

25395
S/080/61/034/002/016/025
A057/A129

On conditions effecting the yield, ...

(Ref 3: ZHPKh, 33, 1150 (1960)) the present authors observed that the structure of the initial monomers is of particular importance for the viscosity and yield of the obtained polyamides. This was confirmed by the present experiments. It can be seen from results presented in Table 1 that the effect of concentration of initial monomers or of mixing of the components is very low, while substitution of adipylchloride by sebacylchloride sharply increases viscosity and yield of the polymer. This effect can be explained by hypotheses concerning phase interface polycondensation developed by P.W. Morgan (Ref 4: SPEJ, 15, 485 (1959)), i.e., by the diffusion of diamine from the aqueous into the organic phase where polycondensation occurs. Sebacylchloride, containing a longer molecular chain, is more hydrophobic than adipylchloride. Thus the latter diffuses much more quickly from organic into aqueous phase emerging from the reaction zone, which decreases yield and viscosity of the polyamide. Hence phase interface polycondensation using adipylchloride hardly seems reasonable. Experimental results in Table 1 demonstrate also the favorable substitution of hexamethylene diamine by piperazine. In the previous work (Ref 3) formation of a cyclic diamide in polycondensation of adipylchloride and

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hexamethylenediamine was observed. Accordingly, in the present experiments a cyclic diamide (melting point 225°-226°C) was isolated from the polycondensation product of sebacylchloride and hexamethylenediamine. By co-polycondensation of caprolactam and salt AΓ (AG) products can be obtained which are soluble in alcohol solutions and have low melting points. In the present investigations a corresponding copolymer was obtained by phase interface polycondensation. It was observed that the properties of modified polyamides depend not only on the structure of the initial monomers, but also on other factors, particularly on the degree of destruction of structure regularities in the polyamide. In order to increase the effectiveness in decrease of the structure regularity of the copolymer, the present authors substituted caprolactam by polyamide caprone in phase interface polycondensation with hexamethylenediamine and obtained polyamides completely soluble in hot alcohol solutions. Polycondensation without mixing was carried out in the present experiments by the removal of the film formed in the phase interface of the aqueous solution containing diamine and alkali and the benzene solution containing the chloroanhydride of dicarboxylic acid. The cyclic diamide was isolated by a method

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described previously (Ref 3). Diffusion rate of the chloroanhydride was determined (cooperation of M.P. Vasil'yev and V.D. Shakhanov) by measuring the chlorine content in the aqueous phase. Polycondensation of hexamethylenediamine (I) and caprolactam (II) was carried out (cooperation A.V. Budylov) by heating 11.7 g (II) and 23.3 g (I) at 265°C-270°C for 8 hrs in a sealed ampoule. Then the excess (I) was distilled off, 1.2 g of the residue was diluted in 25 ml H₂O and 0.78 g NaOH was added. On the other hand 0.3 g adipylchloride (III) was dissolved in 25 ml benzene. By mixing the two solutions the polymer is precipitated with a 55.7% yield, having a melting point of 210°C-215°C. The polyamide from (I) and caprone (IV) fiber was obtained by heating 2.26 g (IV) and 2.32 g (I) in a sealed ampoule at 265°C for 9 hrs. After that the excess (I) was distilled off. The following characteristics are given for the polymer obtained with (III): viscosity of the 0.5% solution in tricresol $\eta = 0.875$, melting point 160°C, readily soluble in 90% ethanol. There are 2 tables and 6 references: 5 Soviet-bloc and 1 non-Soviet-bloc.

SUBMITTED: June 11, 1960

Card 4/6

ACCESSION NR: AP4043767

S/0080/64/037/008/1802/1807

AUTHOR: Py*rkov, L.M.; Korzhavin, L.N.; Sorokin, A.Ya.; Frenkel', S.Ya.

TITLE: Preparation of concentrated solutions and the removal of air in an atmosphere of solvent vapors

SOURCE: Zhurnal prikladnoy khimii, v. 37, no. 8, 1964, 1802-1807

TOPIC TAGS: solvent vapor, concentrated solution, polyvinyl alcohol, synthetic fiber, spinning, polyacrylonitrile, dimethylformamide, polymer

ABSTRACT: The authors describe a simple laboratory method for the removal of air from spinning solutions of polyvinyl alcohol (PVS) and polyacrylonitrile (PAN). This method can be easily adapted for other systems and technological conditions. Both solutions were prepared in a laboratory device. The initial components of the solution were introduced into a container which was placed inside a larger container filled with solvent and equipped with an electric heating element. The solution container was covered by an isolating glass cover. The cover had one opening for the introduction of nitrogen and another for a thermometer. The glass cover has a bottle neck which contains a bearing and a mixer with a waterproof seal. A nitrogen flux is injected during a period of 5-10 minutes. Then the solvent is poured into

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L 57054-65/ EWP(j)/EWT(m)/T Pc-4 RM

UR/0183/65/000/003/0002/0007
677.744.72

17
16
B

ACCESSION NR: AP5013977

AUTHORS: Sorokin, A. Ya.; Pyrkov, L. M.; Frenkel', S. Ya.

TITLE: Analysis of certain rheological factors affecting the structure of the PVS fiber

SOURCE: Khimicheskiye volokna, no. 3, 1965, 2-7

TOPIC TAGS: polymer, polymer rheology, polymer chain, polymer property, polyvinyl alcohol, synthetic fiber, synthetic material, fiber deformation, fibrillar structure

ABSTRACT: A series of physico-chemical investigations was carried out to establish relations between the molding conditions, structures, and properties of fiber, and its strength. The experimental microscopic wet molding device simulated with sufficient accuracy actual conditions of commercial plants. The PVS material (polyvinyl alcohol) studied was of definite technological interest. Because maximum fiber strength was obtained with maximum molecular orientation, the radial nonhomogeneity of fiber had to be reduced to a minimum by adjusting the magnitude and the velocity of the spinneret drawing so that the formation of longitudinal nonhomogeneities proceeded faster than radial ones. At greater drawing velocities the emerging fiber

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ACCESSION NR: AP5013977

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was considered to consist of three sections: 1) the part closest to the spinneret-- of almost fluid consistency; 2) the intermediate zone of high elastic coagulation; 3) solidified fiber. The molecular orientation factor in the first two zones was the effective velocity gradient determined by the absolute drawing velocity. Two different orientation procedures described by A. Ziabicki (J. Appl. Polymer. Sci., 2, 4, 24, 1959) were possible in the first two sections: 1) the stretching of the polymer chain net, illustrated in Fig. 1, a on the Enclosure, and 2) the action of velocity field on the polymer thread during its solidification and stretching, shown in Fig. 1, b on the Enclosure. The degree of orientation and macromolecular development along the fiber was determined by the longitudinal velocity gradient and the counteracting relaxation and diffusion processes. According to the experimental results, it was possible to vary mechanical properties of the fiber by changing the velocity gradient. The relation of the longitudinal gradient to mechanical strength of the fiber is shown in Fig. 2 on the Enclosure. The results obtained are explained by the presence of two equally important processes of molecular orientation. The first resembles the auto-orientation in the systems of anisometric colloidal particles, and is related to the hydrodynamic ordering of structural elements formed during the first coagulation stage. The second process is associated with deformational orientation and involves the development of individual chains and ordering of the amorphous sections in the fiber. Orig. art. has: 4 tables and 4 figures.

Card 2/4

L 57054-65

ACCESSION NR: AP5013977

ASSOCIATION: IVS AN SSSR . Leningrad (IVS AN SSSR)

SUBMITTED: 09Jun64

ENCL: 01

SUB CODE: MT

NO REF SOV: 006

OTHER: 010

Card 3/4

BEL'NIKEVICH, N.G.; PYRKOV, L.M.; SOROKIN, A.Ya.; FRENKEL', S.Ya.

Orientation draft of polyvinyl alcohol fibers. Khim. volok.
no.5:24-27 '65. (MIRA 18:10)

1. Institut vysokomolekulyarnykh soyedineniy AN SSSR.

L 40072-66 EWT(m)/EWP(j)/T IJP(c) RM

ACC NR: AP6012417 (A) SOURCE CODE: UR/0183/65/000/006/0022/0026

AUTHOR: Sorokin, A. Ya.; Andreyeva, N. A.; Volkova, L. A.; Kol'tsov, A. I.;
Rudakov, A. P.; Pyrkov, L. M.; Frenkel', S. Ya

57
B

ORG: IVS AN SSSR

TITLE: Correlation of structural and mechanical characteristics of
polyvinyl alcohol fibers. Investigation of supermolecular arrangement
in chemical fibers and means of increasing their strength

SOURCE: Khimicheskiye volokna, no. 6, 1965, 22-26

TOPIC TAGS: polyvinyl alcohol, synthetic fiber, polymer structure,
elongation, rupture strength, correlation function, NMR, X ray analysis

ABSTRACT: The structural and mechanical properties of polyvinyl alcohol
fibers were investigated using the range of thermoplasticized stretch
as the controllable variable. Correlation between these properties
was shown. Linear correlation was established between the overall
orientation of the macromolecules in the fiber and orientation of the
crystallites; between rupture strength and maximum relaxation stress, and
also between these values and the reciprocal half-width reflection

β^{-1}
 $\beta_{1/2}$

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UDC: 677.744.72

L 40072-66

ACC NR: AP6012417

and the amount of elongation (up to 450% elongation tested). It was shown that the parameter $(\beta_{1/2})$ describes the previous history of the samples with respect to macromolecular orientation. NMR studies showed the basic conformation of the polyvinyl alcohol fiber macromolecules is flat trans-zigzag. A combination of different analytical methods (NMR, X-ray, isothermal heating) can be used to study in succession the structure formation processes at different stages of fiber formation. Orig. art. has: 4 equations, 8 figures and 2 tables.

