"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001444

[illegible], [illegible]

"Treatment of Cirrhosis by means of an Albumin-Vitamin Diet," Sov. Med., No. 4, 1949. Propedeutic Therapeutic Clin, First Moscow Order of Lenin Med. Inst, -c1949-.

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014443

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001444

RATNER, N.A.

Differential diagnosis of renal arteriolosclerosis from nephritis. Tr. Akad. med. nauk SSSR. Vol.20:201-220 1952 (CIML 25:5)

1. Of the Institute of Therapy (Director -- A.L. Myasnikov, Active Member AMN USSR), Academy of Medical Sciences USSR.

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014443

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001444

DENISOVA, Ye.A.; RATNER, N.A.; SMAZHNOVA, N.A.

Treatment of crises in hypertension. Trudy AMN SSSR 25:28-42 '53.
(HYPERTENSION) (MLRA 8:8)
(CRISES AND CRITICAL DAYS (PATHOLOGY))

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014443

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001444

ZAMYSLOVA, K.N.; RATNER, N.A.

Review of A.I. Gruzin's book "Hypertension." Terap.arkh. 25 no.2:77-80 Mr-Ap '53. (MLRA 6:5)

(Hypertension) (Gruzin, A.I.)

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014443

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001444

RATNER, N. A.

RATNER, N.A., doktor meditsinskikh nauk (Moskva)

Critical stages in hypertension and their therapy. Fel'd. i akush. no.6:28-31 Je '54. (MLRA 7:7)
(HYPERTENSION, therapy)

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014443

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001444

RATNER, N.A., doktor meditsinskikh nauk

Effect of sodium amytal and of chloral hydrate on renal circulation in hypertension. Terap. arkh. 26 no.6:51-59 N-D '54. (MLRA 8:2)

1. Iz Instituta terapii (dir. deystvitel'nyy chlen AMN SSSR prof. A.L.Myasnikov) AMN SSSR.

(HYPERTENSION, physiology,
kidneys, eff. of barbiturates & chloral hydrate on renal circ.)
(KIDNEYS, blood supply,
eff. of barbiturates & chloral hydrate on renal circ. in hypertension)
(BARBITURATES, effects,
on kidney circ. in hypertension)
(CHLORAL HYDRATE, effects,
on kidney circ. in hypertension)

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014443

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001444

RATNER, N.A., doktor meditsinskikh nauk; SPIVAK, G.L.

Capillary permeability and its reactions to neurotropic substances in hypertension. Terap.arkh. 27 no.2:28-35 '55. (MIRA 8:7)

1. Iz Instituta terapii (dir.-deystvitel'nyy chlen AMN SSSR prof. A.L.Myasnikov) AMN SSSR.
(HYPERTENSION, physiology,
capillary permeability, eff. of neurotropic substances)
(CAPILLARY PERMEABILITY, in various diseases,
hypertension, eff. of neurotropic substances)

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014443

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001444

RATNER, N. (Moskva)

Scientific conference on atherosclerosis and coronary insufficiency.
Klin.med. 34 no.10:93-95 O '56. (MLRA 10:1)
(ARTERIOSCLEROSIS)

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014443

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001444

25-4-5/34

SUBJECT: USSR/Hypertension

AUTHOR: Ratner, N.A., Doctor of Medical Sciences

TITLE: Hypertension (Gipertonicheskaya Bolezn')

PERIODICAL: Nauka i Zhizn' - April 1957, # 4, pp 11-13 (USSR)

ABSTRACT: Among cardio-vascular illnesses, Hypertension is one of the most frequent. Its main symptom is permanently increased blood pressure in the arteries. Headaches, buzzing in the ears, and reduced ability to work are the consequences. Hypertension is more frequent among city inhabitants than with people in rural districts. This illness is not limited to people over 40 yrs and older, but has also been observed with much younger patients. The Soviet scientist G.F. Lang has classified this disease as an independent ailment, thus ensuring a better approach to methods of curing it. Hypertonia can be cured if its psychic sources are eliminated and preventive treatment is applied in due course. Soviet Academician A.L. Myasnikov comes to the conclusion that Hypertension is due to heavy neurosis leading to disturbances in the cardio-vascular system. For therapy, the Soviet medicine Diabasol is recommended for oral application in

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TITLE: Hypertension (Gipertonicheskaya Bolezn') 25-4-5/34

pulverized form or for injection in the veins or muscles. Sufficient sleep, regular habits, mild exercise, and plenty of fresh air is the best preventive treatment.

This article contains two diagrams.

ASSOCIATION:

PRESENTED BY:

SUBMITTED:

AVAILABLE: At the Library of Congress.

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APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014443

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001444

RATINER, N.A.; DENISOVA, Ye.A.; SMAZHNOVA, N.A.

[Crisis in hypertension] Gipertonicheskie krizy. Moskva, Medgiz, 1958. 135 p. (MIRA 11:4)
(HYPERTENSION)

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014443

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001444

RATNER, N.A., prof.

Role of the renal factor in the pathogenesis of hypertension. Vest.AMN SSSR 13 no.10:39-48 '58 (MIRA 11:10)

(HYPERTENSION,
renal (Rus))

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014443

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001444

RATNER, N.A., prof. (Moscow)

Ninth Session of the Therapy Institute of the Academy of Medical Sciences of the U.S.S.R. in conjunction with the Division of Pathoanatomy of the Institute of Experimental Medicine of the Academy of Medical Sciences of the U.S.S.R. on the problem "Atherosclerosis and myocardial infarct." Terap.arkh. 30 no.5:88-93 My '58 (MIRA 11:6)
(ARTERIOSCLEROSIS)
(HEART--INFARCTION)

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014443

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001444

RATNER, N.A., prof.; VADKOVSKAYA, Yu. D.

Effect of pentamine and reserpine on renal function in hypertension.
Terap. arkh. 30 no.12:25-34 D '58. (MIRA 12:1)

1. Iz Instituta terapii AMN SSSR (dir. - deystvitel'nyy chlen AMN SSSR prof. A.L. Myasnikov).
(PENDIOMIDE, effects,
on kidney funct. in hypertension, with reserpine (Rus))
(RESERPINE, effects,
on kidney funct. in hypertension, with pendiomide (Rus))
(KIDNEYS, eff. of drugs on,
pendiomide with reserpine, in hypertension (Rus))

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014443

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001444

RATNER, Nina Aleksandrovna, prof.; DANILYAK, I.G., red.; ZUYEVA, N.K., tekhn.red.

[Hypertension] Gipertonicheskaia bolezn'. Moskva, Gos.izd-vo med.lit-ry, 1959. 27 p. (MIRA 13:7)

(HYPERTENSION)

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014443

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001444

RATNER, N.A., prof.; SPIVAK, G.L.

Chronic pyelonephritis. Terap.arkh. 31 no.9:20-31 S '59. (MIRA 12:11)

1. Iz Instituta terapii AMN SSSR]dir. - deystvitel'nyy chlen AMN SSSR prof. A.L. Myasnikov), Moskva.
(PYELONEPHRITIS)

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014443

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001444

RATNER, Nina Aleksandrovna, prof.; GOLOSHCHAPOVA, A.F., red.; BALDINA, N.F., tekhn. red.

