"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

BERNSHTEYN, M.Kh.; YABKO, Ya.M.; LEVIN, A.S.; ZAYONCHKOVSKIY, A.D.; ZHURKO, V.A.

Artificial leather in rolls with a nonwoven base for the shoe uppers of summer footwear. Kozh.-obuv. prom. 6 no.7:20-23 Jl '64. (MIRA 17:8)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

Zhurko, V.A.

ZHURKO, V.A.; LIVYY, G.V.; LANDA, I.M.; TSIPENYUK, E.V.

Studying the formulation, compounding, and production technology of microporous rubbers based on compatible polymers. Kauch.i rez. 19 no.1:41-47 Ja '60. (MIRA 13:5)

1. Kiyevskiy regeneratno-rezinovyy zavod.
(Rubber) (Polymers)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

ZHURKO, V.A.; LANDA, I.M.; DENISENKO, V.Ye.

Manufacture of artificial "IK" fiber leather in rolls.
Kozh.-obuv. prom. 2 no. 11:19-22 N '60. (MIRA 13:12)
(Leather, Artificial)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

80599

S/138/60/000/01/07/010

15.9000

AUTHORS: Zhurko, V.A., Livyy, G.V., Landa, I.M., Tsipenyuk, E.V.

TITLE: Investigation in the Field of Development of Formulae and Production Technology of Microporous Rubbers Based on Combined Polymers

PERIODICAL: Kauchuk i Rezina, 1960, No. 1, pp. 41 - 47

TEXT: Grafted and block polymers are used in many branches of the industry. In the production of these materials oxygen of the air must be prevented from reacting with the active centers. The combination of rubbers with synthetic resins was studied which was carried out with the aim of reducing the specific gravity and increasing the hardness and wear-resistance of the rubbers. Emulsion polystyrene of the TU 1827-51 type was used as the principal masticator. Polystyrene can be combined with rubber in a uniform way only if it is converted into the viscous-fluid state. The temperature for this conversion was determined on a special device measuring the deformation of the material to be tested. A diagram of the device is given. The temperature mentioned is 140°C for polystyrene of B type and also for SKS-30 rubber. Rubber can be combined with polystyrene by means of rollers or by rubber mixers of the "Werner Pfleiderer", or DK-14 1/2 types. The

Card 1/3

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

80579

S/138/60/000/01/07/010

Investigation in the Field of Development of Formulae and Production Technology of Microporous Rubbers Based on Combined Polymers

fractional composition of polystyrene has a great effect on the condition of combination. If the residue on a 02-918 screen is 50%, the preparation of the master batch lasts 25 min, if it is only 35% the duration decreases to 15 min. The conditions for combining rubber and polystyrene depend on the dispersion of the latter and the temperature of its transition into the viscous-fluid state. Free access of oxygen during processing of the master batch reduces the resistance, the specific elongation and the hardness of the vulcanized batches. The optimum polystyrene dose for mixtures containing 50% of rubber is 20-30 weight parts per 100 weight parts of rubber. The low content of fillers (12-13% based on the mixture) in light rubbers makes their calendering difficult. Butadiene-styrene rubber is introduced, therefore, with natural rubber. The optimum ratio for this purpose is 30% SKS-30 and 20% natural rubber, if the total rubber content in the mixture is 50%. For ensuring a specific elongation of 220-240%, the plasticity of the rubbers used must be kept at 0.30-0.40 for SKS-30 and at 0.40-0.45 for natural rubber. The total amount of softeners (colophony and vaseline) is 6-8% based on the mixture. Rubbers of the "progress" type contain a large dose of pore-forming agent: the

Card 2/3

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

80599

S/138/60/000/01/07/010

Investigation in the Field of Development of Formulae and Production Technology of Microporous Rubbers Based on Combined Polymers

porophore ChKhZ-5 (up to 5% based on the mixture). The porophore can cause scorching of the rubber. A uniform and fine porosity increases the service time of the rubber products. Good results were also obtained with SKS-40D rubber and SBS-85 resin. There are 4 tables, 10 graphs, 1 diagram and 15 references: 13 Soviet, 1 English and 1 French.

ASSOCIATION: Kiyevskiy regeneratno-rezinovyy zavod (Kiyev Reclaimed Rubber Plant)

Card 3/3

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

LIVYY, G.V.; ZHURKO, V.A.; LANDA, I.M.

Thermomechanical regeneration of colored rubbers. Leg. prom. 16 no.7:30-33 Jl '56. (MLRA 9:10)

(Rubber, Reclaimed)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

BLOKH, G. A.; ZHURKO, V. A.; TSIPENYUK, E. V.; BELOUSOVA, E. A.; MELESHEVICH, A. P.; VAS'KOVSKAYA, M. A.

Radiation vulcanization of rubber compounds for soles. Kozh. obuv. prom. 5 no. 12:18-22 D '63. (MIRa 17:5)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

LANDA, I.M., inzh. [deceased]; RABINOVICH, E.S., inzh.; ZHURKO, V.A., inzh.

Studying the various Soviet and foreign makes of polyvinyl chloride resins and determining the possibility of their use in the manufacture of artificial leather with a fibrous base. Nauch.-issl. trudy Ukr NIIKP no.13:181-191 '62. (MIRA 18:2)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

LANDA, I.M.; ZHURKO, V.A.; TSIPENYUK, E.V.

Increase the production of microporous rubber having specific weight of 0,2 - 0,5 g/cm^3 and used for footwear. Leg. prom. 18 no.9:12-14 S '58. (MIRA 11:10)

(Foam rubber)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

ZHURKO, V.A.; LANDA, I.M.; RABINOVICH, E.S.

Possibility of using polychlorovinyl resins for the manufacture of artificial leather from fibers. Kosh.-obuv.prom. 2, no.5: 12-14: '60. (MIRA 13:9)

(Leather, Artificial) (Resins, Synthetic)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

BLOKH, G.A.; GROYSMAN, M.P.; CHERVINSKIY, Yu.Ye.; ZHURKO, V.A.; BULKIN, I.N.

Rubber expansion joints. Gaz. prom. 8 no.8:31-34 '63.
(MIRA 17:11)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

LIVIY, G.V. [Livyi, H.V.], kand.tekhn.nauk; SKVORCHINSKAYA, S. [Skvorchyns'ka, S.P.]; YEGORICHEVA, V.O. [IEhorycheva, V.O.]; ZHURKO, V.O.

Salt-free porous artificial leather for shoe uppers. Leh.prom. no.1: 75-77 Ja-Mr '63. (MIRA 16:4)

1. Ukrainskiy nauchno-issledovatel'skiy institut kozhevenno-obuvnoy promyshlennosti (for Liviy, Skvorchinskaya, Yegoricheva). 2. Kiyevskiy regeneratno-rezinovyy zavod (for Zhurko).

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

L 6310-66 EWT(1)/EWA(h)/ETC(m) WW

ACC NR: AP5028474 SOURCE CODE: UR/0286/65/000/020/0055/0055

INVENTOR: Meyerkop, G. Ye.; Zhurko, V. V.

ORG: none

TITLE: Contactless method of measuring fluid flow rate. Class 30, No. 175620

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 20, 1965, 55

TOPIC TAGS: flow velocity measurement, fluid velocity, flow measurement, flow rate, flow meter

ABSTRACT: An Author Certificate has been issued for a contactless method for measuring fluid flow rate, based on the resonance absorption of gamma rays from a source passing through a liquid. For greater safety and to simplify the measuring process, a nonradioactive additive is introduced into the liquid to absorb the chemical compound of an element on which it is possible to observe the Mossbauer effect. The change in the speed of the gamma-ray counting rate, produced by the displacement of the resonance curve, is measured. [KT]

SUB CODE: ME, GO/ SUBM DATE: 30Nov62/ ATD PRESS: 4144

Card 1/1 UDC: 532.574.8

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

ZHURKOV, A.V.

Safety measures for combined construction and assembly work at compressor stations. Stroi. truboprov. 8 no.11:29 '63 (MIRA 17:7)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

1. ZHURKOV, A. V.

2. USSR (600)

3. Wood Pulp Industry-Apparatus and Supplied

4. Pulp preparation inhydraulic beating machines.
Bum.prom. 27 No. 8 - 1952.

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

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

USSR/Engineering - Materials, Ultrasonics Jun 52

"Electromechanical Q-meter - Equipment for Measuring the Elasticity Modulus and Losses of Materials Under Ultrasonics," N. S. Ageyeva, I. P. Zhukov, M. A. Isakovich, A. L. Sosedova, Yu. M. Sukharevskiy

"Zhur Tekh Fiz" Vol XXII, No 6, pp 1029-1042

Describes in detail equipment for said measurements under ultrasonics within the range of tens of kilocycles. Explains the theory of the equipment and gives computational formulas and graphs for detg Young's modulus of solids and modulus

219T40

of shear of rubber-like materials and decrement of extinction, according to elec measurements. Also indicates the effect of temp and pressure on results. Received 30 Jan 51.

219T40

ZHUKOV, I.P.

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

ZHUKOV, I.P.

Marking generators for magnetoelectric oscillographs. Prib.i tekh. eksp.no.2:142-143 S-O '56. (MLRA 10:2)

1. Akusticheskiy institut AN SSSR.
(Oscillograph)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

S/056/62/043/006/049/067
B102/B186

AUTHORS: Zhurkov, I. S., Oskotskiy, V. S.

TITLE: Microscopic calculation of lattice distortions by impurities

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 43, no. 6(12), 1962, 2261-2262

TEXT: The distortions of a NaCl lattice caused by Ag^+, Br^-, Li^+, K^+, I^-, and Rb^+ ions are calculated on the basis of the rigid ion model. The calculations are carried out in analogy to those of J. R. Hardy (Phys. Chem. Solids, 15, 39, 1960), assuming electrostatic plus central interactions with a potential of the form $A\exp(-r/\varrho)$ with $A = 2.26 \cdot 10^{-9}$ erg and $\varrho = 0.217 \cdot 10^{-8}$ cm. The displacement ξ of the ions nearest to the impurity ion is calculated by Hardy's formula and with the values thus obtained the relative displacement $\epsilon_0 = \xi/r_0$ is determined; r_0 is the distance between the nearest neighbors in the NaCl lattice. The theoretical results are compared with experimental data obtained in nuclear paramagnetic resonance measurements (M. I. Kornfel'd, V. V. Lemanov, ZhETF, 43, 6, 2021, 1962) and calculations based on the elasticity theory. The values of n/ε_0,

Card 1/2

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

MIRLIN, D.N.; OSKOTSKIY, V.S.; RESHINA, I.I.; SMIRNOV, I.A.; TIKHONOV, V.V.; ZHURKOV, I.S.