SUB CODE: 07,11/ SUBM DATE: 09Jun64/ ORIG REF: 011/ OTH REF: 003

Card 2/2 11b

L 22492-66 EWT(m)/EWP(j)/T RM

ACC NR: AP6009639

SOURCE CODE: UR/0181/66/008/003/0647/0650

AUTHOR: Ginzburg, B. M.; Sorokin, A. Ya.; Frenkel', S. Ya. 33
0

ORG: Institute of Macromolecular Compounds, AN SSSR, Leningrad (Institut vysokomolekulyarnykh soyedineniy AN SSSR)

TITLE: Self-orientation of structural elements during heat treatment of fibers of polyvinyl alcohol 6

SOURCE: Fizika tverdogo tela, v. 8, no. 3, 1966, 647-650

TOPIC TAGS: polyvinyl alcohol, polymer structure, x ray diffraction analysis, organic crystal, crystal orientation

ABSTRACT: This is a continuation of earlier work by one of the authors (Frenkel', DAN SSSR v. 162, 836, 1965) dealing with multistage self-ordering of polymers. In the present study, on the basis of the analogy between solid and liquid states, the authors investigate the increase in the orientation of crystallites, resulting from a short-duration heating of previously oriented freshly formed fibers of polyvinyl alcohol, which do not as yet have high crystallinity. Most earlier experimental studies of orientation at increased temperature were made in the presence of mechanical stretching. The authors studied a fiber of polyvinyl alcohol produced in acetone and subjected to some orientation during the shaping process itself. The crystallite orientation was studied by x-ray diffraction in apparatus in which

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ACC NR: AF6009639

the sample could be rotated about the axis of the primary beam. X-ray patterns showed that in the freshly formed fiber the crystallites are full of defects and are small in size. After placing the fiber for three minutes in a thermostat heated to 225C (for a temperature close to the melting point), the fiber shrunk by approximately 30%, lost approximately 10% of weight, and the azimuthal half angle dropped from $\sim 17^\circ$ to 12.5° after one minute heating. After three minutes heating the results were ~ 30 , $\sim 34\%$, and 6.5° respectively. The orientation of the crystals is greatly increased, although many extraneous factors make an unambiguous interpretation of the degree of orientation difficult. This was accompanied by a strong shrinking of the fiber, thus evidencing a disorientation of its amorphous part. On the basis of the result the authors advanced the hypothesis that the orientation of the crystallites in the fibers has a thermodynamic character, i.e., the self-orientation of the supermolecular structure elements occurs in the solid phase. Orig. art. has: 3 figures and 1 formula.

SUB CODE: 20,07/ SUBM DATE: 23Jun65/ ORIG REF: 004/ OTH REF: 011

Card 2/2 BK

SOROKIN, A.Z.; AVERBAKH, M.M., red.; MATVEYEVA, M.M., tekhn. red.

[Tuberculous trochanteritis] Tuberkuleznyi trokhanterit.
Moskva, Medgiz, 258 p. (MIRA 16:7)
(FEMUR--TUBERCULOSIS)

BUJAS, Z.; PETZ, B.; KRKOVIC, A.; SOROKIN, B.

Factor analysis of intellectual work during and without fatigue.
Arh hig rada 11 no.3:203-220 '60.

1. Institut za medicinska istrazivanja i medicinu rada, Zagreb.

(FATIGUE) (INTELLIGENCE TESTS)

SOROKIN, B., inzh. (Omsk)

Magnetization of relay magnets. Zhel.dor.transp. 36 no.6:85
Je '55. (MIRA 12:4)

(Electric relays)

LAKHNO, R.P.; AKEMEDOV, A.I.; SOROKIN, B.D.

Specialized automotive transportation for petroleum products.
Neft. khoz. 42 no.6:67-70 Ja '64. (MIRA 17:8)

ACC NR: AP7002649 (N) SOURCE CODE: UR/0413/66/000/023/0197/0197

INVENTOR: Mineyev, Yu. I.; Chernigin, Yu. P.; Golov, Yu. S.; Sorokin, B. I.

ORG: None

TITLE: A hydraulic servo drive for rudder control. Class 65, No. 146667

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 23, 1966, 197

TOPIC TAGS: marine engineering, hydrofoil, rudder, hydraulic device, servosystem

ABSTRACT: This Author's Certificate introduces a hydraulic servo drive for controlling the rudders on hydrofoil boats. The unit contains a slide-valve device for distribution of the working fluid to the cavities above and below the piston in the power cylinder, a hydraulic pump and a system of check valves. The technical and economic indices of the control system are improved, design is simplified and reliability is increased by using a plunger pump connected to a common hydraulic system. The pump rotor is linked to the steering mechanism while the suction and discharge lines are connected to the master hydraulic cylinder. The master cylinder is rigidly fastened to the power cylinder and the master cylinder rod interacts with the slide valve. The valve housing is linked to the hydraulic power cylinder of the tiller unit.

SUB CODE: 13/ SUBM DATE: 21Sep60

Card 1/1

AUTHORS: Kim, D.G. and Sorokin, B.I., Engineers SOV/118-58-2-10/19

TITLE: The Boring of Drainage Holes with the Drilling Rig DS-3
(Bureniye drenazhnykh skvazhin stankom DS-3)

PERIODICAL: Mekhanizatsiya trudoyemkikh i tyazhelykh rabot, 1958, Nr 2,
pp 28-29 (USSR)

ABSTRACT: Giprouglemash designed the drilling rig DS-3 for drilling the rising drainage bore-holes in the waterlogged coal deposits of the Moscow region. It was tested at the mine Nr 36 of the Stalinogorskugol' trust of the Moskvougol' Combine. Installed on a special trolley, it can move along the mining galleries and drill bore holes up to 40 m deep and 75-108 mm in diameter. It is powered by two electric motors: the rotating mechanism - by the motor K11-4 of 4 kw, and the drilling mechanism - by the motor TAG-31/6 of 2 kw. The rotary pump is of the L1F5 type, its capacity - 5 liters/min. Various types of drilling bits are used for hard (limestone) and tough (wet clay) rocks typical of the Moscow region. Its drilling capacity: in coal layers - up to 6 m/hr; in clay - 7 to 8 m/hr and in limestone - 1 m/hr. Fifteen bore holes

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The Boring of Drainage Holes with the Drilling Rig DS-3 SOV/118-58-2-10/19

of a total length of 300 m were drilled during the tests, which showed that the drilling rig DS-3 could be adapted for the drilling of rising bore-holes. There is 1 photo and 1 diagram.

1. Mining engineering
 2. Water--Control
 3. Drilling machines
- Performance

Card 2/2

PAVLOV, A.N., otv. za vypusk; VOLODICHEVA, V.N.; IVANOVA, A.I.; KULAKOV, I.N.; LYAMINA, T.N.; MIT'KINA, L.I.; POZDNYAKOVA, N.P.; RODIONOVA, L.I.; ROMANOVA, N.M.; SOFIYEV, E.S.; CHICHKINA, A.A.; TRESORUKOVA, Z.G.; BOGATYREV, P.P.; BROVKINA, A.I.; IVANOVA, L.D.; IVASHKIN, G.A.; KAMNEV, N.I.; LYSANOVA, L.A.; OZHEREL'YEVA, Z.I.; PAVLOVA, T.I.; TYUTYUNOVA, N.I.; UMNITSYNA, A.P.; ZHIVILIN, N.N.; ALESHICHEV, M.P.; VINOGRADOV, V.I.; YEREMIN, F.S.; KRAVCHENKO, Ye.P.; LOVACHEVA, M.V.; NIKOL'SKAYA, V.S.; MAKHOV, G.I.; SKEGINA, A.V.; TAREYEV, A.V.; KHOLINA, A.V.; BRYANSKIY, A.M.; BURMISTROVA, V.D.; GRIGOR'YEVA, A.M.; LUTSENKO, A.I.; OREKHOVA, Z.V.; TEPLINSKAYA, N.V.; FEOKTISTOVA, V.I.; BUTORIN, I.M.; BOCHKAREVA, L.D.; BURENINA, V.A.; VETUSHKO, A.M.; VIKHLYAYEV, A.A.; SOROKIN, B.S.; TSYBENKO, L.T.; KHEBNIKOV, V.N.; DUMNOV, D.I.; STEPANOVA, V.A.; MANYAKIN, V.I., red.; VAKHATOV, A.M.; MAKAROVA, O.K., red.izd-va; PYATAKOVA, N.D., tekhn.red.