[Hypertension and atherosclerosis] Gipertonicheskaia bolezn' i ateroskleroz. Moskva, Medgiz, 1960. 31 p. (MIRA 14:12)
(HYPERTENSION) (ARTERIOSCLEROSIS)

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014443

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001444

RATNER, N.A., prof.; SPIVAK, G.L., kand.med.nauk

Symptomatic renal hypertension. Terap.arkh. 32 no.9:20-28 '60.
(MIRA 14:1)

1. Iz Instituta terapii AMN SSR (dir. - deystvitel'nyy chlen AMN SSSR prof. A.L. Myasnikov).
(HYPERTENSION) (KIDNEYS--DISEASES)

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014443

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001444

RATNER, N.A.; GLEZER, G.A.; SPIVAK, G.L.; SHARAPOV, U.B.

Diuretic and hypotensive action of hypothiazide. Terap.arkh. 33 no.10:92-102 '61. (MIRA 15:1)

1. Iz Instituta terapii (dir. - deystvitel'nyy chlen AMN SSSR prof. A.L. Myasnikov) AMN SSSR.
(THIADIAZINE)

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014443

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001444

RATNER, N.A., prof.; SPIVAK, G.L., kand.med.nauk (Moskva)

Significance of kidney function test in the differential diagnosis of pyelonephritis. Klin.med. 39 no.3:125-130 Mr '61. (MIRA 14:3)

1. Iz Instituta terapii AMN SSSR (dir. - deystvitel'nyy chlen AMN SSSR prof. A.L. Myasnikov).
(KIDNEYS—DISEASES)

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014443

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001444

RATNER, N.A., prof.

Hypertension in renal diseases. Kardiologiia 2 no.5:3-10 S-O '62. (MIRA 15:12)

1. Iz Instituta terapii AMN SSSR (dir. - deystvitel'nyy chlen AMN SSSR A.L.Myasnikov).
(HYPERTENSION) (KIDNEYS—DISEASES)

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014443

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001444

RATNER, N.A., prof.; GLEZER, G.A.; SPIVAK, G.L.

Use of ismelin (guanethidine) in hypertension. Terap.arkh. no.8:102-109 '62. (MIRA 15:12)

1. Iz Instituta terapii (dir. - deystvitel'nyy chlen AMN SSSR prof. A.L. Myasnikov) AMN SSSR.
(GUANETHIDINE) (HYPERTENSION)

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014443

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001444

LEVI, S.S., kand. tekhn.nauk; RATNER, N.A., inzh.; KOPLEVICH, L.Kh., inzh.; MADATYAN, S.A., inzh.; DOROFEYEV, A.K., inzh. D'YACHENKO, P.Ya., inzh.; KLIMOVA, G.D., red. izd-va; MOCHALINA, Z.S., tekhn. red.

[Instructions N9-61 on reinforcing techniques in industrial and public construction] Ukazaniia po tekhnologii proizvodstva armaturnykh rabot v promyshlennom i grazhdanskom stroitel'stve (N9-61). Moskva, Gostroiizdat, 1962. 319 p. (MIRA 15:7)

1. Akademiya stroitel'stva i arkhitektury SSSR. Institut organizatsii, mekhanizatsii i tekhnicheskoy pomoshchi stroitel'stvu. (Concrete reinforcement) (Precast concrete)

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014443

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001444

RAINER, N.A.

Diuretic and hypotensive effect of hypothiazide. Trudy Inst. klin. i eksper. kard. AN Gruz. SSR 8:275-277 '63. (MIRA 17:7)

1. Institut terapii AMN SSSR, Moskva.

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014443

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001444:

BARATS, S.S., kand. med. nauk; PYTEL', A.Ya., prof.; RATNER, M.Ya., doktor med.nauk; RATNER, N.A., prof.; REYZEL'MAN, S.D., prof. [deceased]; SURA, V.V., st. nauchn. sotr.; TUMANOVSKIY, M.N., prof.; CHERVYAKOVSKIY, N.Ya., prof.; SHCHERBA, M.L., prof. [deceased]; EPSHTEYN, I.M., prof.; TAREYEV, Ye.M., prof., red. toma; OSTROVERKHOV, G.Ye., prof., glav. red.; SHUL'TSEV, G.P., doktor med. nauk, red.

[Multivolume manual on internal diseases] Mnogotomnoe rukovodstvo po vnutrennim bolezniam. Moskva, Medgiz. Vol.9. [Diseases of the kidneys] Bolezni pochek. 1963. 383 p. (MIRA 16:11)

1. Deystvitel'nyy chlen AMN SSSR (for Tareyev).
(KIDNEYS--DISEASES)

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014443

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001444

RATNER, N.A., prof.; PUSHKAR', Yu.T., st. nauchn. sotr.; SHKHVATSABAYA, I.K., st. nauchn. sotr.; ZYSKO, A.P., kand. med. nauk; VOSKANOV, M.A., kand. med. nauk; MYASNIKOV, A.L., prof., red.; CHAZOV, Ye.I., doktor med. nauk, red.; METELITSA, V.I., red.

[Hypertension and atherosclerosis of the coronary arteries; methodological instructions on diagnosis, treatment and prevention] Gipertonicheskaia bolezn' i ateroskleroz koronarnykh arterii; metodicheskie ukazaniia po diagnostike, lecheniiu i profilaktike. Moskva, 1964. 176 p. (MIRA 18:5)

1. Akademiya meditsinskikh nauk SSSR, Moscow. Institut terapii. 2. Deystvitel'nyy chlen AMN SSSR (for Myasnikov).

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014443

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RATNER, Nina Aleksandrovna; BOGOSLAVSKIY, V.A., red.; [illegible],
A.I., red.

Diseases of the kidneys and hypertension] Bolezni pochek i gipertoniia. Moskva, Meditsina, 1965. 382 p.
(MIRA 18:1)

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014443

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001444

RATNER, Nina Aleksandrovna, prof.; CHERVONSKIY, V.I., red.

[Diseases of the kidneys and their prevention] Bolezni pochek i ikh preduprezhdenie. Moskva, Meditsina, 1965. 43 p. (MIRA 18:12)

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014443

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001444

BRODOVSKIY, V.K.; RATNER, N.I.; CHARTORIZHSKIY, N.A., kand.med.nauk (Chita)

Disease of the nervous system in the acute form of lymphogranulomatosis. Vrach. delo no.4:133-135 Ap '61. (MIRA 14:6)
(HODGKIN'S DISEASE) (NERVOUS SYSTEM—DISEASES)

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"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001444

RATNER, Nina Aleksandrovna, prof.; GLEZER, Genrikh Abramovich, kand. med. nauk; NIKOLAYEV, V.R., red.