Possible appearance of quasi-local vibrations in the infrared absorption and heat conductivity in KCl-H crystals. Fiz. tver. tela 7 no.10:3003-3007 O '65. (MIRA 18:11)

1. Institut poluprovodnikov AN SSSR, Leningrad.

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

L 9610-66 EWT(1)/EWT(m)/EPF(n)-2/EWP(t)/EWP(b)/EWA(1) IJP(c) JD/WW
ACC NR: AP5025378 SOURCE CODE: UR/0181/65/007/010/3003/3007

AUTHOR: Mirlin, D. N.; Oskotskiy, V. S.; Reshina, I. I.; Smirnov, I. A.; Tikhonov, V. V.; Zhurkov, I. S.

ORG: Institute of Semiconductors AN SSSR, Leningrad (Institut poluprovodnikov AN SSSR)

TITLE: Possibilities for quasi-localizable vibrations in infrared absorption and thermal conductivity in KCl-H crystals

SOURCE: Fizika tverdogo tela, v. 7, no. 10, 1965, 3003-3007

TOPIC TAGS: potassium chloride, absorption spectrum, IR absorption, thermal conduction, phonon interaction

ABSTRACT: The authors study the sidebands in the absorption spectrum on a localizable vibration as a function of temperature in potassium chloride crystals with a hydrogen ion impurity. A hypothesis is proposed that these bands are due to combined absorption on localizable and quasi-localizable vibrations. These quasi-localizable vibrations are assumed to be caused by attenuation of force constants when the hydrogen ion replaces the chlorine ion. The curve for thermal conductivity as a function of temperature in the 90-300°K range also shows the effect of quasi-localizable vibrations. The additional thermal resistance caused by hydrogen impurity ions is

Card 1/2

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

L 9610-66

ACC NR: AP5025378

apparently due to resonance interaction between phonons and quasi-localizable vibrations. The authors are grateful to M. I. Kornfel'd for discussing the results of the work. Orig. art. has: 2 figures. 44,55

SUB CODE: 20/ SUBM DATE: 28Apr65/ ORIG REF: 007/ OTH REF: 013

Card 2/2

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

ZHURKOV, M., polkovnik

Show initiative in any situation. Voen.vest. 39 no.8:22-24 Ag '60. (MIRA 14:2)

(Attack and defense (Military science))

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

ZHURKOV, P.E., prof., doktor tekhn.nauk; POSOKHOV, Yu.N., gornyy inzh.

New transportation plan for the working of deep levels in the Sokolova open-pit mine. Gor. zhur. no.4:22-25 Ap '61. (MIRA 14:4)

1. Magnitogorskiy gorno-metallurgicheskiy institut.
(Kustanay Province--Strip mining) (Mine haulage)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

ZHURKOV, S. .K.

Turning

Tool with automatic fastening of hard-alloyed tool bit. Stan. i instr. 23 no. 7, 1952.

Monthly List of Russian Accessions. Library of Congress, November 1952. UNCLASSIFIED.

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

ZHURKOV, M., podpolkovnik

Radiological decontamination. Voen.znan.31 no.7:18-19 Jl'55.
(Radioactivity--Safety measures) (MLRA 8:12)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

GUREVICH, L.E.; ZHURKOV, S.I.

Seminar on the theory of dislocations. Usp. fiz. nauk 64 no.4:789-790 Ap '58. (MIRA 11:7)
(Dislocations in metals)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

PROCESSES AND PROPERTIES INDEX

The influence of adsorbed layers on the strength of quartz fibers. S. SHUBKOV. *Physik. Z. Sowjetunion* 1, 123-31(1932).—The breaking strength of quartz fibers increases several fold as the diam. of the fibers decreases from 0.01 to 0.001 mm. The fibers are strongest when free from adsorbed vapors; the adsorption of water vapor or alc. vapor weakens the fiber more the greater the dielec. const. of the adsorbed vapor. Similar effects of the adsorption of alc. and water vapor were noted on the extent to which fibers of quartz or thin sheets of mica sag. P. H. EMMETT

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

ZHURKOV, S.N.

19

Ca

Effect of increased strength of thin filaments. S. N. Zhurkov. *Tech. Phys. U. S. S. R.* 1, 380-90(in English); *J. Tech. Phys.* (U. S. S. R.) 4, 1640-53(1934)(in Russian).—Thin filaments of glass and quartz after removal of the "oriented" surface layer by treatment with H_2F_2 showed increased tensile strength. Rupture is due to discontinuities, especially those on the surface. Measurements were made on glass, quartz and Pyrex.

F. H. Rathmann

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

ZHURKOV, S.N.

Mechanism of hardening of polymers. S. N. Zhurkov (Trudy Konferentsii Vysokomolekulyarnykh Soedinenii, Akad. Nauk S.S.S.R., Otdel. Khim. Nauk i Otdel. Fiz.-Mat. Nauk, 1944, 2, 63-70; Chem.Abs., 1948, 40, 3718-9).—Where polar polymers absorb the vapours of volatile solvents, the temperature interval of hardening decreases directly proportionally to the number of molecules of solvent absorbed. In non-polar polymers, the decrease depends not only on the number of solvent molecules, but also on their size and configuration. It is assumed that hardening depends on formation of a network of polymer chains held together by intermolecular bonds. In polar polymers, these bonds are polar and each molecule of solvent blocks one bond. In non-polar polymers the binding forces are not so uniform and one molecule of solvent may block several intermolecular bonds. Transition from the hard to the rubbery state in polymers on heating depends on partial breakings of the network. Mathematical calculations confirm this theory.

333232

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

CA

ZHURKOV, S.N.

Effect of the volume sorption of vapors on the solidification temperature of polymers. S. N. Zhurkov and R. I. Lerman (Acad. Sci., Leningrad). *Compt. rend. acad. sci. U.R.S.S.* 47, 106-9; *Doklady Akad. Nauk S.S.S.R.* 47, 103-12(1945).—Polymers exhibit a fairly narrow temp. range of solidification, within which the hardness increases rapidly with increasing temp. Characteristic S-shaped curves were obtained by plotting the log of the high elastic modulus E vs. temp. When the polymers are swollen in the vapors of org. solvents they give identically shaped log E vs. temp. curves, but at a lower temp. It is found for 4 polymers, *polyacrylonitrile* (I), *polymethylacrylate* (II), *butadiene rubber* (III), and *polyisobutylene* (IV), that the lowering in temp. of solidification ΔT after swelling with any of 10 different solvents is a linear function of the no. of methyl inds. a. The relation $\Delta T = ka$ holds strictly for I and II, k being the same for a no. of polar solvents; with III and IV, k varies with the solvent. The phenomena are regarded as prototypes of the *action of plasticizers*. The change in properties induced in I and II by polar solvents is due to the interaction of the solvent with the functional groups of the polymer; one mol. of solvent interacts with only 1 group. With III and IV, the solvent mol. interacts with the polymer at several undefined points, and the effectiveness increases with mol. size. George Gorin

Leningrad Physico-Tech. Inst., AS USSR

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

CA

ZHURKOV, S.N.

Molecular mechanism of the solidification of polymers. S. N. Zhurkov (Phys.-Tech. Inst. Acad. Sci. U.S.S.R., Leningrad). *Compt. rend. acad. sci. U.R.S.S.* 47, 476-7 (1945); *Doklady Akad. Nauk S.S.S.R.* 47, 493-6(1945).—The mol. mechanism of the solidification of polymers that do not undergo crystn. upon solidification is similar to the formation of an amorphous glassy mass by supercooled liquids. On the basis of a previous investigation of the vol. sorption of volatile solvent vapors, it is concluded that the fall in the temp. of solidification is proportional to the no. of sorbed mols. irrespective of their chem. nature. This indicates direct dependence on the concn. in the polymer of certain active groups that are blocked during sorption. The formation of mol. bonds between active sites (nodes) is the basis of the mechanism of the transition from a rubberlike to the solid state. Math. treatment for with $ThCl_4$, which, at higher concns. (about 1%), brings about a substantial drop in both η and θ. (4) The behavior of the 3 types of suspensions towards the 2 groups of electrolytes is discussed in terms of peptization and lattice-formation effects. N. Thon

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

CA

ZHURKOV, S.N.

The effect of volume sorption on the mechanical properties of polymers. S. N. Zhurkov (Phys.-Tech. Inst. Acad. Sci. U.S.S.R.). *Compt. rend. acad. sci. U.R.S.S.* 40, 198-201(1943)(English summary).—The effect of absorption of methanol, ethanol, butanol, acetone, and water on the elastic properties of cellulose acetate (28% free hydroxyl) fibers 21 μ in diam. and 1 m. long was tested. The quantity of vapor absorbed was measured by means of a spring balance having a quartz spiral. Hook's modulus of elasticity diminishes in proportion to the amt. of material absorbed. The sorption of equimol. amts. of the above vapors causes the same decrease in the elasticity modulus. The observations obey the following equation: $E = E_0 - K(C/M)$, where E and E_0 are the elasticity moduli of the fiber in the dry and swollen states, resp., K is a const. equal to 1.37 to 1.4 for the above solvents, taking $M = 2 \times 18$ for H_2O, and (C/M) is the molar concn. of absorbate in the fiber. The mean value of E is 1.28×10^9 kg./sq. mm., when (C/M) is expressed in g.-mols. per 100 g. cellulose acetate. W. J. Kirkpatrick

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

ZHURKOV, S.N.