[Soviet agriculture; a statistical manual] Sel'skoe khoziaistvo SSSR; statisticheskii sbornik. Moskva, 1960. 665 p.

(MIRA 13:5)

1. Russia (1923- U.S.S.R.) Tsentral'noye statisticheskoye upravleniye. 2. Upravleniye statistiki sel'skogo khozyaystva Tsentral'nogo statisticheskogo upravleniya SSSR (for all except Makarova, Pyatakova).

(Agriculture--Statistics)

IGOLKIN, N.I., red.; GRIGORENKO, M.G., red.; STANKEVICH, V.A., red.;
TELEGIN, M.Ya., red.; SOROKIN, B.S., red.; ALEKSANDROV,
B.S., red.; BYALOBZHESKIY, G.V., red.

[Technical specifications for the maintenance and repair of
automobile roads] Tekhnicheskie pravila sodержaniia i re-
monta avtomobil'nykh dorog (VSN 22-63). Moskva, Transport,
1965. 264 p. (MIRA 18:10)

1. Russia (1917- R.S.F.S.R.) Ministerstvo avtomobil'nogo
transporta i shosseynykh dorog.

SOROKIN, B. V. and S. M. POLIAK.

Sovremennye metody kholodnoi shtampovki. Moskva, Mashgiz, 1950. 271 p. illus.

Bibliography: p. 269-(270).

(Modern methods of cold stamping.)

DLC: TS253.P6

SO: Manufacturing and Mechanical Engineering in the Soviet Union;
Library of Congress, 1953.

~~SOROKIN, B.V.~~ laureat Stalinskoy premii; ZVORONO, B.P., kandidat
tekhnicheskikh nauk, retsenzent; TOMLENOV, A.D., kandidat
tekhnicheskikh nauk, redaktor; MATVEYEVA, Ye.N., tekhnicheskii
redaktor; TIKHONOV, A.Ya., tekhnicheskii redaktor.

[Dies for automobile body parts] Shtampy dlia oblitsovochnykh
detalei avtomobilei. Moskva, Gos. nauchno-tekhn. izd-vo mashino-
stroit. lit-ry, 1951. 217 p. (MIRA 8:1)

(Automobiles--Design and construction)

(Dies (Metal-working))

SOROKIN, B. V.

Neuzeitliche Methoden Der Spanlosen Kaltverformung (Von) S. M. Polyak und B. V. Sorokin. Berlin, Technik, 1954.

256 p. Illus., Diags., Tables.

Translation From The Russian: Sovrennye Metody Kholodnoy Shtampovky, Moscow, 1950

"Literaturverzeichnis": P. (246)-247.

SO: N/5

662.33

.P7

50
SCROKIN, B.V., kandidat tekhnicheskikh nauk

Investigation of prestressed reinforced concrete cross-ties. Bet.
i zhel.-bet. no.6:219-225 S '55. (MIRA 8:9)
(Concrete, Prestressed) (Railroads--Ties, Concrete)

SOROKIN, B.V., kand. tekhn. nauk

Compacting vallast during track work. Zhel. dor. transp. 37
no.8:59-61 Ag '55. (MIRA 12:8)
(Ballast (Railroads)) (Railroads--Track)

SOROKIN, B.V., kand. tekhn. nauk

Concrete ties for industrial tracks. Put' 1 put. khoz. no.5:13
My '58. (MIRA 13:3)
(Railroads--Ties--Concrete) (Railroads, Industrial)

11.11.11
SOROKIN, B.V., kandidat tekhnicheskikh nauk

Organization and maintenance of narrow-gage railroad tracks
for the peat industry. Torf.prom.32 no.5:6-8 '55.

(MIRA 8:10)

1. Tsentral'nyy nauchno-issledovatel'skiy institut Ministerstva
putey soobshcheniya
(Railroads, Narrow-gage) (Peat transportation)

Сорокин Б.В.
SOROKIN, B.V., kand.tekhn.nauk

Surfaces for platform tracks. Put' i put.khoz.no.12:38 D '57.
(MIRA 10:12)

(Railroads--Track)

PHASE I BOOK EXPLOITATION

SOV/4813

Nikolayev, Viktor Vasil'yevich, and Boris Vasil'yevich Sorokin

Proyektirovaniye profilirovochnykh rolikov; opyt avtozavoda im. I.A. Likhacheva
(Design of Rolls for Cold-Roll-Forming; Experience of the Likhachev Automobile
Plant) Moscow, 1959. 42 p. (Series: Moskovskiy dom nauchno-tekhnicheskoy
propagandy. Peredovoy opyt proizvodstva. Ser.: Progressivnaya tekhnologiya
mashinostroyeniya, vyp. 10) 5,000 copies printed.

Sponsoring Agencies: Obschestvo po rasprostraneniyu politicheskikh i nauchnykh
znaniy RSFSR; Moskovskiy dom nauchno-tekhnicheskoy propagandy imeni F.E.
Dzerzhinskogo.

Ed.: N.I. Tyurin; Resp. Reviewer for this book: R.R. Yustus; Tech. Ed.: R.A.
Sukhareva.

PURPOSE: This booklet is intended for designers and operators of cold-roll-forming
machines.

COVERAGE: The authors discuss the sections adapted to the cold-roll-forming pro-
cess. They describe the machines and the stock used and discuss the principles
and steps to be taken in designing the sets of forming rolls, auxiliary rolls,
Card 4/3

SOROKIN, B.V.

SOV/2594

PHASE I BOOK EXPLOITATION

Moscow. Dva nauchno-tekhnicheskoy propagandy izdani P. E. Dzerzhinskogo
 Novoye v tekhnologii vysokoproduktivnosti i v metodakh
 obrabotki trudovykh resheniy (New aspects in the methods of
 high-productivity sheet metal stamping). Collection of Confer-
 ence Translations) Moscow, Mashin, 1959. 228 p. 8,000
 copies printed.

Sponsoring Agency: Obshchestvo po rasprostraneniyu politicheskikh i
 nauchnykh znaniy RSPSR.

Resp. Ed.: V. T. Meshcherin, Doctor of Technical Sciences, Professor;
 Eds.: V. D. Golovlev, Candidate of Technical Sciences, Docent, and
 Ye. M. Lanakoy, Candidate of Technical Sciences, Docent; Ed. of
 Publishing House: G. N. Sokolov; Tech. Ed.: B. I. Modil';
 Managing Ed. for Literature on Heavy Machine Building (Mashgit):
 S. Ya. Golovin, Engineer.

PURPOSE: This collection of papers is intended for engineers and
 technicians in sheet metal stamping. It may also be useful to
 students of vuzes and technikums.

COVERAGE: This collection deals with the design and features of
 some current problems in sheet metal stamping. Also discussed
 are methods of stamping, mechanical and automatic stamping.
 Articles deal with the mechanization and automation of stamping
 processes and describe recently developed methods such as
 explosion forming, the use of automatic rotary transfer lines,
 and press blocking with the use of radioactive isotopes. No
 personalities are mentioned. References follow several of
 the articles.

160
 Artem'yev, S. I. [Engineer, Gorkiy Motor Vehicle Plant].
 New Features in the Automation of Sheet Metal Stamping at
 the Gorkiy Motor Vehicle Plant

169
 Mikhalev, V. V., and B. V. Sorokin [Avtozavod imeni
 Likhacheva, Moskov (Moscow Motor Vehicle Plant imeni Likh-
 achev)]. Experience of the Motor Vehicle Plant imeni Likh-
 Likhachev with High-productivity Progressive Die Sets
 Compound, combination, and progressive die sets with
 rectilinear and circular feeding motion of blanks are
 described. Mechanization of feeding and removal of
 stamped parts and scrap are discussed.

199
 Filina, I. S. [Engineer, Zavod "Krasnaya Zarya," Leningrad
 (Leningrad "Red Sunrise" Plant)]. Transfer Machine for
 Mixing Contact Springs
 Arrangement and operation of a universal transfer
 machine for making springs for flat relays is described.
 Reductions in costs, time, and man-hours are shown.

206
 Konvalov, I. I. [Engineer, Zavod "Metallizatsiya," Leningrad
 (Leningrad Metal Products Plant)]. Transfer Machines for
 Making Safety-razor Blades
 Fabricating processes and machinery for automatic lines
 are described, and information on tool life, heat treat-
 ment, grinding, and packing of blades is given.

217
 Lanakoy, Ye. N. [Candidate of Technical Sciences, Docent,
 Moscow Machine Tool and Instrument Institute]. Selection
 of a Crank Press for Required Force and Work Parameters
 The author discusses flywheel effect, the meaning of
 nominal force (capacity), the magnitude of force at
 various angles of the crank, the work delivered by motor
 and flywheel, and the work of deformation. Recommendations
 for selecting the proper press for a given stamping
 operation are presented.