[Modern concepts of renal diseases] Sovremennye predstavleniia o bolezniakh pochek. Moskva, Izd-vo "Znanie," 1965. 31 p. (Novoe v zhizni, nauke, tekhnike. VIII Seriia: Biologiia i meditsina, no.3) (MIRA 18:2)

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014443

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001444

AMUS'YA, A.Z.; RATNER, N.S.

Evaluation of subsurface flow into mountain rivers of the Caucasus. Trudy GGI no.114:137-160 '64.

(MIRA 17:11)

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"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001444

ACC NR: AT6034488 SOURCE CODE: UR/3186/66/000/133/0059/0073

AUTHOR: Amus'ya, A. Z.; Ratner, N. S.

ORG: none

TITLE: Subsurface drainage into the mountain rivers of Central Asia

SOURCE: Leningrad. Gosudarstvennyy gidrologicheskiy institut. Trudy, no. 133, 1966. Issledovaniya podzemnogo stoka v reki (Studies of base flow into rivers), 59-73

TOPIC TAGS: drainage system, surface water, hodograph, underground water, rain, snow / Central Asia

ABSTRACT: The Makarenko method (genetic analysis of hodographs) is used to make a quantitative estimate of the subsurface drainage into the mountain rivers of Central Asia. Subsurface waters in these regions originate primarily from melting seasonal and permanent snows and glaciers, rainfall generally playing a secondary role (less than 15% in the larger rivers and almost zero in the high mountain streams where the rainfall (maximum in the summer) is largerly lost through evaporation). The dynamic coefficient of well and river discharge depends on rock lithology and structure, as well as on climatic conditions in each

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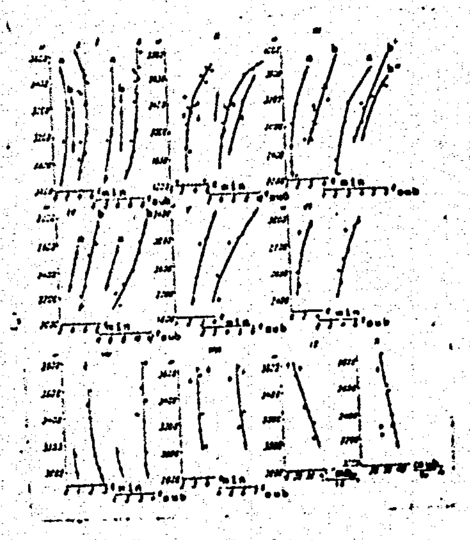

Fig. 1. Relationship of subsurface drainage characteristics to the mean elevation of the catchment area for different regions of Central Asia

I - Lake Issyk-Kul' basin; II - Dzhungarskiy Alatau (Mts.); III - southern slopes of the Gissar Range; V - western part of the Zeravshan River basin; VI - Talas River basin; VII - Naryn River basin; VIII, IX - eastern part of the Zeravshan River basin; X - southern slopes of the Gissar Range.

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"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001444

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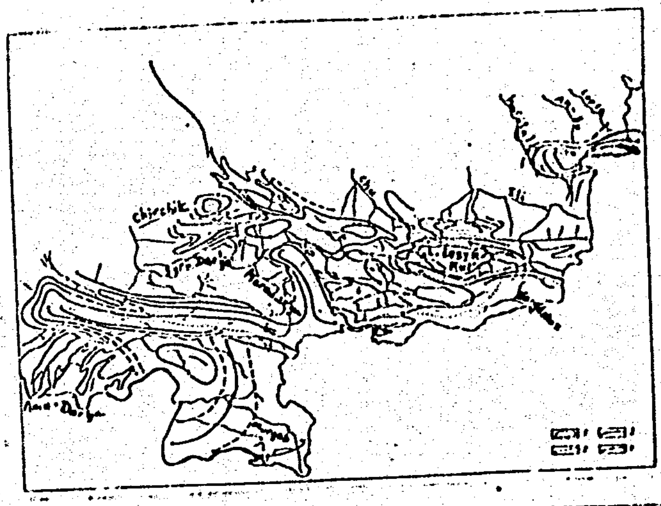

Fig. 2. Map of the mean annual subsurface discharge into the rivers of the mountainous portion of Central Asia

1 - Intermontane basins; 2 - principal watersheds; 3 - isolines of mean annual subsurface discharge; 4 - approximate values.

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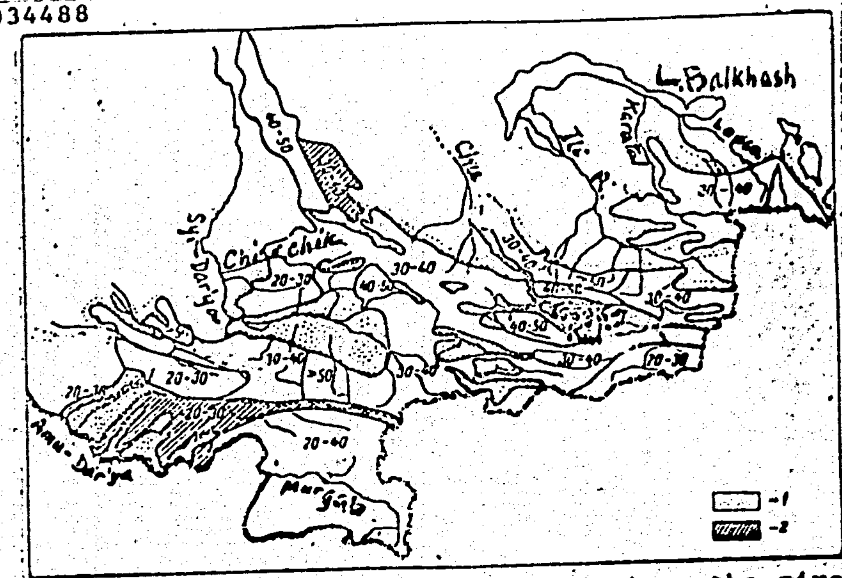

Fig. 3. Map of subsurface discharge into the rivers of the mountainous portion of Central Asia (in % of total stream runoff)

1 - Intermontane basins; 2 - approximate values.

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individual area. River-gage data for the 1936-1958 period were analyzed to derive the following characteristics of subsurface drainage: mean annual discharge (runoff volume), subsurface runoff depth, coefficient of subsurface discharge into the rivers, and the minimum discharge, by year, during low-water periods. Results are tabulated in graphic form for the relationship of subsurface-flow characteristics to the average elevation of the catchment area for nine areas in Central Asia (see Fig. 1), on a 1:2,500,000 map (see Fig. 2), and on a map showing subsurface drainage into mountain rivers in percentages of total river discharge (see Fig. 3). It is estimated that the total subsurface water reserves accumulate in this region at the rate of 55.5 km/yr. The mean subsurface discharge into rivers is 3.97 ℓ/sec km^2, an amount which is 1.5 times smaller than that in the Caucasus, and twice as much as that in the Urals. Over the entire area, the coefficient of subsurface discharge varies between 20—40%. Orig. art. has: 5 figures and 5 tables. [W.A. 50]

SUB CODE: 08/ SUBM DATE: none/ ORIG REF: 018

Card 5/5

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014443

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001444

AMUS'YA, A.Z.; RATNER, N.S.; FIDELLI, I.F.