Infrared absorption spectra of polymers in the hardening range. S. N. Zhurkov and B. Ya. Levin. *Doklady Akad. Nauk S.S.S.R.* 67, 89-92(1949).—Polyvinyl alc., obtained by sapon. of polyvinyl acetate, and characterized by a transition range 60-140° (from the dilatometric curve), shows, at room temp., 3 bands at 1.75, 1.6, and 1.49 μ. These remain unchanged up to about 50°. Above that temp., the C—H bond at 1.75 still remains unchanged, whereas the intensity of the O—H double band 1.45-1.6 μ decreases markedly. At the same time, absorption on the short-wave side of the double max. increases with rising temp.; at 130-150°, it becomes a fairly sharp band with a max. at 1.42 μ. These changes are fully reversible. They are shown strikingly by differential absorption curves (relative to 20°) at 70, 100, and 150°. Absorption in the 1.42 μ band increases with rising temp., whereas in 1.52 and 1.6 μ it decreases. The 1.42 μ band is linked with free OH groups, whereas the 1.52 and 1.6 μ bands belong to bridges formed by H bonding between OH groups, and responsible for hardening. The beginning softening at 60° corresponds to the point where the intensity of the 1.42 μ band begins to increase significantly.

N. Thon

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

ZHURKOV, S.N.

(3)

Infrared absorption spectra of organic glasses in the interval of solidification. S. N. Zhurkov and B. Ya. Levin (Phys.-Tech. Inst., Acad. Sci. U.S.S.R., Leningrad). *Doklady Akad. Nauk S.S.S.R.* 72, 269-72(1950).—Spectra of glassy phenolphthalein, glucose, and a phenol-formaldehyde resin were measured over the range 1.2-1.8 μ at temps. from 0 to 150°. Below the point of complete solidification, the spectra are unaffected by temp.; above, the absorption near 1.44 μ (free OH) increases, that near 1.55 (H-bonded OH) diminishes, that at 1.60 (CH harmonic) does not change as the temp. rises. Calcn. shows H-bond energy for all 3 to be 4.3-4.7 kcal./mole. The increase in viscosity with falling temp. in the range just above solidification is ascribed to increasing H bonding. Gordon G. Evans

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

ZHURKOV, S. N.

Mechanism of glass formation of simple and polymeric compounds. S. N. Zhurkov and B. Ya. Levin (Phys.-Tech. Inst., Acad. Sci. U.S.S.R., Leningrad). *Khim. i Fiz.-Khim. Vysokomolekul. Soedinenii, Doklady 7-oi Konf. Vysokomolekul. Soedineniyam* 1952, 280-9.—By means of infrared spectra in the range from 1 to 2μ, the temp. dependence of the concn. of free and H-bonded hydroxyl groups is observed. In the case of phenolphthalein, glucose, phenol-HCHO resin, and polyvinyl alc. it is shown that the concn. of H-bonded hydroxyl groups is high and a const. below the glass transition temp. and that above this temp. the concn. of free hydroxyl groups increases. A plot of $\log[n^2/(1-n)]$ vs. $1/T$, where n is the concn. of free hydroxyl groups, gives a straight line and its slope yields an activation energy of H-bond formation of 4400, 4770, and 4300 cal./mol. for phenolphthalein, glucose, and phenol-HCHO resin, resp. On the basis of the energy of H bonding of 4700 cal./mol. and from the change of dn/dt near the transition temp., the change in sp. heat capacity for glucose is calcd. as 0.3-0.25 cal./g. degree, in good agreement with other data (0.2 cal./g. degree, Parks, *et al.*, *C.A.* 24, 5210). H. D. N.

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

ZHURKOV, S. N.

USSR/Physics - Toughness of bodies FD-2404

Card 1/1 Pub. 153-8/21

Author : Zhurkov, S. N., and Tomashevskiy, E. Ye.

Title : Investigation of the strength of solid bodies. II. Dependence of durability upon stress

Periodical : Zhur. tekh. fiz. 25, 66-73, Jan 1955

Abstract : The authors measured durability in the stressed state in five substance: three plastics (nitrocellulose such as photofilm; polymethyl-metacrylate; diacetate cellulose) and two polycrystalline metals (aluminum and zinc), the samples being cut from thin sheet material by a form knife in the shape of double blade. The authors investigate the essential role of the time factor on strength as a process of gradual disruption of a body in the stressed state. They obtain graphs of durability (log T) versus stress (sigma). Sixteen references.

Institution: --

Submitted : July 12, 1954

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

ZHURKOV, S.N.

USSR/Physics - Metallurgy

Card 1/1 Pub. 22 - 11/51

Authors : Zhurkov, S. N., and Sanfirova, T. P.

Title : Temperature-time dependence of the strength of pure metals

Periodical : Dok. AN SSSR 101/2, 237-240, Mar 11, 1955

Abstract : Effect of the time factor in the mechanism of metal rupture is discussed. A new view point is presented according to which the rupture of the material is considered as a kinetic process of gradual disintegration of the body subjected to stress. Experiments were conducted with four polycrystalline metals: Zn, Al, Ag and Pt to determine the temperature/time relation to the strength of these metals. Results obtained are described. Nineteen references: 6 USA, 2 German and 11 USSR (1934-1955). Table; graphs.

Institution: Academy of Sciences, USSR, Physico-Technical Institute, Leningrad

Presented by: Academician A. F. Ioffe, January 3, 1955

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

ZHURKOV, S.N.

AUTHOR: ZHURKOV, S.N., TOMASHEVSKIY, E.Ye.

57-6-15/36

TITLE: Microscopic Investigation of Crack Growth in the Case of Ruptures. (Mikroskopicheskoye izucheniye rosta treshchin pri razryve, Russian).

PERIODICAL: Zhurnal Tekhn. Fiz., 1957, Vol 27, Nr 6, pp 1248 - 1256 (U.S.S.R.)

ABSTRACT: The present paper is the continuation of the papers published in Zhurnal Tekhn. Fiz., 1953, Vol 23, p 1677, 1955, Vol 25, p 66, and Doklady Akademii Nauk SSSR, 1955, Vol 101, p 237. All these papers deal with the systematic investigation of the physical nature of the strength of solid substances. Micropictures were taken for the purpose of investigating the growth kinetics of continuous single cracks in the spin samples. The detailed investigation was carried out on acetyl-cellulose (di- and triacetate) and partly on foils of polycrystalline zinc and aluminum as well as on silicate glass slabs. The authors found that the growth of the micro cracks is increased in the case of uniaxial extension and constant stress and that this fills the essential part of the time until the rupture occurs. The velocity of the growth of continuous cracks increases regularly with the increase of tension. The dependence of the velocity of growth on the tension in the remaining un-cracked part of the sample within the velocity-range

Card 1/2

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

57-6-15/36

Microscopic Investigation of Crack Growth in the Case of Ruptures.

investigated develops exponentially. The kinetics of the growth of the cracks determines the dependence of strength on time. The periods passing before the rupture takes place which were calculated from the velocity of crack growth agree well with those which were experimentally measured. (With 4 illustrations, 1 table and 14 Slavic references.)

ASSOCIATION: Not given.
PRESENTED BY:
SUBMITTED: 30.12.1956.
AVAILABLE: Library of Congress

Card 2/2

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

ZHURKOV, S. N.

AUTHOR ZHURKOV, S.N., SLUTSKER, A.I. 57-6-34/36

TITLE X-Ray Scattering by Submicroscopic Defects under Extremely Small Angles (Rasseyaniye rentgenovskikh luchey submikroskopicheskimi defektami pri sverkhmalykh uglakh. Russian)

PERIODICAL Zhurnal Tekhn. Fiz. 1957, Vol 27, Nr 6 pp 1392 - 1394 (U.S.S.R.)

ABSTRACT The method of the scattering of x-rays with extremely small angles was employed successfully during the last years. The essential disadvantage of the device with narrow gaps used was the low light intensity and a basis caused by the scattering of the rims of the collimation gap. Here a modified method is given which eliminates these disadvantages. The device proved to be very effective when investigating the submicroscopic structure of weakly dispersing substances. A satisfactory agreement of the values for the rotation radius R_o was obtained from the scattering and the molecule concentration η with those which were obtained by means of other methods. The scattering with small angles found in the case of aluminum can be looked upon as a proof for the presence of a set of submicroscopic vacancies the number and measurements of which increase in the case of a deformation. The linear measurements of these vacant places are located in a domain of 10 ÷ 200 Å. The modification of the density ($\Delta\rho/\rho \simeq 10^{-3}$) computed according to these data agrees with data obtained by direct measuring. Besides, the scattering

Card 1/2

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

57-6-34/36

X-Ray Scattering by Submicroscopic Defects under Extremely Small Angles

with small angles showed that these vacant places are distributed irregularly in the sample. In the case of a removal of the surface layer by some microns by electric polishing, the intensity of the scattering does not decrease proportionally to the thickness of the removed layer. By this it may be seen that in the surface layer an increased concentration of defects exists. (With 4 illustrations, 1 table and 2 Slavic references).

ASSOCIATION LFTI
PRESENTED BY
SUBMITTED 15.2.1957
AVAILABLE Library of Congress

Card 2/2

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

ZHURKOV, S.N.

AUTHOR: Zhurkov, S. N., Doctor of Physical-Mathematical Sciences. 30-11-8/23

TITLE: Concerning the Problem of the Durability of Solids (Problema prochnosti tverdykh tel).

PERIODICAL: Vestnik AN SSSR, 1957, Vol. 27, Nr 11, pp.78 - 82 (USSR)

ABSTRACT: Numerous facts (with regard to the static and dynamic fatigue) indicate that the stress is not the only parameter determining the durability. Different contradictory definitions were formed. They gave rise to the systematic investigation of durability which was during the past years carried out in the Physico-Technical Institute AN USSR. Two experimental apparatus were produced for this purpose: One of them was used in long-lasting experiments, the other one- with oscillographic recording- in tension tests of shorter duration. The methods worked out permitted the determination of the rules governing the relation existing between the durability of the body under stress and the quantity of breaking stress of longer duration. (see figures 1 and 2). On the basis of the systematic investigation of this relation it may be stated that the influence exerted by the time factor upon the durability extends to a very large number of substances. This relation which was found to exist also is of interest in other re-

Card 1/2

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

Concerning the Problem of the Durability of Solids. 30-11-8/23

spects: it permits the inquiry in which manner of the theory of durability the conception concerning the limit of this durability and the independence from it was formed. Changes of durability limited with respect to time were observed as well at high as at low temperatures. Comprised with other investigation results: "One can only speak of a conditionality of the concept of the limitation of durability, as of limited breaking stress." They only have a sense as practically expedient characteristics of the material and lose their significance in evaluations on the physical nature of durability (see table).
There are 4 figures, 1 table, and 2 Slavic references.