AVAILABLE: Library of Congress

Card 9/9

GO/ajr
 10-21-59

SOROKIN, B.V., kand. tekhn. nauk

Improve the laying of reinforced concrete ties. Put' 1 put.
khoz. no.5:9 My '59. (MIRA 12:8)
(Railroads--Ties, concrete)

SOROKIN, B.V., kand.tekhn.nauk

Attention should be paid to this problem. Put' i put.khoz.
no.11:45 N '59. (MIRA 13:4)
(Railroads--Sanitation)

SOROKIN, B.V., kand. tekhn. nauk; PETROVA, V.L., red.; BOBROVA, Ye.N.,
tekhn. red.

[Straightening tracks on reinforced-concrete ties; during regular
maintenance] Vypravka puti na zhelezobetonnykh shpalakh; pri te-
kushchem sodержanii. Moskva, Vses. izdatel'sko-poligr. ob'edinenie
M-va putei soobshchenia, 1961. 90 p. (MIRA 14:7)
(Railroads--Maintenance and repair)

SOROKIN, B.V., kand.tekhn.nauk

Important problem. Put' i put.khoz. 5 no.12:16 u '61.

(MIRA 15:1)

(Railroads--Rails--Welding)

SOROKIN, B.V., kand.tekhn.nauk

The correct way to take dynamic actions into account in the
evaluation of tracks by the level. Put' i put.khoz. 7 no.9:
35-36 '63. (MIRA 16:10)

SOROKIN, B.V., kand.tekhn.nauk

Ways to prevent the infiltration of impurities into the ballast
bed. Put' i put.khoz. 7 no.7:29 '63. (MIRA 16:10)

SOROKIN, B.V., kand. tekhn. nauk

Characteristics of the maintenance of tracks with reinforced
concrete ties. Put' 1 put. khoz. 7 no.11:5-6 '63. (MIRA 16:12)

S/115/61/000/004/007/010
B129/B206

AUTHOR: Sorokin, F. A.

TITLE: New measuring devices with digital indication

PERIODICAL: Izmeritel'naya tekhnika, no. 4, 1961, 49-53

TEXT: High demands are made on control- and regulating devices, especially in their quick operation and reliability of reading. It is, therefore, endeavored to change over from devices with pointer reading to such with digital indication which have a number of advantages: high precision and rapidity of measurement; high reading speed, excluding reading errors; possibility of "self-control" and long-distance transmission without loss of accuracy; issuance of the measurement result in a form suitable for further processing in digital computers; possibility of automatic storage of measurement results. Automation combined with computer technique is impossible without digital instruments. The digital codes are built up according to various systems. The combined binary-decade system is most widely used. The digital instruments can be used for instantaneous measurements or operate as integrators. Analog-digital

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S/115/61/000/004/007/010
B129/B206

New measuring devices with...

voltmeter with 4 digits, type LM902 by the same firm, has five ranges: 0-0.1599, 0-1.599, 0-15.99, 0-159.9, and 0-1599 v. Error 0.01%. Duration of one reading 280 msec. Voltmeter by the firm of Blackburn Electronics, with 5 digits, has an error of 0.01% and permits 3 readings per second. The digital voltmeter by the firm of Nash & Thompson has four measuring ranges: 0-1, 0-10, 0-100, and 0-1000 v. Error $\pm 1\%$. The voltmeter of the type V-1 by the firm of Scientific Furnishing operates according to the stroboscopic system and has five ranges: 0-0.25, 0-2.5, 0-25, 0-250, and 0-2500 v. Error $\pm 0.5\%$. The frequency measuring device with 6 digits of the type SA21A by the firm of Reykel Instruments for a range from 10 cycles to 1 megacycle with built-in generator for the comparison frequency, has a storage device and can be complemented with pressure devices. Of interest is the combined oscilloscope of the type 425 (Allen Du Mont) which permits reading in two coordinates, amplitude and time. The firm of Bristol Aircraft elaborated a universal decoder with an accuracy of 0.5%, which has 8 digits. Armstrong Whitworth Aircraft produce small converters from comparison form into digital form and vice versa. They are intended for high conversion rates (50,000 per sec) and have 8 digits. The microconverter by Nash & Thompson is intended for low

Card 3/4

SOROKIN, Fedor Fedorovich; TSYURUPA, A.L., inzh., nauchn. red.

[Mobile construction yards in rural construction] Pered-
vizhnye poligony v sel'skom stroitel'stve. Moskva, Stroi-
izdat, 1964. 123 p. (MIRA 17:6)

OGNEVCHUK, N.A.; SOROKIN, F.G.; KALMANOV, N.Ye.; KIR'YANOV, Yu.A.

Horizontal slicing and filling mined areas with rubble concrete.
Biul. TSIIN tsvet. met. no.6:2-5 '58. (MIRA 11:7)
(Mining engineering)

BUDNEVICH, S.B.; SOROKIN, F.P.

Stand for testing and regulation of the electric equipment of
ZTU-5 trolleybuses. Rats. predl. na gor. elektrotransp. no.9:
24-25 '64. (MIRA 18:2)

1. Depo No.1 Tramvayno-trolleybusnogo upravleniya Leningrada.

SOKOKIN, F.P.

Stand for testing the electric driving of the windshield wipers of ZIU-5 trolleybuses. Rats. predl. na gor. elektrotransp. no.9-25 '64.

Stand for testing and regulation of electropneumatic pressure regulators. Ibid.:26-27

(MIRA 18:2)

1. Depo No.1 Tramvayno-trolleybusnogo upravleniya Leningrada.

ZEMTSOVSKIY, V.B.; SOROKIN, F.P.

Lathe attachment for turning the armature of electric traction
motor collectors. Rats. predl. na gor. elektrotransp. no.9:
27-28 '64. (MIRA 18:2)

1. Depo No.1 Tramvayno-trolleybusnogo upravleniya Leningrada.

MEL'NIKOVA, T.I.; SOROKIN, F.S.

Illuminate progressive practices with knowledge of the work ("Work organization of the main brigade operating printing machines in the cotton industry" V.I. Maleev, V.A. Davidovich. Reviewed by T.I. Mel'nikova, F.S. Sorokin. Tekst.prom. 16 no.6:68 Je '56.(MLRA 9:8)

1. Nachal'nik pechatnogo tsekha fabriki imeni rabochego G.I. Zinov'yeva (for Mel'nikova); 2. Master pechatnogo tsekha fabriki imeni rabochego F.I. Zinov'yeva (for Sorokin).
(Textile printing) (Maleev, V.I.) (Davidovich, V.A.)

30(5)

SOV/2-59-2-6/12

AUTHOR: Sorokin, G.

TITLE: Problems of Calculation of the Divergence between Prices and Costs in Drawing up a State Economy Balance (Voprosy ucheta otkloneniy tsen ot stoimosti pri sostavlenii balansa narodnogo khozyaystva)

PERIODICAL: Vestnik statistiki, 1959, Nr 2, pp 62 - 69 (USSR)

ABSTRACT: The author discusses the methodology of calculations used in the process of drawing up the state balances and plans, which is not yet sufficiently developed, and the different views existing in this complex matter, such as the idea of "calculation prices" by Academician S.G. Strumilin. The views of the Director of the Institute of Economics of Poland, Bronislav Minc, and two other authors [Ref 1, 2, 3], considering the "calculation prices" as being practically sufficiently accurate for statewide plans, are mentioned. He points out that the already available experience

Card 1/2

ATLAS, M.; KADYSHEV, L.; MAKAROVA, M.; SOROKIN, G.; FIGURNOV, P.

On the basic economic law. Vop. ekon. no.1:39-52 Ja '62.
(MIRA 15:1)

(Economics)

SOROKIN, G.

Some problems of the international socialist division of labor.
Vop.ekon. no.7:3-15 J1 '62. (MIRA 15:7)

1. Chlen-korrespondent AN SSSR.
(Mutual economic assistance council)
(Europe, Eastern--Division of labor)

SOROKIN, G.A. (Odessa, ul. Yaroslavskogo, d.3, kv. 2)

A rare form of inguinal hernia (hernia Littrica). Nov. khir. arkh.
no.2:114-115 Mr-Apr '59. (MIRA 12:7)

1. Khirurgicheskoye otdeleniye (nachal'nik-- dotsent A. N. Sellarius)
Odesskoy dorozhnoy klinicheskoy bol'nitsy.
(HERNIA)

SOROKIN, G.D., fel'dsher (Khotenichi, Moskovskaya oblast')

Progressive form of disease incidence recording. Fel'd. i
akush. 28 no.4:32 Ap'63. (MIRA 16:8)

(DISEASES--REPORTING)

L 3547-66 EWT(d)/EWT(m)/EWP(w)/EWP(v)/T-2/EWP(t)/EWP(k)/EWP(h)/EWP(b)/EWP(l)
ACCESSION NR: AP5024428 EWA(h)/ETC(m) JD/WW/HW/EM UR/0286/65/000/015/0137/0137

34
B

AUTHORS: Sorokin, G. F.; Zorin, G. D.