Regularities of the distribution of base flow into rivers along the territory of the mountainous Caucasus. Trudy GGI no.122: 32-50 '65. (MIRA 18:9)

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[illegible], [illegible]. I.
[illegible]. [illegible]VICH, Vestnik [illegible]ologii Dermatologii, 1937
1114-21

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014443

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001444

[illegible], O. I.

[illegible] [illegible]YAMOVICH, Vest Venerol i Dermatol, 1937, 1114-21

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014443

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001444

RATNER, O.I.,
E.S. BENYAMOVICH, Vestnik Venerologii Dermatologii 1937,
1114-21.

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014443

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001444

SOV/136-58-10-15/27

AUTHORS: Ratner, R.I. and Shapiro, V.Ya.

TITLE: Pickling Cupronickel in Sulphuric-acid Solution with Addition of Ferric Sulphate (Travleniye mel'khiora v sernokislom rastvore s dobavkoy sul'fata okisi zheleza)

PERIODICAL: Tsvetnyye Metally, 1958, Nr 10, pp 70 - 73 (USSR)

ABSTRACT: Cupronickel is normally pickled in a mixture of sulphuric and nitric acid with hexavalent chromium as an oxidising agent, but this has disadvantages. At the Revdinskiy zavod obrabotki tsvetnykh metallov (Revda Non-ferrous Metals Treatment Works) an investigation was carried out to find a better pickling liquid. After laboratory tests had shown almost all the preparations recommended in the Soviet literature (Refs 1-3) to have disadvantages, the work was extended to sulphuric acid containing ferric sulphate. The sulphuric acid removes the outer scale and the ferric ions oxidise the copper and nickel and cause their solution. The tests were carried out with 3-30% H_2SO_4 and 40-200 g/litre of $Fe_2(SO_4)_3$ at 16 - 100 °C. 50 - 70 °C was found to be the best temperature (Figure 1), securing a sufficiently rapid solution without evaporation losses. The reduction of

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"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001444

Pickling Cupronickel in Sulphuric-acid Solution with Addition of Ferric Sulphate SOV/136-58-10-15/27

ferric-ion concentration with increasing quantity of pickled metal varies to the same extent per unit surface (Figure 2). The relative decrease in sulphuric acid concentration remained the same for all solutions tested (Figure 3). The optimal sulphuric-acid and ferrous sulphate concentrations were found to be 10-20% and 40-120 g/litre, respectively, giving a pickling time of 7-10 min, with fresh solution. In works tests, surface quality was found to be better than with chromic reagents; laboratory tests showed metal losses to be lower. The authors regret that the adoption of this superior method is hampered by lack of commercial ferric sulphate. Solutions of this type were found to be applicable also to nickel and stainless steel. There are 3 figures and 6 references, 5 of which are Soviet and 1 English.

ASSOCIATION: Revdinskiy zavod obrabotki tsvetnykh metallov (Revda Non-ferrous Metals Treatment Works)

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"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001444

SOV/136-59-6-19/24

AUTHOR: Ratner, R.I.

TITLE: Etching of Non-passivating Nickel Anodes in a Sulphuric Acid Solution of Ferric Sulphate (Travleniye nikelevykh nepassiviruyushchikhsya anodov v sernokislom rastvore sul'fata okisi zheleza)

PERIODICAL: Tsvetnyye metally, 1959, Nr 6, pp 91-92 (USSR)

ABSTRACT: Non-passivating nickel anodes in the working condition must possess an active surface capable of conducting electric current efficiently, free from scales and foreign inclusions. In the manufacture of such anodes the ingots are heated prior to rolling in a mildly oxidizing atmosphere to a temperature of 1150 - 1190°C, which causes the formation of a dense layer of scale consisting of NiO and NiS. It is possible to remove such scales mechanically but the cold working suffered by the metal as a result of impact of abrasive particles sharply decreases the working properties of the anodes and lowers the quality of the nickel deposited. Mechanical, electro-chemical and various chemical methods were used for cleaning the non-passivating nickel anodes from scale. These were, however,

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SOV/136-59-6-19/24

Etching of Non-passivating Nickel Anodes in a Sulphuric Acid Solution of Ferric Sulphate

unsuccessful and unsuitable for shops with small floor areas. The purpose of this work was to find a method acceptable to small firms. As the scale consists of NiO and NiS, the etching reagent had to contain substances attacking both compounds. For the solution of nickel oxide the usual acids were used and for the solution of nickel sulphide, manganese dioxide and hydrogen peroxide were used. According to Nekrasov (Ref 4) and Layner (Ref 5), sulphate in acid solution is an active oxidizing agent. The positive results obtained by Ratner (Ref 1) with etching of German silver with a sulphuric acid solution of ferric oxide have shown the possibility of its application for the cleaning of nickel anodes. The results of a number of experiments have shown that the most complete removal of scale occurs when the anodes are held for 2 to 3 hours in a solution containing 200 to 350 g/litre $Fe_2(SO_4)_3$ and 10 to 20% H_2SO_4 at a temperature of 60 to 80°C.

Card 2/3 The sulphuric

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"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001444:

SOV/136-59-6-19/24

Etching of Non-passivating Nickel Anodes in a Sulphuric Acid Solution of Ferric Sulphate

acid solution of ferric oxide after dissolving the scale does not attack the base metal.
There are 7 Soviet references.

ASSOCIATION: Revdinskiy zavod obrabotki tsvetnykh metallov (Revda Works for the Treatment of Non-ferrous Metals)

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"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001444

S/124/62/000/001/044/046
D237/D304

AUTHORS: Kraychik, M. M., and Ratner, R. S.

TITLE: Fatigue limit and methods of its improvement in welded joints in low-alloy steel

PERIODICAL: Referativnyy zhurnal, Mekhanika, no. 1, 1962, 53, abstract 1V468 (Tr. Vses. n.-i. in-ta zh. d. transp., 1960, no. 195, 146-161)

TEXT: Reference data are quoted of the dependence of the magnitude of the fatigue limit on the coefficients of asymmetry of cycles for welded joints of the steels Ст.37 (St. 37) and Ст.52 (St. 52). Details are given of the authors' investigation of the welded H beam and diagrams of fatigue limits of welded joints in the steels of type M and Мст. 3 (Mst. 3) versus the magnitude of average stresses. Experimental data are compared with the results of analytical constructions by the method of B. N. Duchinskiy and others. It is shown that in investigating

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"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001444

Fatigue limit and... S/124/62/000/001/044/046
D237/D304

welded constructions when the stressed state is rigid, fatigue limit of articles made of the low-alloy steel can be higher than that for low-carbon steels, while in less rigid state they are approximately equal. It was found experimentally that after the hammering of joints, their fatigue limit rises by 80% for the corner welds and by 50% for the butt welds for the constructions in both low-carbon and low-alloy steels. [Abstracter's note: Complete translation.]