AVAILABLE: Library of Congress.

Card 2/2

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

ZHURKOV, S. N., V. A. MARIKHIN, A. I. SLUTSKER

"The Submicroscopic Porosity of Deformed Polymers."

report presented at the Conference on Investigation of Mechanical Properties of Non-Metals, by the Intl. Society of Pure and Applied Physics and the AS USSR, at Leningrad, 19-24 May 1958.
(Vest. Ak Nauk SSSR, 1958, no. 9, pp. 109-111)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

ZHURKOV, S. N.N.

"On Physical Problems of Strenth in Solids,"

paper presented at the Conf. on Mechanicl Properties of Non-Metallic Solids, Leningrad, USSR, 19-26 May 58.

Physcal-Technical Institute of the Acad. Sci. USSR, Leningrad.

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

AUTHORS: Zhurkov, S. N., Sanfirova, T. P.

SOV/57-58-8-19/37

TITLE: Relations Between the Strength and the Plasticity of Metals and Alloys (Svyaz' mezhdu prochnost'yu i polzuchest'yu metallov i splavov)

PERIODICAL: Zhurnal tekhnicheskoy fiziki, 1958, 28 Nr 8, pp. 1719 - 1726 (USSR)

ABSTRACT: The course taken by the deformation versus time function in creep is usually divided into three stages: a non-steady, a steady and a stage with an increasing rate of creep. This is a study of the second stage with a constant rate of creep. In order to obtain more reliable data the range of creep rates under consideration was considerably increased. The equipment used in reference 5 was employed for this purpose. Some supplementary devices were used (for example a photoelectric deformation transmitter). The life of the samples was measured at various temperatures and stresses in the wide range of the steady creep rate (8 - 9 orders of magnitude). The creep rate and the failure period was determined by a stretching of the flat rectangular samples into the direction of one axis. The temperature and the stress were kept at constant values

Card 1/4

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

during the tests. The families of curves describing the variation of the life lg τ and of the quasi viscous creep rate lg v upon the stress σ, are similar to each other. They are arranged in a fan-like fashion, originating from the pole. The life versus stress and the quasiviscous creep rate versus stress functions are described by formulae (2) and (2a), respectively, at constant temperature. This is found to be true for all metals and alloys under consideration. A systematic deviation, however, was found to be exhibited by the solid solution of aluminum with zinc at sufficiently high temperatures and at small stresses. The fact that this deviation occurs simultaneously in creep as well as in the time dependence of strength is a characteristic feature. From the evidence presented it is possible to determine the temperature dependence of quasiviscous flow and the failure period and to compute the activation energy of these processes. The two final formulae (4) and (4a) are deduced from formulae (2) and (2a). This relation is at variance with the results of J.E.Dorn (Ref 4). According to the opinion of the authors the equality

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

of the energy barrier in the process of destruction and in quasiviscous flow indicates a close relation between these two processes in which the velocity of one process is determined by that of the other. As the activation energy of the quasiviscous flow Q_o is of the same value as the sublimation energy and differs from the activation energy of self-diffusion the conception of assigning a pure diffusion mechanism to the second stage of creep becomes doubtful. By multiplying the right and left side, respectively, of the formulae (4) and (4a) $\tau v = \tau_o v_o = A$ is obtained. This implies that the product of the failure period and of the rate of quasiviscous flow is a quantity independent of temperature and of stress. This dimensionless quantity permits to compute the life of the material under load and with very long failure periods. This is not possible by direct means. From the creep curve can be seen that the constant A is equal to the relative deformation ε_2, which was accumulated during the second stage of creep. (The third stage was not within the scope of these investigations). There are 8 figures, 1 table, and 7 references,

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

Relations Between the Strength and the Plasticity of Metals and Alloys SOV/57-58-8-19/37

5 of which are Soviet.

ASSOCIATION: Leningradskiy fiziko-tekhnicheskiy institut AN SSSR (Physical and Technical Institute, Leningrad, AS USSR)

SUBMITTED: July 10, 1957

Card 4/4

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

24(6) PHASE I BOOK EXPLOITATION SOV/2355

Akademiya nauk SSSR

Nekotoryye problemy prochnosti tverdogo tela; sbornik statey (Some Problems in the Strength of Solids; Collection of Articles) Moscow, Izd-vo AN SSSR, 1959. 386 p. Errata slip inserted. 2,000 copies printed.

Ed. of Publishing House: V. I. Aver'yanov; Tech. Ed.: R. S. Revzner; Editorial Board: A.F. Ioffe, Academician; G. V. Kurdyumov, Academician; S. N. Zhurkov, Corresponding Member, USSR Academy of Sciences; B. P. Konstantinov, Corresponding Member, USSR Academy of Sciences; F. F. Vitman, Doctor of Physical and Mathematical Sciences, Professor (Resp. Ed.); L. A. Glikman, Doctor of Technical Sciences, Professor; N. A. Klatin, Doctor of Physical and Mathematical Sciences; V. A. Stepanov, Doctor of Technical Sciences; Ya.B. Fridman, Doctor of Technical Sciences, Professor; B. S. Ioffe, Candidate of Technical Sciences (Deputy Resp. Ed.).

PURPOSE: This book is intended for construction engineers, technologists, physicists and other persons interested in the strength of materials.

COVERAGE: This collection of articles was compiled by the Otdeleniye fiziko-matematicheskikh nauk AN SSSR (Department of Physical and Mathematical Sciences) and the Fiziko-tekhnicheskiy institut AN SSSR (Institute of Applied Physics, Academy of Sciences, USSR) in commemoration of the 80th birthday of Nikolay Nikolayevich Davidenkov, Member of the Ukranian Academy of Sciences, founder and head of the Otdel prochnosti materialov (Department of the Strength of Materials) at the Institute of Applied Physics, Academy of Sciences, USSR, founder of the Fakul'tet fizicheskogo metallovedeniya (Department of Physical Metallurgy) at the Leningradskiy politekhnicheskiy institut (Leningrad Polytechnic Institute), recipient of the Stalin Prize (1943), the Order of the Red Banner of Labor (1945) and the Order of Lenin (1953). The articles deal with the strength of materials, phenomena of imperfect elasticity, temper brittleness, hydrogen embrittlement, cold brittleness, influence of deformation speed on the mechanical properties of materials, fatigue of metals, and general problems of the strength, plasticity, and mechanical properties of nonmetals. Numerous personalities are mentioned in the introductory profile of Professor Davidenkov. References are given at the end of each article.

Gindin, I.A., B.G. Lazarev, Ya.D. Starodubov, and V.I. Khotkevich (Fiziko-tekhnicheskiy institut AN USSR-Institute of Applied Physics, Academy of Sciences Ukr. SSR, Khar'kov). Low-temperature Polymorphism of Metals 61

Zhurkov, S.N., and E.Ye. Tomashevskiy (Institute of Applied Physics, Academy of Sciences, USSR, Leningrad). Time Dependency of Strength Under Different Load Conditions 68

Bokshteyn, S.Z., T.I. Gudkova, A.A. Zhukhovitskiy, and S.T. Kishkin. Influence of Stresses and Deformation on the Process of Diffusion 76

Pines, B.Ya., and A.F. Sirenko (Gosudarstvennyy universitet imeni Gor'kogo, g. Khar'kov State University imeni Gor'kiy, Khar'kov). Diffusion Creep of Carbon Specimens Pressed From Powdered Iron 87

Syrkina, V.I., and N.S. Yakovleva (Institut fiziki metallov UFAN SSSR, Sverdlovsk-Institute of Metal Physics, Ural Branch, Academy of Sciences, USSR, Sverdlovsk). Influence of Aluminum and Copper on the Deformation of Nickel 93

Kontorova, T.A. (Institut poluprovodnikov AN SSSR, Leningrad-Semiconductor Institute, Academy of Sciences, USSR, Leningrad). Relationship Between the Mechanical and Thermal Characteristics of Crystals

Garber, R.I., and I.I. Soloshenko (Gosudarstvennyy pedagogicheskiy institut imeni G.S. Skovorody, Khar'kov-State Pedagogical Institute imeni G.S. Skovorda, Khar'kov). Strengthening of Rock Salt Crystals by Repeated Reverse Bending 105

Gaydukov, M.G., and V.A. Pavlov (Institute for Metal Physics, Ural Branch, Academy of Sciences, USSR, Sverdlovsk). Some Aspects of Stress Relaxation in Bronze Kh_{4} S-1 111

Tsoblaliv, S.O., and P.A. Vashchenko (Polytechnic Institute imeni M.I. Kalinin, Leningrad). Increasing the Elastic Limit and Decreasing the Elastic Aftereffect During Cold Hardening and Tempering of Spring Aluminum Bronze BrA7 113

Glikman, L.A., and S.N. Kolgatin (NII po pererabotke nefti i polucheniyu iskusstvennogo zhidkogo topliva, g. Leningrad-Scientific Research Institute for Petroleum Refining and Production of Synthetic Liquid Fuels, Leningrad). Nature of the Physical Yield Point of Steel 130

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

24(6) PHASE I BOOK EXPLOITATION SOV/2385

Akademiya nauk SSSR

Nekotoryye problemy prochnosti tverdogo tela; sbornik statey (Some Problems in the Strength of Solids; Collection of Articles) Moscow, Izd-vo AN SSSR, 1959. 386 p. Errata slip inserted. 2,000 copies printed.

Ed. of Publishing House: V. I. Aver'yanov; Tech. Ed.: R. S. Pevzner; Editorial Board: A.F. Ioffe, Academician; G. V. Kurdyumov, Academician; S. N. Zhurkov, Corresponding Member, USSR Academy of Sciences; B. P. Konstantinov, Corresponding Member, USSR Academy of Sciences; P. P. Vitman, Doctor of Physical and Mathematical Sciences, Professor (Resp. Ed.); L. A. Glikman, Doctor of Technical Sciences, Professor; N. A. Zlatin, Doctor of Physical and Mathematical Sciences; V. A. Stepanov, Doctor of Technical Sciences; Ya.B. Fridman, Doctor of Technical Sciences, Professor; A. S. Ioffe, Candidate of Technical Sciences (Deputy Resp. Ed.).