TITLE: Hydraulic gauge. Class 49, No. 173580

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 15, 1965, 137

TOPIC TAGS: hydraulic device, machine tool

ABSTRACT: This Author Certificate presents a hydraulic gauge for duplicating machines intended, for example, for cutting grooves in rocket engine nozzles and containing a thickness gauge interacting with a master form or surface to be machined. To machine parts by duplication according to the machined surface as well as by the master form using a single gauge, the gauge is provided with an additional thickness gauge which is rigidly fastened to the base and interacts with the correcting master form for duplication according to the machined surface (see Fig. 1 in the Enclosure). Orig. art. has: 1 diagram.

ASSOCIATION: none

SUBMITTED: 10Nov63

ENCL: 01

SUB CODE: IE

NO REF SOV: 000

OTHER: 000

Card 1/2

mlr
Card 2/2

SOROKIN, G.M.

[Plan for developing industry and transportation in the new five-year plan; verbatim transcription of a public lecture] Plan razvitiia promyshlennosti i transporta v novoi piatiletke. Moskva, 1946. (MIRA 12:1)

(Russia--Industries)

SOROKIN, G.M.

SOROKIN, G.M. Stalinskie piatiletnie plany. Moskva, Gosplanizdat, 1946. 74 p.
CtY SICU MH NIC NN NNC

SO: LC, Soviet Geography, Part I, 1951, Uncl.

SOROKIN, G. M.

SOROKIN, G. M.

Sotsialisticheskoe planirovanie narodnogo khozyaystva SSSR. [Moskva],
Gospolitizdat, 1946. 97p.

DLC: HC335. S566

CSt-H CtY MH NN NNC

SO: LC, Soviet Geography, Part I, 1951, Uncl.

SOROKIN, G. [M.]

Planning in the Soviet Economy, by G. SOROKIN, *semino per* Bolshevik, No. 24, Moscow, 30 Dec 48, pp. 12-29.

SOROKIN, Gennadiy Michaylovich; SHIRYAYEV, Yu., red.; CHEPELEVA, O.,
tekh.n.red.

[The seven-year plan as a new stage in the development of
communism in the U.S.S.R.] Semiletanii plan - novyi etap
stroitel'stva kommunizma v SSSR. Moskva, Izd-vo sotsial'no-
ekon.lit-ry, 1959. 67 p. (MIRA 12:9)
(Russia---Economic policy)

SOROKIN, Gennadiy Mikhaylovich; GLYAZER, I., red.; KOMINA, Ye., red.;
GRIGOR'YEVA, I., mladshiy red.; KOROLEVA, A., mladshiy red.;
NIKITENKO, T., mladshiy red.; MOSKVINA, R., tekhn.red.

[Planning the national economy of the U.S.S.R.; problems of theory
and organization] Planirovanie narodnogo khoziaistva SSSR;
voprosy teorii i organizatsii. Moskva, Izd-vo sotsial'no-ekon.
lit-ry, 1961. 458 p. (MIRA 14:6)
(Russia--Economic policy)

SOROKIN, G.M., doktor ekonom.nauk

Laws of the development of the world socialist system. Vest. AN
SSSR 31 no.10:3-8 0 '61. (MIRA 14:9)

(Communist countries--Economics)

NEMCHINOV, V.S., akademik, otv. red.; KAFENGAUZ, B.B., red.; KLIMENKO, K.I., red.; MINTS, L.Ye., red.; OBLOMSKIY, Ya.A., red.; PASHKOV, A.I., red.; PROBST, A.Ye., red.; ~~SOROKIN, G.M., red.~~; URLANIS, B.TS., red.; KHOMYAKOV, A.I., red. izd-va; VOLKOVA, V.Ye., tekhn. red.

[Problems of the national economy of the U.S.S.R.; on the 85th birthday of Academician Stanislav Gustavovich Strumilin] Voprosy narodnogo khoziaistva SSSR; k 85-letiiu akademika Stanislava Gustavovich Strumilina. Moskva, Izd-vo Akad. nauk SSSR, 1962. (MIRA 15:12)
417 p.

1. Akademiya nauk SSSR. Otdeleniye ekonomicheskikh, filosofskikh i pravovykh nauk.
(Strumilin, Stanislav Gustavovich, 1877-) (Economics)

SOROKIN, G. M.

"Methodology of planning major national economic proportions"

report to be submitted for the United Nations Conference on the
Application of Science and Technology for the Benefit of the Less
Developed Areas - Geneva, Switzerland, 4-20 Feb 63

SOROKIN, G.M.; OLEYNIK, I.P., doktor ekon. nauk; RYABUSHKIN, T.V., doktor ekon. nauk; DUDINSKIY, I.V., kand. ekon. nauk; MIROSHNICHENKO, B.P., kand. ekon. nauk; SERGEYEV, V.P., kand. ekon. nauk; TARNOVSKIY, O.I., kand. ekon. nauk; STOROZHEV, V.I., kand. ist. nauk; KONOVALOV, Ye.A., kand. ekon. nauk; GERTSOVICH, G.B., kand. ekon. nauk; POPOV, K.I., kand. ekon. nauk, red.; ZEVIN, L.Z., red.; NIKOLAYEV, D.N., red.; PAK, G.V., red.; GERASIMOVA, Ye.S., tekhn. red.

[The building of communism in the U.S.S.R. and cooperation among the socialist countries] Stroitel'stvo kommunizma v SSSR i sotrudnichestvo sotsialisticheskikh stran. Pod obshchei red. G.M.Sorokina. Moskva, Ekonomizdat, 1962. 334 p. (MIRA 16:2)

1. Akademiya nauk SSSR. Institut ekonomiki mirovoy sotsialisticheskoy sistemy. 2. Chlen-korrespondent Akademii nauk SSSR (for Sorokin).

(Communist countries--Foreign economic relations)

ALLAKHVERDYAN, D.A., prof.; AMINOV, A.M., doktor ekon. nauk; AGLAS, M.S., prof.; D'YACHENKO, V.V., dots.; ZLOBIN, I.D., prof.; KADYSHEV, L.A., dots.; KARNAUKHOVA, Ye.S., prof.; KOTOV, G.G., prof.; LEVITANUS, I.M., dots.; LIVSHITS, A.L., dots.; LYAPIN, A.P., prof.; MAKAROVA, M.F., prof.; MASLOV, P.P., prof.; SONIN, M.Ya., doktor ekon.nauk; SOROKIN, G.M.; STRUMILIN, S.G., akademik; TUMANOVA, L.V., dots.; TUROVTSEV, V.I., dots.; FIGURNOV, P.K., prof.; MOKHOVA, N.I., dots., red.; SHCHERBAKOVA, V.V., dots., red.; SHVEYTSEV, Ye.K., red.; MURASHOVA, V.A., ~~tekhn.~~ red.

[The economics of socialism] Politicheskaiia ekonomia sotsializma. Izd.2., perer. Moskva, Gos.izd-vo "Vysshaia shkola," 1962. 614 p. (MIRA 16:3)

1. Chlen-korrespondent Akademii nauk SSSR (for Sorokin).
(Economics) (Communism)

SOROKIN, G. M.

"The basic trends of economic development in the Socialist Countries of Europe."

paper presented at the Conf on Economic Development of European Socialist Countries, Plovdiv, Bulgaria, 30 Nov-6 Dec 64.

VINOGRADOV, V.N.; SOROKIN, G.M.

Wear and breakdown of supporting surfaces of small diameter bits.
Trudy MINKHIGP no.29:3-10 '60. (MIRA 13:12)
(Boring machinery) (Mechanical wear)

KERSHUBAUM, Ya.M.; SOBOKIN, G.M.

Wear and breakdown of small-diameter bit cutters. Trudy MINKHIGP
no.29:11-18 '60. (MIRA 13:12)
(Boring machinery) (Mechanical wear)

SOROKIN, G.M.

Certain regularities in the wear of cutters of LV4AT bits with partial reinforcement. Trudy MIREVOP no.29:19-30 '60. (MIRA 13:12)

(Boring machinery)

(Mechanical wear)

SOROKIN, G.M.

Breakage of roller bit teeth. Trudy MINKHIEP no.34:59-68 '61.
(MIRA 14:12)

(Boring machinery)

VINOGRADOV, V.N.; SHREYBER, G.K.; SOROKIN, G.M.

Interaction between the roller teeth of a drill bit and the well
bottom. Trudy MINKHIGP no.35:8-13 '61. (MIRA 14:11)
(Boring machinery)

KERSHENBAUM, Ya.M.; SOROKIN, G.M.

Relationship between the blunting of the teeth of small-size bit
rollers and the penetration rate. Trudy MINKHIGP no.35:42-49
'61. (MIRA 14:11)

(Boring machinery)

SOROKIN, G.M.

Wear of the teeth of drill bit rollers and a wear test method.

