direct current electric traction equipment	8
3. Special features of traction motor operation in rectifier locomotives	15
Ch. II. Technical Features and Testing of Basic Materials Used in Electric Machine Building	17
4. Technical features of conductor materials and their tests	17
5. Technical features of magnetic materials and their tests	21
6. Technical features of mica-based materials	24
7. Testing of mica-based materials	32
8. Technical features of fibrous materials	35
9. Testing of fibrous materials	39

Card 2/5

Testing of Traction Machinery and Apparatus (Cont.)	SOV/3990	
10. Technical features of electro-insulating enamels and lacquers		43
11. Testing of insulating lacquers, enamels, and resins		46
12. Technical features of laminated plastics and their tests		55
Ch. III. Testing Assemblies of Electric Machinery and Apparatus During Manufacture and Repair		61
13. Testing commutator insulating rings		61
14. Adjustment and testing of commutators		62
15. Testing armature windings		64
16. Testing traction motor winding sections		68
17. Testing traction motor coils		70
18. Testing auxiliary machines and coil sections		71
19. Testing electric machine frame		73
20. Testing apparatus coils		73
21. Testing tractive equipment bars on brushholder studs		75
Ch. IV. Testing Tractive and Auxiliary Electric Machines		76
22. Types and schedule of tests		76
23. Methods applied during inspection tests of direct current traction machines		78
Card 3/5		

Testing of Traction Machinery and Apparatus (Cont.)	SON/3990	
24. Methods applied during typical tests of direct current traction machines		91
25. Testing of alternating current machines		122
Ch. V. Testing of Electric Traction Apparatus		134
26. Schedule of tests		134
27. Methods of inspection tests		135
28. Methods of typical inspection tests		142
Ch. VI. Test Stations for Electric Machinery and Apparatus		156
29. Purpose of test stations		156
30. Methods of loading direct and alternating current traction machines		156
31. Basic circuits of electric machine test stations		168
32. Basic circuits of apparatus test stations		184
33. Selection of basic equipment for test stations		186
34. Design of stands for test stations		195
35. Test stations for factory electric machinery and apparatus		203
36. Some features of depot test stations		209

Card 4/5

Testing of Traction Machinery and Apparatus (Cont.)

BOV/3990

- 37. Test equipment
- 38. Work requirements at test stations

210

211

213

Bibliography

AVAILABLE: Library of Congress

Card 5/5

KM/rm/gmp
8-15-60

KUROCHKA, Aleksandr Leont'yevich; LOZANOVSKIY, Aleksandr Leont'yevich;
ZUSMANOVSKAYA, Lyubov' L'yovna; SOKOLOV, I.S., inzh., red.;
VERINA, G.P., tekhn.red.

[Testing traction machines and apparatus of electric and diesel
locomotives] Ispytaniia tiagovykh mashin i apparatov elektri-
cheskikh lokomotivov i teplovozov. Moskva, Gos.transp.zhel-dor.
izd-vo, 1959. 215 p. (MIRA 13:1)

(Electric locomotives--Testing)
(Diesel locomotives--Testing)

B7651

S/191/60/000/012/013/016
B020/B066

15-8500

AUTHORS: Bondarev, P. G., ~~Zusmanovskaya, L. L.~~, Kut'kov, A. A.,
Litvinova, L. M., Pyatitskiy, A. A.

TITLE: Mechanical Properties of Caprone at Low Temperatures

PERIODICAL: Plasticheskiye massy, 1960, No. 12, pp. 43 - 45

TEXT: To study the effect of low temperatures on the mechanical properties of polyamides, the authors made a number of mechanical tests on samples cooled down to -60°C. Samples from "Б" ("B") caprone resin were tested which had been cast in an autoclave, in a hand-operated injection press, and in a press with hydraulic drive, since the type of casting device applied is known to have a certain influence on the mechanical properties of products. Besides, different casting methods and heat treatments were used. In the low-temperature tests, five stages were distinguished: 1) Temperature-change stability test according to ГОСТ 928-56 (GOST 928-56), 2) test of samples cooled down to -50°C, 3) investigation of the reversibility of original mechanical properties of samples which had been briefly cooled and then brought to normal

Card 1/3

Mechanical Properties of Caprone at Low Temperatures

87651

S/191/60/000/012/013/016
B020/B066

temperature, 4) determination of mechanical properties of samples which had been subjected to several cycles of temperature change in the range of from + 20 to -60°C, and 5) determination of mechanical properties of samples kept at -60°C for 100 hours. The tests for tension, compression, static bending, and impact strength were made according to GOST 4649-55, 4651-49, 4648-56, and 4647-55 (for normal temperatures). The limits of tensile, compressive and static flexural strength were determined on a 50-t tearing machine "Amsler". Impact strength was tested by means of a pendulum hammer (GOST 4647-55). The samples were cooled in an MTC-500 (MPS-500) device of the firm "Nema". All caprone samples stood the temperature-change test according to GOST 928-56. The tearing strength increased slightly at low temperatures (up to -60°C) with falling temperature, the specific impact strength dropped appreciably, the limit of compressive strength increased slightly, and the limit of static flexural strength dropped considerably. The mechanical properties of caprone regenerated at normal temperature, irrespective of the fact whether it had been kept at low temperatures for a short or a long period, once or repeatedly. In the impact test, uncooled samples do not break but bend and crack between two supports (Fig.1); "frozen" samples

Card 2/3

Mechanical Properties of Caprone at Low Temperatures

87651

S/191/60/000/012/013/016
B020/B066

are distinguished by high brittleness (Fig.2), and samples which had been cooled and then brought back to normal temperature behave like uncooled samples (Fig.3). Maximum tearing strength at low temperatures is observed in samples which had been previously treated with paraffin in a vapor bath, maximum impact strength in samples which had not been treated with water or vapor. There are 3 figures, 1 table, and 4 references: 3 Soviet and 1 German. X

Card 3/3

ZUSMAR, V., Eng.

Dairy Plants - Moldavia

Mechanization of production processes in butter and cheese plants in Moldavia.
Moloch. prom. 14, no. 3, 1953.

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