PURPOSE: This book is intended for construction engineers, technologists, physicists and other persons interested in the strength of materials.

COVERAGE: This collection of articles was compiled by the Otdeleniye fiziko-matematicheskikh nauk AN SSSR (Department of Physical and Mathematical Sciences) and the Fiziko-tekhnicheskiy institut AN SSSR (Institute of Applied Physics, Academy of Sciences, USSR) in commemoration of the 80th birthday of Nikolay Nikolayevich Davidenkov, Member of the Ukrainian Academy of Sciences, founder and head of the Otdel prochnosti materialov (Department of the Strength of Materials) at the Institute of Applied Physics, Academy of Sciences, USSR, founder of the Fakul'tet fizicheskogo metallovedeniya (Department of Physical Metallurgy) at the Leningradskiy politekhnicheskiy institut (Leningrad Polytechnic Institute), recipient of the Stalin Prize (1943), the Order of the Red Banner of Labor (1945) and the Order of Lenin (1953). The articles deal with the strength of materials, phenomena of imperfect elasticity, temper brittleness, hydrogen embrittlement, cold brittleness, influence of deformation speed on the mechanical properties of materials, fatigue of metals, and general problems of the strength, plasticity, and mechanical properties of metals. Numerous personalities are mentioned in the introductory profile of Professor Davidenkov. References are given at the end of each article.

Batsev, S.I., N.V. Kadobnova, and Ye.A. Petrov. Effect of Size of Test Piece on Its Strength Under Repeated Stresses 268

Serensen, S.V. Accumulation of Fatigue Damage in Iron With Globular Graphite During Reverse Bending 273

Drozdovskiy, B.A., and Ya.B. Fridman. Sensitivity of Metals to Cracks 280

Kilova, T.K., N.I. Patrushina, and Ya. B. Fridman. Kinetics of Deformation and Rupture Processes in Connection With the Reserve of Elastic Energy 297

Likhachev, Yu.V. (Industrial Institute imeni Kuybyshev, Kuybyshev). Determination of the Rupture Strength of a Plastically Deformed Metal 312

Volkov, S.D. (Ural'skiy politekhnicheskiy institut imeni S.M. Kirova, g. Sverdlovsk- Ural Polytechnic Institute imeni S.M. Kirov, Sverdlovsk). Principles of the Statistical Theory of Strength 325

Burmakina, G.P., and F.G. Skritskiy (Sverdlovskiy filial VNII metrologii imeni Mendeleyeva-All-Union Scientific Research Institute of Metrology imeni Mendeleyev, Sverdlovsk Branch). Mechanical Properties of Tempered Steel Under Biaxial Tension 334

Vitman, F.F., S.N. Zhurkov, B.Ya. Levin, and V.P. Pukh (Institute of Applied Physics, Academy of Sciences, USSR, Leningrad). Problem of Increasing the Strength of Glass 340

Stepanov, V.A., and L.G. Khodakova (Institute of Applied Physics, Academy of Sciences, Leningrad). Measuring Residual Stresses in Tempered Glasses by the Mechanical Method 348

Lodenkova, V.I. (Institut kristallografii AN SSSR, g. Moskva-Crystallography Institute, Academy of Sciences, USSR, Moscow). Some Findings on the Destruction of Solids Under the Action of Internal Stresses 357

Kel'zin, Yu.A., and V.P. Pukh (Institute of Applied Physics, Academy of Sciences, USSR, Leningrad). Rate of Development of Brittleness Cracks in Glass and Resin 367

Regel', V. R., and G.V. Barashkova (Crystallography Institute, Academy of Sciences, USSR, Moscow). Effect of the Type of Stressed State on Flow-Curve Parameters of Some Plastics 375

AVAILABLE: Library of Congress

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

85759

1.9600

S/137/60/000/009/009/029
A006/A001

Translation from: Referativnyy zhurnal, Metallurgiya, 1960, No. 9, p. 234, # 21394

AUTHORS: Zhurkov, S.N., Tomashevskiy, E.Ye.

TITLE: Strength as a Function of Time Under Various Loading Conditions

PERIODICAL: V sb.: Nekotoryye probl. prochnosti tverdogo tela, Moscow-Leningrad, AN SSSR, 1959, pp. 68-75

TEXT: The authors verified the correctness of the exponential dependence of service life on stress: $\tau = \tau_0 \exp[(U_0 - \gamma\sigma)/kT]$, where τ is the service life; σ is the stress, k is the Boltzmann constant; T is temperature; τ_0 approaches the natural oscillation periods of atoms; U_0 is the initial activation barrier of the failure process (equal to the sublimation energy of the metal); γ characterizes the abruptness of the barrier drop with the stress, depends on the structure and is connected with the overstrain on structural defects of natural bodies. The failure occurs when the total of partial changes of longevity becomes equal to 1:

$$\sum_i (\Delta t_i/\tau_i) = 1;$$

Card 1/2

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

85759

S/137/60/000/009/009/029
A006/A001

Strength as a Function of Time Under Various Loading Conditions

($\Delta t_i/\tau_i$ is the relative decrease of longevity, Δt_i is the effective time of the given load; σ_i, τ_i is the longevity during the constant effect of stress σ_i). The law of summation holds for any types of loading conditions, so that results of tests under various loading conditions can be predicted, and longevity values can be calculated which are difficult to access in direct observation (down to 10^{-7} sec). There are 7 references.

V.G.

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

Card 2/2

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

15.2120
17.1205

83626

S/081/60/000/014/007/009
A006/A001

Translation from: Referativnyy zhurnal, Khimiya, 1960, No. 14, p. 362, # 57934

AUTHORS: Vitman, F.F., Zhurkov, S.N., Levin, B.Ya., Pukh, V.P.

TITLE: On the Problem of Raising the Strength of Glass

PERIODICAL: V sb.: Nekotoryye probl. prochnosti tverdogo tela Moscow-Leningrad AN SSSR, 1959, pp. 340 - 347

TEXT: The possibility is shown of doubling the strength of hardened sheet glass (BB(VV) glass specimens and "rolled" glass from the Konstantinovka "Avtosteklo" Plant) by removing their surface defects by etching in HF solution after hardening. Average strength values of glass as high as 60-80 kg/mm^2 were obtained.

I. Mikhaylova

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

Card 1/1

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

ZHURKOV, S.N.; SLUTSKER, A.I.

Studying submicroscopic defects in metals by means of X-ray scattering at small angles. Issl.po zharopr.splav. 4:197-201 '59. (MIRA 13:5)

(Metals--Defects) (X rays--Scattering)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

66265

~~24 (6)~~ 5.3830 SOV/181-1-7-21/21

AUTHORS: Zhurkov, S. N., Marikhin, V. A., Slutsker, A. I.

TITLE: Investigation of Submicroscopic Porosity of Deformed Polymers

PERIODICAL: Fizika tverdogo tela, 1959, Vol 1, Nr 7, pp 1159 - 1164 (USSR)

ABSTRACT: Turbidity in several polymers (mainly in organic glasses and nitrocellulose, polyvinyl chlorides, styroflex, cellulose di- and triacetate etc) was experimentally produced by selecting various temperature and dynamic deformation conditions. The sample plates were 1-8 mm thick, the film samples were 100-150 μ thick. The samples of organic glass were stretched under temperatures between 60 and 80°C, the film samples under temperatures between 110-130°. For both cases the stretch was 1-3 kg/mm^2. The opacifying during stretching was measured by 3 different methods by light scattering experiments: 1. The indicatrix of the scattering was recorded. 2. The angular dependence of the polarization degree of the scattered light was measured. 3. The scattering coefficient as a function of the used wavelength of the light was investigated. The used equipments are schematically represented and the results of measure-

Card 1/3

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

Investigation of Submicroscopic Porosity of Deformed Polymers

66265

SOV/181-1-7-21/21

ment are displayed partly by tables, partly by diagrams. On the basis of these results it was possible to state that the opacifying is caused by formation of submicroscopical cracks (rupture of continuity) in the deformed polymers. The scattering experiments were completed by scattering investigations by means of X-rays using an arrangement as described in reference 10. According to the results obtained the dimensions of the inhomogeneities were evaluated and satisfactory agreement with values as obtained by light scattering was found. The concentration of the cracks may be calculated by means of optical and radiographical measurements and satisfactory agreement in both cases was noted. The evaluations of density decrease of the polymers on the strength of scattering experiments and of direct measurements were found to agree well. Professor K. S. Shifrin displayed interest in this work and supported it by valuable advice and discussions. There are 7 figures, 2 tables, and 10 references, 6 of which are Soviet.

Card 2/3

4

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

Investigation of Submicroscopic Porosity of Deformed Polymers

66265

SOV/181-1-7-21/21

ASSOCIATION: Leningradskiy fiziko-tekhnicheskiy institut AN SSSR (Leningrad Physics and Technical Institute of the AS USSR)

SUBMITTED: August 18, 1958

4

Card 3/3

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

66285

~~24(6)~~ 24.4100

AUTHORS: Zhurkov, S.N., Slutsker, A.I., Marikhin, V.A.