Trudy MINKHIGP no.35:50-56 '61.

(MIRA 14:11)

(Boring machinery)

SOROKIN, G.M.

Method of experimental study of the mechanics of bit tooth breakage.
Trudy MINKHiGP no.35:109-119 '61. (MIRA 14:11)
(Boring machinery)

VINOGRADOV, V.N.; SHREYBER, G.K.; SOROKIN, G.M.

New steel for the production of bit rollers. Trudy MINERHGP
46:101-104 '64. (MIRA 17:6)

VINOGRADOV, V.K.; SHREYBER, G.K.; SOROKIN, G.M.

Steel for the manufacture of small bit rollers. Izv. vys.
zav.; neft' i gaz 7 no.6:73-78 '64. (NIRA 17:9)

1. Moskovskiy institut neftekhimicheskoy i gazovoy promysh-
lennosti imeni akademika Gubkina.

VINOGRADOV, V.N.; SHREYBER, G.K.; SOROKIN, G.M.

Wear and failure of the teeth of bit rollers. Izv. vys. ucheb. zav.;
neft' i gaz 7 no.7:95-99 '64. (MIRA 17:9)

1. Moskovskiy institut neftekhimicheskoy i gazovoy promyshlennosti
im. akad. I.M. Gubkina.

VINOGRADOV, V.N.; SHREYBER, G.K.; SOROKIN, G.M.

Investigating wear and failure of the teeth of bit rollers.
Nef. khoz. 42 no.7:14-17 J1 '64. (MIRA 17:8)

SOROKIN, G.N.

Increasing the efficiency of internal combustion engines during
partial load by means of preheating intake air. Izv. AN Kazakh.
SSR. Ser. energ. no. 4/5:109-127 '54. (MLRA 9:5)
(Gas and oil engines)

SOROKIN G.N.

PHASE I BOOK EXPLOITATION 507/3909

Leningrad. Politechnicheskii Institut
Energo mashinostroyeniye (Power-Machinery Construction) Moscow,
Mashizh, 1960. 163 p. (Series: Izs. Trudy, No. 204) Kzrta
slip inserted. 1,000 copies printed.

Sponsoring Agency: KSIIR, Ministerstvo yuzhshogo i srednego spetsial'-
nogo obrazovaniya.

Resp. Ed.: V.S. Salmov, Doctor of Technical Sciences, Professor;
Ed.: P.I. Bulant, Candidate of Technical Sciences, Docent; Tech.
Operation of Machinery (Leningrad Division, Mashizh); P.I. Petli-
sov, Engineer.

RUNOFF: This book is intended for workers at scientific research
institutes and factory courses. It may also be useful to
students of advanced instruction.

COVER: This collection of 17 articles deals with analyses of
gas-turbine installations and theoretical and experimental in-
vestigations of the operation of power and jet-combustion engines.
Including turbines, compressors, and internal and external in-
cluding turbines, compressors, and internal and external in-
vestigations undertaken by the Department of Power-Machinery &
Aerodynamics of the Politechnicheskii Institut (Leningrad).
The investigations include analyses of the operation and the per-
formance of gas-turbine engines. The investigations include analyses
of parameters for insuring high economy of operation and the per-
formance of methods of calculating and designing new power equip-
ment. References follow several of the articles.

- 5. Pulant, V.I. Some Features of One Type of Gas-Turbine Sys- 43
tem
- 6. Agonov, L.V. Calculation of Transition Processes in Gas- 61
Turbine Engines
- 7. Saleney, K.P. On the Question of Similarity of Temperature 67
Fields in Turbo-machinery Elements
- 8. Matveev, V.A. On the Determination of the Boundaries of 77
the Operating Range in Sparkless Diesel-Engine Compressors
- 9. Kostin, A.K. Investigation of the State of Thermal Stress in 84
Two-Stroke Engines
- 10. Mikhaylov, I.M. Investigation of the Combustion Process and 99
the Qualification of the Pulverized-Coal Flame in Furnace Fire
Boxes With Liquid Slag Removal
- 11. Polynskiy, N.Ye. Analysis of the Dispersion of Boiler 105
Stress
- 12. Polynskiy, N.Ye., and N.V. Meshkov, On Chemical Deoxygenat- 115
ion of Feedwater for Low-Pressure Steam Boilers
- 13. Sorokin, G.N., and Yu. P. Volkov, On the Question of Fuel 120
Economy of a Vehicle With a Hydro-mechanical Transmission
- 14. Galybayev, V.D. On the Calculation of Certain Parameters of 128
the Braking Process in a Moving System
- 15. Dzyukov, A.D. Synthesis of Planetary Gears With Three De- 133
grees of Freedom
- 16. Kraynov, A.D. Experimental Investigation of the Efficiency 151
of Planetary Mechanisms With Two Degrees of Freedom
- 17. Galybayev, V.D. Comparative Testing of the Wear Resistance 159
of Planetary Kinetics in Hand Brakes

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8-1-60

card 5/5

KOVALEVSKIY, M.M., inzh.; PROSKURYAKOV, G.V., inzh.; REVZIN, B.S., inzh.;
GRECHUKHIN, Ye.M., inzh.; SOROKIN, G.N., kand. tekhn. nauk;
TYRYSHKIN, V.G., kand. tekhn. nauk

Results of the heat tests of the GT-6-750-TMZ gas turbine
operating on liquid fuel. Energomashinostroenie 11 no.4:
1-5 Ap '65. (MIRA 18:6)

SOV/137-58-9-19745

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 9, p 232 (USSR)

AUTHORS: Kot, M.V., Sorokin, G.P.

TITLE: Electrical and Optical Properties of the AlSb Alloys (Elektricheskiye i opticheskiye svoystva soyedineniy AlSb)

PERIODICAL: Uch. zap. Kishenevsk. un-t, 1957, Vol 29, pp 183-193

ABSTRACT: An investigation of the temperature relationship of the conductivity in AlSb films (F) obtained by the Vekshinskiy method or on massive single-crystal and polycrystalline specimens. The optical properties were studied on F only. The specimens differed in magnitude and character of initial conductivity. The thickness of films was 0.05-1.0 μ . The F exhibited hole-type ("p") conductivity in a vacuum, but upon exposure to air the mechanism of conductivity in F with an excess of Al changed to the electron-type ("n"). For such specimens an energy system is adduced with the aid of which an attempt is made to explain the phenomena observed in air with F with an excess of Al. An AlSb alloy with an excess of either Al or of Se but without any admixture of foreign atoms has a hole-type conductivity mechanism in any temperature range. The activation energy of

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SOV/137-58-9-19745

Electrical and Optical Properties of the AlSb Alloys

electrons from the impurity levels constitutes ~ 0.15 ev and decreases upon an increase of the concentration of the impurity. The σ of the alloy under vacuum and at room temperature is $\sim 10^{-2}$ mho/cm. The activation energy of donor levels formed as the result of absorption of air is ~ 0.8 ev. The σ of F of the AlSb alloy decreases to a mere fraction in air. The breadth of the band gap for the alloy lies within the range of 1.4-1.55 ev.

Bibliography: 10 references.

L.M.

1. Aluminum antimony alloys--Electrical properties
2. Aluminum antimony alloys --Optical properties
3. Aluminum antimony alloys--Temperature factors
4. Thin films --Analysis
5. Electrons--Energy

Card 2/2

SOV/137-58-8-17623

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 8, p 203 (USSR)

AUTHOR: Sorokin, G. P.

TITLE: Relationship of Photoconductivity to Temperature and Absorption of Thin Layers of AlSb compound (Temperaturnaya zavisimost' fotoprovodimosti i pogloshcheniya tonkikh sloyev soyedineniya AlSb)

PERIODICAL: Uch. zap. Kishinevsk. un-t, 1957, Vol 29, pp 195-200

ABSTRACT: The photoconductivity (P) and the absorption of thin films (F) of AlSb, obtained in one case by the evaporation of solid specimens close to the stoichiometric composition, in another by the Vekshinskiy method, were studied. In thin F 0.1 - 1.0 μ thick obtained by the first method, the P in the visible portion of the spectrum is comparatively low and increases sharply upon transition into the region bounding on the infrared, attaining a maximum at 0.95 μ . In the long-wave portion of the characteristic a weakly expressed second maximum is observed at the 1.2 μ wave length. The border of the red photoeffect is somewhat above 1.6 μ . For F obtained by the Vekshinskiy method, the maximum of the curve of integral photosensitivity (PS) corresponds

Card 1/2

SOV/137 58 8 17623

Relationship of Photoconductivity to Temperature (cont.)

to the stoichiometric sector. At a more than 1% excess of the component in F the PS becomes immeasurably small. With a decrease in temperature from 200 to 90° the PS of the F of the stoichiometric composition increases slowly; from 90° to the temperature of liquid O₂ the increase acquires an exponential character. The relationship of PS to the light intensity has a linear character for all F. The P of the films depends on the time of their exposure to air; the spectroscopic character of F after heating in a vacuum is displaced towards the shorter waves. On the basis thereof it is concluded that in AlSb (stoichiometric composition with an Al excess) there are two types of absorption, namely, an addition absorption and a selfabsorption. In P with an excess of Sb no impurity conductivity is noted.