Card 2/2

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014443

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001444

KRAYCHIK, M.M.; RATNER, R.S.

Fatigue strength of welded beams. Avtom. svar. 16 no.12:29-33 D '63. (MIRA 17:1)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut zheleznodorozhnogo transporta Ministerstva putey soobshcheniya (for Kraychik). 2. Vsesoyuznyy zaochnyy inzhenerno-stroitel'nyy institut (for Ratner).

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"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001444

KRAYCHIK, M.M., kand.tekhn.nauk; RATNER, R.S., kand.tekhn.nauk

Fatigue strength of weld joints in low-alloy steel and ways to increase it. Trudy TSNII MPS no.195:146-161 '60.
(MIRA 13:9)

(Steel alloys—Welding) (Welding--Testing)

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014443

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001444

SOV-135-58-2-5/18

AUTHORS: Kraychik, M.M. and Ratner, R.S., Candidates of Technical Sciences

TITLE: Vibration Strength of Weld Joints of Low-Alloy and Low-Carbon Steel (O vibratsionnoy prochnosti svarnykh soyedineniy iz nizkolegirovannykh i malouglerodistykh staley)

PERIODICAL: Svarochnoye proizvodstvo, 1958, Nr 2, pp 18 - 22 (USSR)

ABSTRACT: Information is presented on experimental investigations carried out in order to reveal the effect of the vibration load cycle on the strength of weld joints in low-alloy and low-carbon steel. Equal strength limits of low-alloy and low-carbon steel with a high stress concentration were observed in cycles approaching symmetry and were maintained in cycles with positive asymmetry. Difference in fatigue limits increased in proportion to increasing asymmetry of cycles in the case of a slight stress concentration and of a marked σ_b -difference for the base metal, where the advantage of low-alloy steel prevails with increasing asymmetry of the cycle. There are 3 tables, 3 diagrams, 4

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SOV-135-58-2-5/18

Vibration Strength of Weld Joints in Low-Alloy and Low-Carbon Steel

photos, 2 graphs and 7 references, 5 of which are Soviet and 2 English

ASSOCIATIONS: TsNII MPS and Moskovskiy transportno-ekonomicheskiy institut (Moscow Institute of Transport Economics)

Card 2/2 1. Welded joints--Vibration

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"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001444

RED'KO, G.S.; RADIN, V.V.; RATNER, R.Ya.; Prinimali uchastiye:
AMOSOVA, O.T.; IVANOV, M.I.; PETROVA, V.A.

Causes for the growth of grog materials during their firing.
Ogneupory 30 no.8:1-6 '65. (MIRA 18:8)

1. Borovichskiy kombinat ogneuporov.

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014443

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001444

PA 22779

USSR/Chemistry - Rubber, Friction 21 Mar 52

"On the Law of Static Friction," S.B. Ratner, Sci Res Inst of Rubber Manufg

"Dok Ak Nauk SSSR" Vol 83, No 3, pp 443-446

The coeff of friction, μ, was found to decrease as the force on a sample of rubber was increased. Expts were carried out on rubber paired with metals, plexiglass, and other materials and various formulas for μ derived. G.P. Konenkova collaborated in the exptl work and B.V. Deryagin assisted in appraising the results. Presented by Acad P.A. Rebinder 2 Feb 52.

22779

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014443

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001444

USSR/Chemistry - Rubber, Rubber Fillers — 1 Sep 52

"The Influence of Rubber Fillers on the Coefficient of Static Friction," S. B. Ratner, V. D. Sokol'skaya, Sci Res Inst of Rubber Ind

"Dok Ak Nauk SSSR," Vol 86, No 1, pp 121-124

In the static friction of rubber on metals and plexiglass the consts A and μ_∞ in the formula $\mu = \mu_\infty + A/N$ change independently of one another. A changes with the amt of filter and μ_∞ with the backing used. The magnitude of the contact

234T23

forces, A, is dependent on the mol attraction and increases as the amt of filler (carbon black, SiO_2, graphite, chalk) is reduced. A is the same for a given rubber regardless of the surface (metals, plexiglass). Changing the amt or kind of filler has no effect on the min coeff of friction μ_∞, but using large quantities of filler such as graphite can lower it. In this case the filler begins to act as a lubricant. Presented by Acad P. A. Rebinder 11 Jul 52.

234T23

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014443

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001444

1. RATNER, S.B.

2. USSR (600)

4. Friction

7. Abrasion index for rubber and its relation to the coefficient of friction. Dokl. AN SSSR 87 no.5 1952

9. Monthly List of Russian Accessions. Library of Congress. March 1953. Unclassified.

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014443

RATNER, S.B.

62

3578. Deryagin, B. V., Ratner, S. B., and Futran, M. F., Investigation of the interrelations between frictional and adhesive forces by the method of crossed fibers, *Nat. Sci. Found.* tr-228, Feb. 1954; *Doklady Akad. Nauk SSSR (N.S.)* 92, 6, 1137–(1140), Oct. 1953.

Experiments were made in order to investigate if, following authors' theory of external friction published in 1934 to which reference is made, the force of friction F is proportional not to the load, according to Amonton's law, but to the sum of the load N and of the attractive force N_0 between the bodies in contact.

To solve the problem, friction was measured between two fibres crossed at right angle which were at first brought in contact (the force is then assumed to be the adhesion force N_0) and then pressed against each other with variable force, including negative values of N. N and F were determined by a microscope measuring the deflection of one of the two fibers.

The materials used were freshly drawn quartz fibers and also fibers whose surfaces (one or both) were covered with thin films of natural rubber. Special care was taken to avoid air currents, vibration effects, and to remove electrical charges. F/N_0 are plotted against N/N_0.

Some unexpected data are obtained in the region of negative values of N. In the positive region, results confirm the expected law. Author explains the difference in the relationships between F and N for $N > 0$ and $N < 0$ by the observation that, in the region of negative values, the overcoming of static friction is always accompanied by the breaking away of mutual contact of the fibers.

D. De Meulemeester, Belgium

(2)

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001444

RATNER, S.B.; REBINDER, P.A., akademik.

On the role of roughness in the friction of rubber and on the law of friction. Dokl. AN SSSR 93 no.1:47-50 N '53. (MLRA 6:10)

1. Akademiya nauk SSSR (for Rebinder). (Friction) (Rubber)

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014443

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001444

ZUYEV, YU. S., AND RATNER, S. B.

Application of Mechanical Models for the Investigation of Changes in the Structure of Rubbers and Resins

The authors enumerate the equilibrium and kinetic constants which make possible a description of the highly elastic properties of high polymers. They describe mechanical models used for visual presentation of the deformation processes of high polymers. They give examples of the application of these models in the quantitative determination of the above-mentioned constants for several different types of rubber. (RZh-Mekh, No. 6, 1955) Tr. n.-i. in-ta Rezinovoy Prom-Sti, No. 1, 1954, 32-52.

SO: Sum. No. 744, 8 Dec 55 - Supplementary Survey of Soviet Scientific Abstracts (17)

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014443

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001444

FD 195

RATNER, S. B.