SOV/181-1-11-20/27

TITLE: Determination of the Form of Submicroscopic Cracks in Deformed Polymers

PERIODICAL: Fizika tverdogo tela, 1959, Vol 1, Nr 11, pp 1752-1754 (USSR)

ABSTRACT: In two previous papers (Refs 1,2) the authors investigated light dispersion in deformed polymers and found that cavities measuring 100 Å are formed in the deformation. A theoretical investigation is undertaken in this paper concerning the form and origin of these cavities as connected with the decomposition of the material, which mainly starts at cracks oriented at right angles to the direction of force. The theoretical considerations (only outlined in the present communication) are based on a number of simplifying assumptions, i.e. that the scattering particles are parallelepipeds, the incident beam of light is at right angles to one of the boundary surfaces, and the plane of observation is parallel to one of the two other surfaces. With the help of these assumptions and the approximation method of wave interference formula (1) is derived for the angular distribution of the

Card 1/3

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

66285

Determination of the Form of Submicroscopic Cracks in Deformed Polymers

SOV/181-1-11-20/27

dispersed light and discussed. The dispersion indicatrix (according to formula (1)) for various angles of incidence and observation is shown in figure 1. The authors used this formula to determine the form of the submicroscopic cracks in deformed polymers. The result (the dispersion indicatrix for organic glass at λ - 3300 Å - λ is the wave length of light in the medium - and deformation at 60° C is shown in figure 2. The curves (1) and (2) give the angular distributions for the case in which the incident beam of light is parallel to the deformation axis (Curve 1), and for the case in which it is at right angles to it (Curve 2). In the former case the cavities on which the light was dispersed did not exceed 100 Å, whereas in the latter case they were approximately 600 Å. This means that the submicroscopic cracks were disk-shaped (lenticular), and that the larger diameter was at right angles to the acting force. Finally, the authors thank Professor K.S. Shifrin for giving valuable advice. There are 2 figures and 6 references, 4 of which are Soviet.

Card 2/3

4

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

66285

Determination of the Form of Submicroscopic Cracks in Deformed Polymers

SOV/181-1-11-20/27

ASSOCIATION: Fiziko-tekhnicheskiy institut AN SSSR Leningrad (Physico-technic Institute of the AS USSR, Leningrad)

SUBMITTED: June 15, 1959

Card 3/3

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

66479

~~24(6)~~ 18.8400, 24.4100 SOV/20-129-1-25/64

AUTHORS: Zhurkov, S. N., Corresponding Member, AS USSR, Savitskiy, A. V.

TITLE: On the Mechanism of the Failure of Solids

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 129, Nr 1, pp 91 - 93 (USSR)

ABSTRACT: At first, various previous papers are discussed by the authors. B. Ya. Pines (Refs 11,12) proceeded from the hypothesis that a gap widens due to the flow of vacancies, which diffuse from the interior to their orifice. On the basis of this assumption he developed a theoretical expression for the life of solid bodies under stress which, with respect to its form, agrees with that found experimentally. However, the activation energy determining the velocity of the gap growth, equals, on the basis of data by Pines, the energy of selfdiffusion, which is less by about 20-30% than the corresponding experimental values. It was the aim of the present paper to verify the diffusion theory of the gap ~~growth,~~ which causes the failure of the sample. For this purpose, the activation energy U_0 of the destruction was determined from the dependence of strength on temperature. U_0 is then compared with the sublimation and selfdiffusion energy, which were

Card 1/4

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

66479

On the Mechanism of the Failure of Solids SOV/20-129-1-25/64

found by the authors by the method of radioactive indicators. In all investigations the same polycrystalline silver (99.99% Ag) was applied. Investigations were made in a large range of temperature and time. The results of these investigations confirm the formula

$\tau = \tau_0 \frac{U_0 - \gamma\sigma}{kT}$ which has already been found before. In this case

τ denotes the life-time, that is the time from the beginning of stress application to the failure of the sample, σ = stress, T = temperature. The computed values of the coefficients τ_0, γ, and U_0 are summarized in a table. The sublimation energy λ of silver, determined by the alteration of the steam pressure, agrees well with measurements made by other authors. The selfdiffusion coefficient D of the same (radioactively tagged) silver was measured by the absorption method within the temperature range 460° to 920° C. A table illustrates the energy of selfdiffusion computed from it. The activation energy U_0 of the destruction process practically agrees with λ with respect

Card 2/4

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

66471

On the Mechanism of the Failure of Solids SOV/20-129-1-25/64

to the magnitude. On the strength of these results the authors concluded that the correctness of the said diffusion mechanism of the growth of the gaps is doubtful. To confirm this conclusion, the authors tried to demonstrate that U_0 deviates not only qualitatively but also quantitatively from the energy of selfdiffusion. For this purpose a solid solution of silver with 5 at% aluminum, was investigated. The energy of selfdiffusion decreased by 30%, on adding aluminum to silver, whereas the energy of destruction and the sublimation energy remained unchanged. This indicates the lack of a correlation between U_0 and the energy E_a of selfdiffusion. According to the results of present paper no relation exists between selfdiffusion and life of a solid body. The increase of a gap in a solid does not depend on the mobility of atoms, depending on diffusion. This applies also to other proposed processes, which are based mainly on the importance of diffusion with respect to the destruction of metals. There are 4 figures, 1 table, and 19 references, 14 of which are Soviet.

Card 3/4

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

66479

On the Mechanism of the Failure of Solids SOV/20-129-1-25/64

ASSOCIATION: Fiziko-tekhnicheskiy institut Akademii nauk SSSR (Institute of Physical Engineering of the Academy of Sciences, USSR)

SUBMITTED: July 20, 1959

4

Card 4/4

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

Zhurkov, S. N.

PHASE I BOOK EXPLOITATION SOV/4186

Akademiya nauk SSSR

Stroyeniye veshchestva i spektroskopiya (Structure of Matter and Spectroscopy) Moscow, Izd-vo AN SSSR, 1960. 113 p. Errata slip inserted. 2,300 copies printed.

Ed.: K. V. Astakhov, Professor; Tech. Ed.: T. P. Polenova.

PURPOSE: This collection of articles is intended for physicists and chemists interested in spectroscopic methods of research on the structure of molecules and related problems.

COVERAGE: The articles contained in this collection were taken from the editorial files of the Zhurnal fizicheskoy khimii (Journal of Physical Chemistry) and are concerned with spectroscopic methods in research on the structure of molecules, the hydrogen bond, isotopic effects, problems in magnetochemistry, the structure of aqueous solutions of electrolytes, and the chemistry of complex compounds. References accompany individual articles.

Card 1/6

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

Structure of Matter and Spectroscopy SOV/4186

Shigorin, D. N., M. M. Shemyakin, M. N. Kolosov, and T. S. Ryabchikova [Fiziko-khimicheskiy institut im. L. Ya. Karpova (Physicochemical Institute imeni L. Ya. Karpov)] and Institut biologicheskoy i meditsinskoy khimii AMN SSSR [Institute of Biological and Medical Chemistry of the Academy of Medical Sciences USSR]. Intermolecular Interaction and Oscillation Spectra of Acetylene Compounds 36

Izmail'skiy, V.A., and V.Ye. Limanov [Moskovskiy pedagogicheskiy institut im. V.P. Potemkina-Moscow Pedagogical Institute im. V.P. Potemkin] Absorption Spectra of Derivatives of N-[β- (4-Nitrophenyl)-Ethyl]- Aniline 41

Izmail'skiy, V. A., and V. Ye. Limanov [Moskovskiy pedagogicheskiy institut im. V. P. Potemkina (Moscow Pedagogical Institute imeni V. P. Potemkin)]. Absorption Spectra of Derivatives of N-[β-(2,4-Dinitrophenyl)-Ethyl]-Aniline 53

Rabinovich, I. B. [Gor'kovskiy gosudarstvennyy universitet im. N. I. Lobachevskiy (Gor'kiy State University imeni N. I. Lobachevskiy)]. Effect of Displacement of Hydrogen by Deuterium on the Molal Volume of Liquids 62

Card 3/6

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

The author thanks the following for having participated in determining the density of deuterocompounds: V. G. Golov, P. N. Nikolayev, V. I. Kucheryavyy, Ye. Z. Zhuravlev, V. I. Murzin, and L. S. Zhilkin. He thanks A. I. Brodskiy for his discussion of the results.

Ar'yev, A. M., and M. B. Al'tshuler [Novocherkasskiy politekhnicheskiy institut (Novocherkassk Polytechnic Institute)]. Problem of Change in the Structure of Polyethylene at Plane-Radial Extension 69

Rabinovich, I. B., V. M. Salov, Ye. I. Novikova, S. D. Ravikovich, and V. M. Nikolayev [Gor'kiy State University imeni N. L. Lobachevskiy]. Isotopic Effect on the Viscosity of Deuteroalcohols 73

Vasiliu, M. I., V. N. Yeremenko, and V. V. Fesenko. Investigation of Surface Tension of Liquid Metal Solutions. I. Surface Tension of a Lead-Silver System 78

Veynberg, T. I. Coordination Equilibria of Nickel Ions in K_2O – PbO – SiO_2 System Glasses 84

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

Structure of Matter and Spectroscopy SOV/4186

Kolesova, V. A. [Institut khimii silikatov (Institute of the Chemistry of Silicates)]. Structure of Spodumene Glass 93
V. I. Aver'yanov is thanked for having plotted the curves for α- and β- spodumene and for the crystallization product of spodumene glass.

Rebane, T. K. [Physicochemical Institute imeni L. Ya. Karpov]. Calculation of Excess π-Electron Diamagnetic Susceptibility of Certain Molecules Containing the Six-Member Carbon Ring With the Aid of the Free Electrons Model 96
The author thanks I. N. Kalachevaya and B. Ye. Samosudov for the numerical calculations, and Ye. N. Gur'yanova and M. N. Adamov for their suggestions.

Samoylov, O. Ya., and M. N. Buslayeva [Institut obshchey i neorganicheskoy khimii im. N. S. Kurnakova (Institute of General and Inorganic Chemistry imeni N. S. Kurnakov)]. Temperature Dependence of Coordination Numbers of Alkali Metal Cations in Aqueous Solutions 102

Card 5/6

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

Structure of Matter and Spectroscopy SOV/4186

Yesin, O. A. [Ural'skiy politekhnicheskiy institut im. S. M. Kirova Sverdlovsk (Ural Polytechnic Institute imeni S. M. Kirov, Sverdlovsk)]. Form of Surface Tension Isotherms 111

AVAILABLE: Library of Congress

JA/dwm/ec
10-20-60

Card 6/6

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

81613

S/181/60/002/06/01/050
B122/B063

18.8200

AUTHORS: Zhurkov, S. N., Sanfirova, T. P.