1. Aluminum-antimony--Photoconductivity
2. Aluminum-antimony--Temperature
3. Aluminum antimony--Absorbtion
4. Thin films--Analysis

A A

Card 2/2

SOROKIN, G.P., Cand Phys Math Sci -- (diss) "Electrical
conductivity, optic absorption, and stationary photoconductivity
of fine layers of the Al-Sb system." Odessa, 1958, 12 pp
(Min of Higher Education USSR. Odessa State Univ im I.I.
Mechnikov) 100 copies (KL, 29-58, 128)

- 12 -

AUTHORS: Kot, M. V., Sorokin, G. P.

SOV/57-58-8-6/37

TITLE: Electric and Photoconductivity of Al-Sb System Films Prepared by Vekshinskiy's Method (Elektroprovodnost' i fotoprovodimost' plenok sistemy Al-Sb, poluchennykh metodom Vekshinskogo)

PERIODICAL: Zhurnal tekhnicheskoy fiziki, 1958, ²⁴ Nr 8, pp. 1657 - 1661 (USSR)

ABSTRACT: References 5 and 6 give a study of the electrical, optical and photoelectrical properties of films consisting of AlSb compounds condensed on cold and on heated bases according to the method of Vekshinskiy, Member, Academy of Sciences, USSR. In these papers the above authors investigated the properties of AlSb films which did not deviate from the stoichiometrical composition by more than 1%. For this reason it proved to be necessary to subject the properties of thin films of this compound to a closer investigation. This has been done in the present paper. The conditions for the preparation of the films are exposed in reference 5. The results presented permit to state the following: 1) When thin layers of Al-Sb are condensed onto cold glass plates only one AlSb compound is found which exhibits semiconductor properties. 2) When Al-Sb

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Electric and Photoconductivity of Al-Sb System Films SOV/57-58-8-6/37
Prepared by Vekshinskiy's Method

is condensed on heated glass plates probably two compounds, AlSb and Al₉Sb are found. The latter is unstable at temperatures below 230°C. 3) The width of the forbidden zone in the Al₉Sb compound is about 1,6 eV. It is wider than in AlSb. The specific conductivity of AlSb is smaller by two orders than in Al₉Sb. At room temperature it is $1 \cdot 10^{-5} \text{ Ohm}^{-1} \cdot \text{cm}^{-1}$. These compounds exhibit a hole conduction. 4) The photoconductivity of newly prepared Al₉Sb samples is at room temperature by several times greater than that of AlSb. 5) A hypothesis is outlined concerning the causes of the disappearance of photoconductivity in massive samples and their destruction in a moist atmosphere. The causes are apparently connected with the compound Al₉Sb. The decomposition of Al₉Sb may in the presence of humidity lead to the formation of aluminum hydrate which promotes destruction. When the massive polycrystalline samples are kept in evacuated and tightly soldered ampoules for one year, no destruction occurs. There are 3 figures and 7 references, 6 of which are Soviet.

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Electric and Photoconductivity of Al-Sb System Films SOV/57-58-8-6/37
Prepared by Vekshinskiy's Method

ASSOCIATION: Kishinevskiy gosudarstvennyy universitet (Kishinev State
University)

SUBMITTED: August 2, 1957

Card 3/3

SOROKIN, G. P.

24(4) PHASE I BOOK PUBLICATION SOV/3140

Академия наук Украинской ССР. Інститут фізики

Фотоелектрические и оптико-электрические явления в полупроводниках и оптико-электрические явления в полупроводниках по физическим работам 1957 г. (Photoelectric and Optical Phenomena in Semiconductors and Optical Phenomena in Semiconductors... Kiyev, 1959. 403 p. 4,000 copies printed.)

Additional Sponsoring Agency: Akademiya nauk SSSR, Prezidium, Komissiya po poluprovodnikam.

Ed. of Publishing House: I. V. Kisina; Tech. Ed.: A. A. Matveychuk; Resp. Ed.: V. Ye. Lashkarov, Academician, Ukrainian SSR, Academy of Sciences.

PURPOSE: This book is intended for scientists in the field of semiconductor physics, solid state spectroscopy, and semiconductor devices. The collection will be useful to advanced students in universities and institutes of higher technical training specializing in the physics and technical application of semiconductors.

COVERAGE: The collection contains reports and information bulletins (the latter are indicated by asterisks) read at the First All-Union Conference on Optical and Photoelectric Phenomena in Semiconductors. A wide range of problems in semiconductor physics and technology are covered: photoconductivity, photoelectromotive forces, optical properties, photoelectric cells and photoresistors, the actions of high frequency and corpuscular radiations, the properties of thin films and composite semiconductor systems, etc. The materials were prepared for publication by G. I. Rashboy, O. V. Snitko, K. B. Tolpygo, A. F. Lashchenko, M. K. Sheynman. References and discussion follow each article.

Photoelectric and Optical Phenomena (Cont.)	SOV/3140	233
and Chlorine		
Zlshavskiy, A. K. Infra-red Conductivity Spectrum of Thin Lead Sulfide Films		237
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Card 11/16

S/081/60/000/011/001/003
A003/A001

Translation from: Referativnyi zhurnal. Khimiya, 1960, No. 11, p. 39, # 41748

AUTHOR: Sorokin, G.P.

TITLE: The Dependence of the Properties of Films of the Al-Sb System on Their Thickness

PERIODICAL: Uch. zap. Kishinevsk. un-t, 1959, Vol. 39, pp. 63-67

TEXT: The electric resistance of Al, Sb and the compounds AlSb and Al₉Sb decreases exponentially with an increase in the film thickness of the substance, attaining a constant value, which is characteristic for massive substances, at a certain critical thickness d (1,000 Å for Al, 1,500 Å for Sb and 800-1,000 Å for AlSb at room temperature). A temperature increase of the base layer shifts d to the lower side. The temperature coefficients of the electric resistance of the samples were also studied.

V. Neshpor

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

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Electric properties of Cu_2Se

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S/139/61/00/006/021/023
E073/E535

with subsequent slow cooling and holding for 8 hours at 800°C . The produced layers were dark grey, fine grain with a metallic sheen, brittle and easy to machine. The specimens were rectangular parallelepipeds of $20 \times 12 \times 8$ mm. Furthermore, similar measurements were made on films of material produced from the same charge in a vacuum of 10^{-5} - 10^{-6} mm Hg. One of the aims was to compare the properties of massive specimens with films of equal composition of thicknesses above 2000 \AA . It was found that the massive specimens were impurity semiconductors with a width of the forbidden zone of 1.1 to 1.2 eV. The specimens had a p-type conductivity, the quantity of impurities being 10^{18} to 10^{19} cm^{-3} . In investigating the films it was found that films of equal thickness produced under different conditions of thermal distillation from one and the same uniform massive specimen had equal properties. The specific electric conductivity, the thermo e.m.f. coefficient and the mobility of the current carriers of thin layers was found to depend strongly on the thickness for films less than 2000 \AA thick. However, for films with thicknesses above this limit, the properties remained unchanged. It was found

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Electric properties of Cu_2Se S/139/61/000/006/021/023
E073/E535

that both massive specimens and thin films have the same electric properties, provided the films are thicker than 2000 Å. Some numerical values are given in the table herewith:

Film thickness	Specific conductivity σ , $\text{Ohm}^{-1} \cdot \text{cm}^{-1}$	Thermo e.m.f. coefficient α , $\mu\text{V}/\text{deg}$	Mobility u , cm^2/sec
$d = 300 \text{ \AA}$	$5.0 \cdot 10^{-3}$	+6	-
$d = 800 \text{ \AA}$	$7 \cdot 10$	+32	60
$d = 1000 \text{ \AA}$	$3.1 \cdot 10$	+50	190
$d = 1500 \text{ \AA}$	$9.0 \cdot 10^2$	+70	550
$d = 2000 \text{ \AA}$	$1.0 \cdot 10^2$	+78	620
$d > 2000 \text{ \AA}$	$1.0 \cdot 10^2$	+79	630
Massive	$1.2 \cdot 10^2$	+80	750

There are 2 figures, 1 table and 6 references: 5 Soviet-bloc and 1 non-Soviet-bloc.

Card 3/4

S/137/62/000/008/023/065
A006/A101

AUTHOR: Sorokin, G. P.