USSR/Chemistry - Rubber and Elastomers

Card 1/1

Authors : Bartenev, G. M., Ratner, S. B., Novikova, N. M., Konenkov, K. S.

Title : Testing of rubber in regard to its resistance to low temperatures by measuring the loss of elasticity

Periodical : Khim. prom. 4, 32-34 (224-226), June 1954

Abstract : Authors regard as unsatisfactory the standard procedure GOST 408-53 in which the resistance of rubber to low temperatures is determined by measuring the increase in rigidity on the basis of the ratio of deformation at t° to deformation at 20°. Describe in detail a procedure developed by them in which the temperature T is determined at which the rigidity of the rubber increases by the factor 1/K. As distinguished from the GOST procedure, determination of K (coefficient of resistance to low temperatures) by the new method does not depend on the time during which the deforming force is applied. Four USSR references, one since 1940; two foreign references. Three graphs, two figures.

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"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001444

RATNER, S. B.

Testing of rubber for low-temperature stability by measurement of loss of elasticity. G. M. Bartener, S. B. Ratner, N. M. Novikova and R. S. Konenkov (*Khim. Prom.*, [illegible]—226; *Rubber Chem. Technol.*, 1955, **28**, 711—717).—An eccentric bearing is operated by a motor and actuates a rod which transmits a sinusoidal application of the load to a cylindrical rubber specimen held in a socket between springs. The deformation and load are both measured by mirror deflection observations. Measurements are made with temp. increments of 3—4° from −70° upwards. J. S. C.

M. A. YOUTZ
20 copies

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"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001444

RATNER, S. B.

USSR/ Chemistry - Chemical technology

Card 1/1 Pub. 22 - 25/40

Authors : Ratnor, S.B., and Sokol'skaya, V.D.

Title : Effect of rubber hardness on the static friction coefficient without lubrication

Periodical : Dok. AN SSSR 99/3, 431-434, Nov 21, 1954

Abstract : It was established that the static friction coefficient does not vary during the filling of the rubber provided the filler is within the limits of compatibility with the rubber, i.e., when all particles of the filler are coated with a film of the vulcanized rubber. Beyond these limits, when the filler particles become an interlayer between the rubber and the lining, the friction coefficient decreases. The effect of plasticisers on rubber friction was found to be analogous to that of the filler. When the plasticizer is within compatibility limits with the rubber (swells without sweating) it decreases the hardness and increases friction. When the plasticizer sweats it assumes the role of a lubricant and reduces the friction coefficient. Nine references: 8-USSR and 1-USA (1947-1954). Table; graphs.

Institution : Scientific Research Institute of Rubber Industry

Presented by : Academician V.A. Kargin, August 12, 1954

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"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001444

RATNER, S.B.

USSR/Chemistry - Rubber FD-1730

Card 1/1 : Pub. 50-6/18

Authors : Ratner, S. B., Sokol'skaya, V. D.

Title : The effect of ingredients of rubber on its static friction in sliding

Periodical : Khim. prom., No 1, 27-34, Jan-Feb 1955

Abstract : Describe the effects of the hardness of rubber, the fillers, plasticizers, degree of vulcanization, kind of crude rubber used, etc. on the frictional properties of the fabricated rubber. The data assembled and the treatment of the subject serve the purpose of establishing how the frictional properties can be regulated by appropriate compounding. Twenty six references; 14 USSR, all of them since 1940. Ten graphs, 6 tables

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Ratner, S. B.

3

3870. Role of mechanical and molecular roughness in external friction. B. V. Der'yagin and S. B. Ratner. Dokl. Akad. Nauk SSSR, 1955, 103, 1021—4; Gummi u. Asbest, 1956, 9, 404. The formula $Fo = \mu o\ (N + No)$, where N is the normal pressure, No the adhesion force, and $\mu o = \tan \delta$, δ being the angle of the slope of the boundary molecules of a body in slip against the molecules of another body, derived from the molecular theory of friction, is extended to some special cases, including the friction of rubber on a solid. 03420

Sci Res Inst. Rubber Industry

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001444

RATNER, S.B.

3866. VULCANISED OR CURED POLYMERS IN GENERAL.

2765. External friction of synthetic rubbers. S. B. RATNER. *Koll. Zhur.*, 1956, 18, 373-8. Previous work has shown the dependence of the coefficient of static friction on load, hardness of the rubber, fillers, and surface roughness. G. M. Bartenev claims that frictional force increases from zero as velocity of sliding is increased, *i.e.* that there is no static friction. Ratner then draws attention to the work of J. Burwell and E. I. Rabinowicz, who showed, for indium and load, that as the velocity of sliding is increased the coefficient of friction first increases, then decreases. Rubber is stated to behave in a similar way, contrary to the assertions of Bartenev. The author criticises Bartenev's developments of A. Schallamach's formula showing the dependence of friction upon temperature and velocity, and suggests an alternative. Twenty-eight references are given. 3S063429

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"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001444

RATNER, S.B.

D-9

Category : USSR/Atomic and Molecular Physics - Physics of high-molecular substance

Abs Jour : Ref Zhur - Fizika, No 1, 1957, No 1018

Author : Ratner, S.B., Lavrent'yev, V.V.

Title : Comparison of Friction and Electric Conductivity of Rubber.

Orig Pub : Zh. tekhn fiziki, 1956, 26, No 4, 853-856

Abstract : Data are compared on the variation of the coefficient of friction electric conductivity, strength, and parmeation to gas, all as functions of the amount of filler in the rubber, and the ideas developed by S.B. Ratner (Dokl. AN SSSR, 1953, 93, No 1), concerning the nature of friction, are checked. The authors cirticize the views of Schallamach, (Schallamach, A., Proceedings of the Royal Society, 1953, B66, 386) on the nature of friction of rubber, showing that experimental data are satisfactorily described by the following equation for the coefficient of friction: $\mu = \mu_\infty + Ap^{-h}$, where p is the specific load and h the hardness of the rubber; μ_∞ is the part of the friction coefficient independent of the load, and A is a constant.

Card : 1/1

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"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001444

Category : USSR/Atomic and Molecular Physics - Physics of High-Molecular Substances. D-9

Abs Jour : Ref Zhur - Fizika, No 3, 1957, No 6455

It is shown that the lower boundary F is not zero. Thus, static friction F_0 ixists, and the correct formula for the kinetic friction of rubber, with allowance for normal load N and for the roughness, should be of the form

$$V = C \exp(-E/RT) \sinh[\alpha(F-F_0)/RT] \quad (2),$$

where E depends on the mobility of the segments and on the molecular interaction between the rubber and the lining, and F_0 is connected with N and with the roughness, which must be overcome by part of the force F. Therefore, when V approaches 0, we have $F \rightarrow F_0 = \mu_0 N$, where the static coefficient of friction $\mu_0 \neq 0$. Graphs are reproduced for the dependence of F on the path at various loads for the case of friction between steel and a standard vulcanizate mixture with SKN-20 as a base. Processing these graphs yields $\mu_0 \approx 0.55$.