TITLE: Investigation of the Time- and Temperature Dependences of Strength

PERIODICAL: Fizika tverdogo tela, 1960, Vol. 2, No. 6, pp. 1033-1039

TEXT: This is the reproduction of a lecture delivered at the All-Union Scientific Conference on the Physics of Strength which took place at Khar'kov on November 26, 1958. This article is a contribution to systematic investigations of the strength of solids. For the temperature dependence of the durability τ of a material under a load σ the authors obtained the empirical formula $\tau = \tau_0 e^{\frac{u_0 - \gamma\sigma}{kT}}$ (1). The parameters of this equation (u_0, τ_0, γ) which determine the strength of a given material, are carefully studied on polycrystalline aluminum and zinc of variable grain size. The samples were produced by cold-hardening and subsequent

Card 1/3

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

81613

Investigation of the Time- and Temperature Dependences of Strength

S/181/60/002/06/01/050
B122/B063

recrystallization tempering. Besides, the authors examined the effect of admixtures (magnesium to aluminum) upon the strength of this material. The methods used are described in Ref. 4. Figs. 1,2,4,5, and 6 show the functions $\tau(\sigma)$ for Al, Al + 2% Mg, and Zn for different experimental and recrystallization temperatures. It was found that both a change of the treatment temperature and a slight change of the chemical composition has no effect on u_0, the barrier of activation energy of the tensile test, and τ_0. For this type of dependence, equation (1) was set up in the following form for a constant experimental temperature:

$$\tau = Ae^{-\alpha\sigma}(T=\text{const}) \quad (2), \quad A = \tau_0 e^{\frac{u_0}{kT}}, \quad \alpha = \frac{\gamma}{kT}.$$

All changes in the strength of the material caused by heat treatment are thus described by the parameter γ (Fig. 7). The authors were able to set up a quantitative relation between γ and the diameter d: $\gamma \sim \sqrt{d}$. In order to find out whether this is a direct relation or whether it reflects the fine structure of the grain, lattice imperfections, or the packet structure, the authors examined two samples of equal grain size, which

Card 2/3

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

81614

S/181/60/002/06/02/050
B122/B063

24.4100

AUTHORS: Zhurkov, S. N., Levin, B. Ya., Sanfirova, T. P.

TITLE: Temperature - Time Dependence of the Strength of Silver Chloride

PERIODICAL: Fizika tverdogo tela, 1960, Vol. 2, No. 6, pp. 1040-1042

TEXT: The temperature - time dependence of the durability τ on the voltage applied σ with a change in the experimental temperature was studied on metals, melts, solid solutions, and polymers. In the article under review, the authors used a material with bound ions (AgCl polycrystal) to determine the constants U_0 (activation energy of the tensile test), τ_0, and γ of the function $\tau = \tau_0 \exp\left(\frac{U_0 - \gamma\sigma}{kT}\right)$. The preparation of the samples and the experimental arrangement are described in the papers of Refs. 12 and 13. The tensile tests were made between 18°C and 200°C. Investigations revealed that the dependence of τ on σ is determined by the given and usual formula for metals and alloys. τ_0 likewise has the

Card 1/2

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

Temperature - Time Dependence of the Strength of Silver Chloride

81614
S/181/60/002/06/02/050
B122/B063

order of magnitude of atomic natural oscillations in the crystal lattice.

U was determined from function $\lg\tau = f(\frac{1}{T})$, U_0 from $U = U_0 - \sigma\gamma$ and γ from $\lg\tau = f(\sigma)$ (Figs. 2,3,4). It was found that the same temperature-time function holds for materials with ionic bond as holds for metals and alloys. However, the significance of U_0, which coincides with the sublimation energy in the latter, could not be fully clarified. The question remained unanswered, as to whether the coincidence of U_0 = 31 kcal/mole with the formation heat of 30.3 kcal/mole is casual, or whether there is a connection determining the mechanism of the rupture. There are 4 figures and 15 references: 10 Soviet, 2 German, and 1 British.

ASSOCIATION: Fiziko-tekhnicheskiy institut AN SSSR Leningrad (Physicotechnical Institute of the AS USSR, Leningrad)

SUBMITTED: August 18, 1959

Card 2/2

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

ZHURKOV, S.N.; LEVIN, B.Ya.; SANFIROVA, T.P.

Temperature-time dependence of the strength of silver chloride.
Fiz.tver.tela 2 no.6:1040-1042 Je 60. (MIRA 13:8)

1. Fiziko-tekhnicheskiy institut AN SSSR, Leningrad.
(Silver chloride)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

84065
S/181/60/002/009/006/036
B004/B056

24.4100

AUTHORS: Zhurkov, S. N., Levin, B. Ya., Tomashevskiy, E. Ye.

TITLE: Time Dependence of Durability Under High-vacuum Conditions

PERIODICAL: Fizika tverdogo tela, 1960, Vol. 2, No. 9, pp. 2066-2069

TEXT: In two papers by the first-mentioned author (Refs. 1, 2), the effect of the time factor upon the destruction of solids was proved. The results obtained led to the conclusion that the time dependence of durability did not depend on the surrounding medium. The present paper aimed at experimentally proving this conclusion. Investigations were carried out on the durability σ of organic glass (polymethyl methacrylate), aluminum, and silver chloride at $(1 - 3)\cdot 10^{-7}$ torr and room temperature, and at $(1 - 2)\cdot 10^{-6}$ torr and higher temperatures (75-80°C for organic glass, 300°C for aluminum, and 100°C for silver chloride). The testing apparatus for organic glass is schematically shown in Fig. 1, the apparatus for Al and AgCl in Fig. 2. In the case of these more solid substances the loading weight was outside the vacuum space. The authors describe the production, purification, and heat treatment of the samples. Fig. 3 represents the results obtained as $\log \tau = f(\sigma)$. The instant of time τ

Card 1/2

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

Time Dependence of Durability Under High-vacuum Conditions

84065
S/181/60/002/009/006/036
B004/B056

at which rupture occurred, remains a function of stress just as under atmospheric pressure. The exponential character of the dependence of durability on stress is conserved. Fig. 4 shows that, in organic glass, durability is reduced by the action of oil vapors. The function $\log \tau = f(\sigma)$ is then no longer linear. There are 4 figures and 4 references: 2 Soviet, 1 US, and 1 British.

ASSOCIATION: Fiziko-tekhnicheskiy institut AN SSSR, Leningrad (Institute of Physics and Technology of the AS USSR, Leningrad)

SUBMITTED: February 22, 1960

Card 2/2

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

BETEKHTIN, V.I.; ZHURKOV, S.N.; SAVITSKIY, A.V.

Effect of additions on the temperature-time relation of metal strength. Fiz. met. i metalloved. 10 no.3:453-461 S '60. (MIRA 13:10)

1. Fiziko-tekhnicheskiy institut AN SSSR, Leningrad.
(Alloys--Testing) (Metals, Effect of temperature on)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

89992

S/190/61/003/003/008/014
B101/B204

15.8000 2209

AUTHORS: Zhurkov, S. N., Abasov, S. A.

TITLE: The role played by chemical and intermolecular bonds in polymer breaking

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 3, no. 3, 1961, 450-455

TEXT: The authors of the present paper consider the problems of mechanical strength of polymers to be still unexplained. The mechanism of polymer breaking and the role played thereon by chemical and intermolecular forces, temperature, and time are still unknown. The present paper is an attempt to clarify the role of chemical and intermolecular bonds, using experimental data on temperature and time dependence of the strength. From experiments with polymer fibers the relation $\tau = \tau_0 \exp[(u_0 - \gamma\sigma)/kT]$ (1) was determined in Ref. 1 (S. N. Zhurkov, S. A. Abasov, Vysokomolek. soyed. 3, 441, 1961). The notations are the following: τ = breaking time, σ = stress, T = temperature, τ_0, u_0, and γ - constants depending on the material. The interpretation of (1) shows: 1) The time factor is a

Card 1/5

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

basic characteristic of strength. 2) The dependence of the strength on kT proves the breaking to be an activation process the rate of which depends on the energy of the heat vibrations. 3) On breaking, an energy barrier u_o has to be overcome which depends on the kind of the bonds. 4) Under the effect of stress, u_o is decreased by $\gamma\sigma$. From this, it is concluded that the breaking of polymers is not a purely mechanical process. Breaking is due to heat vibrations. The stress only decreases the energy barrier and renders breaking more probable. The following is established: a) u_o depends on the chemical bonds only. In this case, it cannot be affected by orientation or plastification of the polymer since these act on intermolecular bonds only. b) u_o depends on the intermolecular bonds. In this case, orientation and plastification of the polymer will alter u_o. This problem was solved by experiments with Viscose, Capron, and polyacrylonitrile fibers. A) The effect of the plasticizer was checked with Viscose and Capron fibers. The Viscose fibers were plasticized by water vapor, the Capron fiber by vapor of formic acid. The tests were made according to the method described in Ref. 1. Fig. 1 presents the results

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

for dry Viscose fibers and for such swollen in water vapor by 53%. The exponential equation $\tau = A\exp(-\alpha\sigma)$ (2) holds. As in the system of coordinates log τ, σ both straight lines intersect on the ordinate axis, A is not affected by the plastification. Only α changes. The same results were obtained with Capron fiber. Therefore, u_o does not depend on the plasticizer. B) The effect of orientation was checked at acrylonitrile fiber. One specimen was drawn 17-fold from the solution under spinning, the other only 10-fold. Eq. (2) holds also for these specimens. A comparison of (1) and (2) at T = const shows: $A = \tau_o \exp(u_o/kT) = \text{const}$; $\alpha = \gamma/kT$. In order to check whether τ_o and u_o change in a way that A remains constant, or whether both are constant, breaking tests were made with highly oriented, very strong Capron fiber at +80, +20, and -75°C, and with slightly oriented fiber at +20 and -75°C. Fig. 4 shows that Eq. (1) holds for both fibers, and that τ_o, u_o = const, so that strength depends only on γ. From this the authors calculated the following:

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

89992

The role played by chemical... S/190/61/003/003/008/014
B101/B204

	τ_0(sec)	u_0(kcal/mole)	γ, (kcal/mole)·(mm²/kg)
highly oriented fiber	10^{-12}	45	0.29
slightly oriented fiber	10^{-12}	45	0.43

u_0 is of the order of the chemical bond. An experiment with Viscose fiber of French and Soviet origin also proved that the strength depends on the coefficient γ only. The latter is only indirectly influenced by the intermolecular bonds and is defined as the measure of the micro-inhomogeneous distribution of the stress in the fiber. Breaking occurs by rupture of the chemical bonds. The present paper was read at the Conference on the Strength of Polymers and Polymeric Materials, Moscow, May 16-18, 1960. There are 5 figures, 2 tables, and 1 Soviet-bloc reference.