TITLE: Some properties of thin layers of Cu-Se and Cu-Te systems

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 8, 1962, 21, abstract 8I137
("Uch. zap. Kishinevsk. un-ta", 1961, v. 49, 123 - 128)

TEXT: Thin layers ($> 0.5 \mu$) of Cu-Se and Cu-Te alloys were prepared by simultaneous evaporation of electrolytic Cu and spectrally pure Se and Te in a vacuum from two spot evaporators on glass backings at temperatures ranging from room temperature to 350°C . The dependence of the passage of monochromatic light and the specific resistance of the thin layers in Cu-Se and Cu-Te systems upon their composition was studied. In the Cu-Se system a Cu_2Se compound (38 - 39% Se) and in the Cu-Te system a Cu_2Te compound (50% Te) are being formed; a Cu_4Te_3 compound was not revealed. Compounds Cu_2Se and Cu_2Te are extrinsic semiconductors with a hole conductivity mechanism. The specific resistance of a thin (0.6μ) Cu_2Se layer is $1 \text{ ohm}^{-1} \text{ cm}^{-1}$ at room temperature. Activation energy at $200 - 250^{\circ}\text{C}$ for Cu_2Se and Cu_2Te is equal to 0.5 and 0.15 - 0.18 eV, respectively. There are 7 references.

Z. Rogachevskaya

[Abstracter's note: Complete translation]
Card 1/1

AUTHOR: Sorokin, G. P.
TITLE: Influence of atmospheric gases on the electrical conductivity of the thin films of aluminium antimonide

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i khimicheskaya tekhnologiya, v.5, no.3, 1962, 407-412

TEXT: The work was carried out to elucidate the causes of disagreements in the results of investigations on the action of air on thin films of AlSb and to determine which of the atmospheric gases are responsible for the properties of the films transferred from vacuum into air. The action of O_2 , N_2 , H_2 , water vapour and air on the electrical conductivity and photo-conductivity of the thin films (0.8 to 0.9 microns) was investigated in relation to the purity of AlSb and pressure of residual gases. It was shown that the influence of air on the properties of the thin films is essentially that of oxygen, the other gases investigated exerting very small influence. In all

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Influence of atmospheric ...

S/153/62/005/003/001/004
E075/E436

experiments the action of oxygen on the resistance of the films had fast and slow components. In the first few seconds after placing the films in oxygen, the conductivity decreased rapidly and then more slowly reaching a near saturation value after 40 minutes. At pressure below 10^{-3} mm Hg, the oxygen did not cause any effect on the resistance and photoconductivity of the films. It is postulated that together with the adsorption of oxygen on the AlSb surface the sorption of oxygen in the intercrystalline regions of the film begins to take place at a certain pressure. The latter phenomenon has a diffusional character and takes place much more slowly than the adsorption process. It was observed in all cases that the sorbed oxygen strongly decreased the conductivity in contrast to previous reports. It is assumed that impure AlSb samples were used by the previous investigators. The impurities (excess Al or Sb) increase the conductivity of AlSb and make the films insensitive to oxygen. The photoconductivity of the films in vacuum is almost nil, but it increases rapidly after placing the films in air. There are 2 figures.

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L 8579-66 EWT(m)/EWG(m)/EWP(t)/EWP(b) IJP(c) RDW/JD

ACCESSION NR: AP5021182

UR/0139/65/000/004/0140/0143

AUTHOR: Sorokin, G. P.

TITLE: Electrical properties of Cu₂Te ²¹

SOURCE: IVUZ. Fizika, no. 4, 1965, 140-143

TOPIC TAGS: copper compound, telluride, forbidden band, electric conductivity, carrier density, hole mobility

ABSTRACT: The electrical properties of polycrystalline bulk samples and of evaporated thin films of Cu₂Te were investigated in the range of temperatures from -183 to 750C. Spectroscopically pure components were melted at 1200C in quartz ampoules. Parallelepipeds of 10 x 5 x 3 mm were cut. Two samples were measured (one of them contained a larger excess of copper). Difficulties were encountered in evaporating the films because of the strong dissociation of Cu₂Te. Investigations showed that a tellurium-rich layer forms on the substrate and a copper layer on the surface. It has been established that the compound is an impurity semiconductor with a forbidden band width of 0.9--1.0 ev. The samples obtained exhibited p-type conductivity and a carrier density of 10¹⁸--10¹⁹ cm⁻³. The mobility of the current carriers at room temperature depended on their concentration and amounted

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B

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Z

L 8579-66

ACCESSION NR: AP5021182

to 180--800 cm/v-sec. On increasing the temperature up to 550C the mobility decreases initially like $T^{-3/2}$ and then more sharply. It is shown that the electrical properties of bulk samples are reproduced partly by thin thermally treated 0.2--0.7 μ films. However, evaporated films of thicknesses larger than a micron had properties unlike those of the bulk material. "The author thanks Professor D. N. Nasledov for interest in the work and valuable remarks." Orig. art. has: 2 figures and 1 table. 2

ASSOCIATION: Kishinevskiy gosuniversitet (Kishinev State University)

SUBMITTED: 09Dec63

ENCL: 00

SUB CODE: SS

NR REF SOV: 003

OTHER: 001

Card 2/2 *pu*

SOROKIN, G.V.; KALININ, P.F.

Experience of A.A. Zakharov's boring brigade. Gor. zhur. no.4:
18-19 Ap '57. (MLRA 10:5)

1. Leninogorskiy polimetallicheskiy kombinat.
(Boring) (Zakharov, A.A.)

TARANOV, Yu. I.; MAYYER, R. M.; SOROKIN, G. V.

Outlook for working with more than one rig at the same time
in drilling blastholes in underground workings. Gor. zhur.
no.11:7-10 N '62. (MIRA 15:10)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut tsvetnoy
metallurgii (for Taranov, Mayyer). 2. Leninogorskiy polimetal-
licheskiy kombinat (for Sorokin).

(Boring—Labor productivity)

L 21922-66 EWT(m)/ETC(m)-6/T/EWP(f) WW/WE

SOURCE CODE: UR/0114/65/000/004/0001/0005

ACC NR: AP6014623

AUTHOR: Kovalevskiy, M. M. (Engineer); Proskuryakov, G. V. (Engineer); Revzin, B. S. (Engineer); Grochukhin, Ye. M. (Engineer); Sorokin, G. N. (Candidate of technical sciences); Tyryshkin, V. G. (Candidate of technical sciences)

ORG: none

TITLE: Results of the gas turbine heat tests at the GT-6-750 TMZ liquid fuel plant

SOURCE: Energomashinostroyeniye, no. 4, 1965, 1-5

TOPIC TAGS: gas turbine, thermometer, resistance thermometer, tachometer, wattmeter, monometer, turbine compressor

ABSTRACT: The article presents the results obtained in the final stage of thermotechnical testing of the 6 megawatt gas turbine installation in the plant. A schematic diagram of the measuring set-up and instrumentation is shown: it consisted essentially of a mercury thermometer, a resistance thermometer, a manometer, a standard manometer, a tachometer and a laboratory wattmeter. At a temperature of 760°C before the high-pressure stage and with 6 MW output at 6200 rpm, the efficiencies were 86.5% for the high-pressure stage (89.5% design value) and 91.6% for the low-pressure stage (90.5% design value). All the equations are shown for calculating power losses, heat balance and efficiencies. The compressor was also tested at the same time. The results are presented in the form of curves. These show the overall perfor-

UDC: 621.438.001.41

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L 21922-66

ACC NR: AP6014623

mance characteristics, namely the temperature and compression ratio as functions of output power under optimum conditions of the high-pressure stage operation, also the output power as a function of speed at various fuel rates. The results are compared with those of previous preliminary tests and original design values. The analysis of test data provide a clue for possible improvements of the gas turbine performance. / Orig. art. has: 5 figures, 9 formulas and 1 table. /JPRS/

SUB CODE: 21 / SUBM DATE: none / ORIG REF: 001

Card 2/2 nst

I 22752-66 EWT(m)/EWP(j)/T IJP(c) RM UR/
ACC NR: AP6010111 (A) SOURCE CODE: 0190/66/008/003/0476/0480

AUTHORS: Sorokin, G. V.; Nametkin, N. S.; Perchenko, V. N. 63
TB

ORG: Institute of Petrochemical Synthesis, AN SSSR (Institut nefte-
khimicheskogo sinteza AN SSSR)

TITLE: Polymerization of ethylene using $TiCl_4 + Al(iso-C_4H_9)_3$ catalyst
in the presence of silanes

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 8, no. 3, 1966, 476-480

TOPIC TAGS: ethylene, polymerization catalyst, polymerization rate,
silane, chain polymer, polyethylene, silicon

ABSTRACT: The effect of silanes of various structures on ethylene polymerization with $TiCl_4 + Al(iso-C_4H_9)_3$ as a catalyst was analyzed. The maximum polymerization rate was observed at the equimolar ratio of the $Al(iso-C_4H_9)_3$ and silane. The activation effect of silane with one hydrogen at the Si atom is much higher than that of silanes with two hydrogens at the Si atom, which could be explained by the chain termination caused by the entrance of corresponding silanes with two hydrogens into the polymer chain. It was shown that the content of Si in polyethylene samples prepared with $TiCl_4 + Al(iso-C_4H_9)_3$ depends on the nature of silanes. Orig. art. has: 3 figures and 1 table. 2

Card 1/2

UDC: 66.095.26+678.742