Card : 2/2

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"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001444

RATNER, S. B., and LAVRENT'YEV, V. V.

"Static Friction of Rubber," a paper presented at the 9th Congress on the Chemistry and Physics of High Polymers, 28 Jan-2 Feb 57, Moscow, Rubber Research Inst.

B-3,084,395

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014443

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001444

RATNER, S.B.; BUROV, S.V.

Statistical method for calculating standard physical and mechanical properties of rubber. Kauch.i rez. 16 no.5:17-24 My '57. (MIRA 10:7)

1. Nauchno-issledovatel'skiy institut rezinovoy promyshlennosti.
(Rubber--Standards) (Mathematical statistics)

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014443

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001444

Ratner, S. B.

Distr: 4E4j/4E2c(j)

1286. Problems connected with the mechanism of friction of rubber. S. B. Ratner. *Koll. Zh.*, 1957, 19, 394–6. The author considers it reasonable to compare the friction of rubber with (i) the friction of ordinary rigid bodies, (ii) the flow of viscous fluids, (iii) the deformation of rubber itself; the actual mechanism is not at present fully understood. The work of G. M. Bartenev and of A. Schallamach is discussed. There are 19 references. 83489

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"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001444

SOV/138-58-8-3/11

AUTHORS: Ratner, S. B. and Mel'nikova, M. V.

TITLE: Wear (Testing) of Rubber by Abrasive Paper (Ob istiranii reziny po shkurke)

PERIODICAL: Kauchuk i Rezina, 1958, Nr 8, pp 14 - 21 (USSR)

ABSTRACT: The Soviet standard test GOST 426-1941, and also the International standard ISO 217 (Aug.1955) stipulate a wear test against abrasive paper on a Grassel machine. These tests give considerable scatter, and the wear index of the specimens alters sharply if their length is changed. A new Soviet standard, GOST 426-1957 gives better reproducability. Approximate formulae have been established which relate wear of the rubber to its physical and mechanical properties, and to its composition. Fig.1 shows typical curves for rate of wear versus time. (Units cm^3/minute versus abrasion time in minutes). The wear rate diminishes rapidly at first, and then continues at a stable rate for some time. The areas under each of the curves are equal and correspond to the volume worn away from the specimens, all of which started with 6 mm protrusion from the clamp. The stable wear rate commences after not more than half of the specimen has been worn

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SOV/138-58-8-3/11

Wear (Testing) of Rubber by Abrasive Paper

away. The wear index should be determined by this stable rate of wear, but the difficulty is to determine when it begins. The reasons for the initial instability of wear rate are examined. The abrasive paper itself must be conditioned, but as curves 2, 3 and 5 in Fig.1 show, initial instability is still exhibited with a repeat test with a specimen of the same type of rubber on previously conditioned paper. The authors review the shortcomings of existing methods of test, including the ISO Dupont method, GOST 426-1941, and the German standard test. Results with the first two methods are compared with results to the new GOST 426-1957 standard in Table 1. V is the specific wear index and α the coefficient of variation. The effect of the height of the specimen and the influence of bending are considered. Fig.2 shows the relationship between rate of wear (cm^3/min) versus flexibility as determined in formula (1). This indicates that the stable zone commences when the value β lies between 0.5 and 0.8 mm^{-3}. The principle cause of scatter in the early part of the test may be attributed to bending of the specimen. Fig.3 shows various stages in the wear of a specimen of 1 cm x 1 cm area. Fig.4 shows the wear rates with specimens of various

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heights, and various shapes. The black symbols are for long specimens, and the white for short ones. While cylindrical or spherical shapes give stable wear rates, it is concluded that the most suitable change to make is to reduce the height of the standard 2 cm x 2 cm specimen from 6 mm to 3.5 mm. This will give a 5 to 10 minute test against Corundum 150 paper. The characteristics of the rubbers tested to obtain the plots in Fig.2 are given in Table 2. The formula (2) relates rate of wear to the properties of the rubber and the abrasive paper. ΔV is the loss of material in cm^3. According to GOST 426-1957, N the normal load should be 2.6 kg, and t, time of test, five minutes. K is a constant taking into account the abrasive paper and has a value, in this test, of 0.4 kg/cm^3. μ stands for coefficient of friction and σ for the strength of the rubber. η is the percentage extension of the specimen in a standard test to determine the elasticity of the rubber. This formula is justified by practical test, the results of which are shown in Fig.5. The deviation of the points representing actualrate of wear for a

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very large variety of rubbers, from the line calculated according to formula 2, is not more than 20%. A specific wear index coefficient V is given in formula (3). Here V is expressed in cm^3/kw-hour. W is the work of friction. With Corundum 150 paper, the constant A becomes 700. σ is expressed in kg/cm^2, and η, as before, is a percentage representing elasticity. Since σ and η depend only on the composition of the rubber the relationship of values of V with different abrasive papers should remain constant. This is confirmed by the results shown in Table 4, where four different rubbers were tested against two papers of different abrasiveness. The relationship V_2/V_1 is constant. However, this relationship will not hold if the nature of the abrasive, rather than its grain size, is altered widely. While coarse and standard electrocorundum papers gave good agreement, a silicon paper gave a different result, as indicated in Table 5. Table

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Wear (Testing) of Rubber by Abrasive Paper SOV/138-58-8-3/11

3 in this paper relates the optimum percentage of various fillers, with different types of rubbers, to give greatest strength, and to give least wear. These values frequently coincide. There are 4 Figures, 5 Tables and 15 References: 7 Soviet and 8 English.

ASSOCIATION: Nauchno-issledovatel'skiy institut rezinovoy promyshlennosti (Research Institute of the Rubber Industry)

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SOV/138-58-10-5/10

AUTHORS: Sakhnevskiy, N. L; Ivanova, S. A; Mel'nikova, M. V; Ratner, S. B; Reznikovskiy, M. M, and Smirnova, L. A.

TITLE: Wear Testing of Rubber (Ob otsenke istirayemosti reziny)

PERIODICAL: Kauchuk i Rezina, 1958, Nr 10, pp 18 - 22 (USSR)

ABSTRACT: The mechanism of abrasive wear of rubber is imperfectly understood. Laboratory tests with different types of equipment give inconsistent results, and results of laboratory tests do not agree with service or road tests. The relations between the three mechanical parameters, F, frictional force, N, normal load, and U, rubbing speed are discussed. Three modes of test are possible: (a) F, variable, N and U constant, (b) N, variable and (c) U, variable. These give respective wear indices: V_{NU}, V_{FU}, and V_{NF} where V is expressed in cm^3 wear from the specimen. A specific wear index, v, is given: $v = V_{NU}/W$ (cm^3/kwh) where W is work done against friction. This specific wear index takes into account the coefficient of friction μ of the rubber. Since μ varies for different rubbers, correlation between the indices V_{NU}, V_{FU} and the specific index v,