ASSOCIATION: Fiziko-tekhnicheskiy institut AN SSSR (Institute of Physics and Technology of the AS USSR)

SUBMITTED: August 8, 1960

Card 4/5

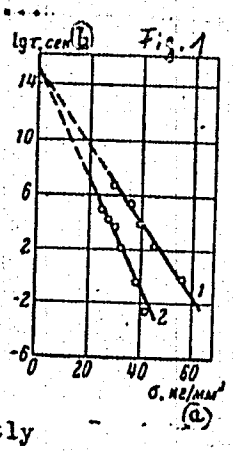
APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

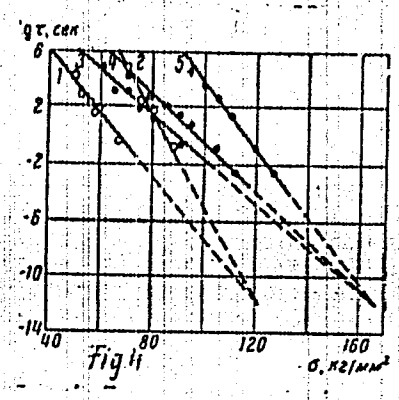
89992

The role played by chemical....

S/190/61/003/003/008/014
B101/B204



Legend to Fig. 1: 1) Dry; 2) plastified with water vapor, water content 53%, a) kg/mm², b) sec.



Legend to Fig. 4: o slightly oriented fiber: 1) 20°C; 2) -75°C; • highly oriented fiber: 3) 80°C; 4) 20°C; 5) -75°C.

Card 5/5

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

28098
S/181/61/003/009/032/039
B108/B138

54130 1043

AUTHORS: Zhurkov, S. N., Tomashevskiy, E. Ye., and Zakrevskiy, V. A.

TITLE: Study of macroradicals formed in mechanical destruction of polymers

PERIODICAL: Fizika tverdogo tela, v. 3, no. 9, 1961, 2841-2847

TEXT: This is a study of the electron paramagnetic resonance spectra observed during the mechanical destruction in a high vacuum of such polymers as polymethyl metacrylate, polystyrene, polyvinyl acetate, etc. For this purpose the authors devised an electron paramagnetic resonance spectrometer with crystal detector which operated with a high-frequency modulated magnetic field. H_{011} vibrations were excited in a liquid-nitrogen cooled cylindrical resonator (Ref. 7: N. N. Bubnov, A. G. Semenov. PTE, no. 1, 92, 1959). In this resonator were placed the specimens and a special device to cut shavings from the polymers in a vacuum of 10^{-5} - 10^{-6} mm Hg. The sensitivity of the spectrometer was about $5 \cdot 10^{11}$ spins. The paramagnetic absorption signal was amplified

Card 1/4

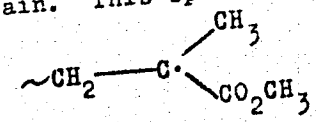
APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

28098
S/181/61/003/009/032/039
B108/B138

Study of macroradicals formed in ...

on modulation frequency and, after phase detection, was observed on an oscilloscope. The spectrum of polymethyl metacrylate shavings at room temperature consisted of five equidistant lines splitting of 23 oersted and four weaker intermediate lines. At low temperature, the essential shape of the spectrum was the same. The central part, however, was slightly asymmetric. When the sample was heated up to room temperature, the normal spectrum appeared again. This spectrum corresponds to the radical



in which the free electron interacts with one or two of the four β-protons. After repeated cooling the low-temperature spectrum does not appear again. This is due to a second, more active radical $R_1-\dot{C}(H)-R_2$ which vanishes when heated. The free electron in this radical interacts with one proton only. Polystyrene shows a weak spectrum at low temperatures. This

Card 2/4

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

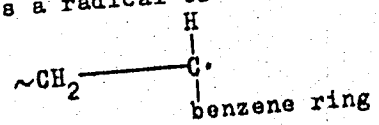
"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

4

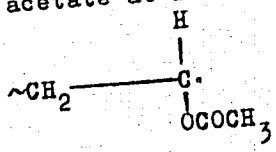
28098
S/181/61/003/009/032/039
B108/B138

Study of macroradicals formed in ...

spectrum indicates a radical of the shape



in which the free electron may interact with the hydrogen atoms of the chain or with those of the benzene ring. A clear triplet appears in the case of polyvinyl acetate at low temperature. The radical ascribed to this triplet is



where the free electron weakly interacts with one of the protons of the methylene group. The presence of oxygen at room and at low temperature leads to a peroxidation of the radicals. A. Ya. Savostin is thanked for assistance. There are 6 figures and 15 references: 5 Soviet and 10 non-Soviet. The three most recent references to English-language

Card 3/4

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

28093
S/181/61/003/009/032/039
B108/B138

Study of macroradicals formed in ...

publications read as follows: M. C. R. Symons. J. Chem. Soc., 277, 1959. R. Florin et al., Trans. Farad. Soc., 56, 1304, 1960. D. W. Ovenall, J. Polymer Sci., XLI, 199, 1959.

ASSOCIATION: Fiziko-tekhnicheskiy institut im. A. F. Ioffe AN SSSR Leningrad (Physicotechnical Institute imeni A. F. Ioffe of the AS USSR, Leningrad)

SUBMITTED: May 26, 1961

Card 4/4

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

NOVAK, I.I., ZHURKOV, S.N., VETEGREN, V.I.

Study of orientation and crystallization of caprone fibers by infrared microscopy.

Report presented at the 13th Conference on High-molecular compounds Moscow, 8-11 Oct 62

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

MARIKHIN, V.A., ZHURKOV, S.N., ROMANKOVA, L.P.

Electron-microscopic study of the supermolecular structure of polymers on cleavage surfaces.

Report presented at the 13th Conference on High-molecular compounds Moscow, 8-11 Oct 62

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

ABASOV, S.A., ZHURKOV, S.N.

Relations between the degree of polymerization and the strength of oriented and non-oriented caprone fibers.

Report presented at the 13th Conference on High-molecular compounds. Moscow, 8-11 Oct 62

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

33377
S/190/62/004/002/006/021
B110/B101

15.9300

AUTHORS: Zhurkov, S. N., Sanfirova, T. P., Tomashevskiy, E. Ye.

TITLE: Mechanical properties of rubbers at high stretching rates

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 4, no. 2, 1962, 196 - 200

TEXT: Some natural and synthetic rubbers (kok-saghyz, butadiene styrene, chloro butadiene, nitrile rubber), as well as plasticized PVC were mechanically tested under rapid deformation by the authors' method (Zh. tekhn. fiziki, 23, 933, 1953); stretching was performed by a rotating flywheel. The force was measured with a capacity dynamometer of weak inertia and a rheochord with sliding contact. The simplified electric signals were recorded by an oscilloscope. The samples in the form of double shovels with a test length of 24 mm and a cross-sectional area of ~3 mm^2 were stretched at room temperature at the rate of 0.2 cm/sec up to 31 m/sec. The mechanical characteristics of rubbers vary as dependent on filler and rubber type with changing stretching rate. With increasing stretching rate, the stretching diagrams keep their shape, the rubber modulus rises, and rupture stress and

Card 1/3

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

33377

S/190/62/004/002/006/021
B110/B101

Mechanical properties of rubbers...

strength change. For carbonblack-filled rubbers, the limiting deformation decreases with increasing stretching rate. The latter strongly affects the strength. For unfilled, noncrystallizing rubbers, the strength rises with increasing stretching rate. The strength of crystallizing unfilled rubbers drops initially, passes a broad minimum, and starts rising again. Active fillers affect the strength and its dependence on the stretching rate. Considering the time dependence of destruction it is shown that the strength increases with increasing loading rate. The contrary behavior of some rubbers is probably due to structural changes (crystallization) during deformation, since the 1-2 sec crystallization process is not completed in the case of rapid deformation. Chloro butadiene rubber was loaded at the stretching rate of 10^{-4} - 10^{4}%/sec by means of a water jet flowing through a capillary tube. The strength reaches a maximum at 10%/sec, decreases and starts rising again at $>10^{4}$%/sec. The change in strength with the deformation rate corresponds to the time dependence of strength with variable structure. The relevant curve falls into three sections: (1) section of slow stretching, where the variation in strength is determined by the time dependence of the crystallizing rubber; (2) transitory section with abnormal variation in strength, owing to lack of time for crystallization;

Card 2/3

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

33377
S/190/62/004/002/006/021
B110/B101

Mechanical properties of rubbers...

(3) section of high rates, where the strength is determined by the time dependence of the noncrystallizing rubber. The strength of samples slowly prestretched at 2 kg/mm^2 was nearly double. This proves the influence of crystallization on the deviations from the time dependence of strength. The strength of noncrystallized, unfilled СКС-30(SKS-30) rubbers increases over the whole range of stretching rates, but faster at high rates. Carbonblack-filled SKS-30 shows the same maximum as crystallized rubbers. Thus, the complex interaction of the filler with the rubber depends largely on the deformation rate. There are 6 figures and 7 references: 5 Soviet and 2 non-Soviet. The two references to English-language publications read as follows: D. S. Villars, J. Appl. Phys., 21, 565, 1950; M. E. Acken, W. E. Singer, W. P. Davey, Industr. and Engng Chem. 24, 54, 1932.

ASSOCIATION: Fiziko-tekhnicheskiy institut AN SSSR (Physicotechnical Institute AS USSR)

SUBMITTED: February 7, 1961

Card 3/3

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7

ZHURKOV, S.N.; ABASOV, S.A.

Polymer strength as dependent on molecular weight.
Fiz. tver. tela 4 no.8:2184-2192 Ag '62. (MIRA 15:11)

1. Fiziko-tekhnicheskiy institut imeni A.F. Ioffe AN SSSR, Leningrad.
(Strength of materials) (Molecular weights)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030008-7"