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Wear Testing of Rubber SOV/138-58-10-5/10

will vary for different rubbers. This is illustrated in Figs. 1, 2 and 3 where the relative wear according to different indices is plotted against filler content in the rubber sample. Actual values for different rubbers of the indices V_{NU}, v, and V_{FU} are given in Table 1. The specific wear index v is calculated only under the constant normal load regime. The final columns in the table give relative values for these indices for comparison with relative values obtained on actual service tests (given in the last column). The index V_{FU} shows best correlation with service or road tests, and it is suggested that this index would be more appropriate when testing rubber intended for tyres. This is brought out further in Fig.4 where the relative indices of laboratory tests are compared with relative wear in actual road tests. (Symbols 1, 2 3 and 4 are for tests giving an index V_{FU}, symbols 5 and 6 give V_{NU} and symbol 7 is for index v.). While indices v and V_{FU} should have similar correlation, errors can arise when v is taken as an index through changes in temperature at the rubbing surface. The third mode of test with F and N constant and with U variable has received little attention, but is of interest since it represents the conditions of wear

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Wear Testing of Rubber SOV/138-58-10-5/10

through skidding. Wear tests under laboratory conditions and road or service tests have different intensity, particularly as regards temperature. Table 2 compares contact pressure, rubbing speed and temperature for a tyre at 30 km/hr with 3% slip with conditions under the GOST 426-57 (Government Standard) test under constant load conditions on a Grassel test machine. The contact pressure in the laboratory test is very much lower while the temperature is much higher. The wear index V_{NU} is not proportional to the normal load N. However, the product $v\mu$ is proportional to N and is a suitable wear index as has been proved on tests with N varying from 0.5 to 12 kg/cm². It is suggested that it would be more realistic to conduct laboratory tests at high contact pressures, but to reduce the coefficient of friction by using less abrasive test surfaces. Methods using radioactive tracers could enable the intensity of laboratory tests to be

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brought down to a level which would simulate road tests more exactly and still retain sensitivity of test. There are 4 Figures, 2 Tables and 25 References: 13 English, 8 Soviet, 2 French and 2 German

ASSOCIATION: Nauchno-issledovatel'skiy institut shinnoy promyshlennosti i Nauchno-issledovatel'skiy institut rezinovoy promyshlennosti (Scientific-Research Institute of the Tire Industry and Scientific-Research Institute of the Rubber Industry)

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"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001444

AUTHORS: Nosov, Yu. A., Ratner, S. B. SOV/57-28-7-15/35

TITLE: On the Force of the Radial Contraction of Rubber Rings at a Temperature Drop (O sile radial'nogo szhatiya rezinovykh kolets pri ponizhenii temperatury)

PERIODICAL: Zhurnal tekhnicheskoy fiziki, 1958, Vol. 28, Nr 7, pp. 1448 - 1451 (USSR)

ABSTRACT: The influence of the cooling, the role played by the degree of contraction and the role of the cross-sectional form in contraction and bending were investigated. The authors arrived at the following conclusions: 1.) The cooling of rubber packings leads to a steep decrease of the radial force the intensity of which is proportional to the initial pressure. The relative change of the force does hardly depend on the degree of deformation of the packings stressed by contraction. This points to the main part of the loss of high-elasticity as well as to the secondary role played by the linear expansion coefficient. 2.) The magnitude of the contact force remaining after cooling is proportional to the initial pressure. The packings stressed by bending on cooling lose a much

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On the Force of the Radial Contraction of Rubber Rings at a Temperature Drop SOV/ 57-28-7-15/35

smaller part of their radial force. 3.) The method of a consecutive cutting-off of the various parts of the packing with complicated cross section offers the possibility to explain the role played by these parts in the packing. M.G. Vol'pe (deceased), K. S. Konenkov, V.M. Koroleva, Ya.F. Lazarenko, K. I. Medvedeva, and Z.Ye. Styran took part in these experiments. There are 3 figures and 3 Soviet references.

SUBMITTED: March 12, 1957

1. Rubber gaskets--Temperature factors

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"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001444

RATNER, S.B., kand.fiz.-mat.nauk; NOSOV, Yu.A., inzh.; KONENKOV, K.S., inzh.

Measuring the radial compression force of rubber sealings resulting from temperature drops. Vest. mash. 38 no.9:24-26 S '58. (MIRA 11:10)

(Sealing (Technology)) (Rubber goods--Testing)

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AUTHORS: Ratner, S. B., Klitenik, G. S.

TITLE: Rubber Wear Tests by Means of a Metal Grid

PERIODICAL: Zavodskaya laboratoriya, 1959, Vol 25, Nr 11, pp 1375-1377 (USSR)

ABSTRACT: One of the disadvantages of rubber wear tests on the abrasive surfaces of emery (Ref 1) is the contamination of the rubber surface. It can be avoided by using metal grids (Ref 2). The latter may also be applied for the abrasion of lubricated or swelled rubber samples (Ref 3). Test results obtained by means of the machine by Grassel (GOST 426-57) are given. The values obtained with the aid of the metal grid are considerably more sensitive to variations in the composition and the time of vulcanization of the rubber than the ones obtained by emery (Fig 1, carbon-black filled rubber based on SKN-26-rubber, dibutylphthalate admixture to SKN-40 and SKN-26-rubber). An increase in the carbon-black filling from 0 to 75% by weight resulted in a wear resistance increased approximately by the 100000-fold when metal grid was used, as compared with a 10-fold increase in abrasiveness found in the case of emery. The wear of rubber by the metal grid is described by the equation (Ref 3), which $M = M_1 \cdot N^{\alpha}$ (1), where $\alpha > 1$, and α and M_1 are constants,

Card 1/2 ... reznovykh tekhnicheskikh izdeliy ... Plant for Commercial Rubbers)

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Rubber Wear Tests by Means of a Metal Grid

depend on the properties of the rubber and usually vary inversely. In the present case ∝ varied between 1 and 6 (Fig 2, the dependence of the wear M on the load and degree of compression for rubber of the types SKN-40, SKN-26, SKN-18, and SKN-0 (SKB)). In comparison to soft types of rubber, stiff types of rubber show slighter wear at a lower degree of compression, and higher wear at a high degree of compression (many rubber parts wear in the course of certain deformations, i.e. elongation). For comparing laboratory tests with the operating conditions it is important to know the dependence of the specific wear of samples, having various (nominal) contact surfaces, on the specific pressure (Fig 3), and to correlate test values obtained with the metal grid, with the wear values of the same rubber sample obtained by means of smooth steel surfaces. When selecting types of rubber wearable by steel surfaces, wear tests with a metal grid, and friction tests with a metal grid must be made. There are 3 figures and 5 references, 3 of which are Soviet.

ASSOCIATION: Sverdlovskiy zavod rezinovykh tekhnicheskikh izdeliy (Sverdlovsk Plant for Commercial Rubbers)

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APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014443

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Ratner, S. B.

"Friction of Rubber" p. 77

Sukhoye i granichnoye treniye. Friktsionnyye materialy (Dry and Boundary Friction. Friction Materials) Moscow, Izd-vo AN SSSR, 1960. 302 p. Errata slip inserted. 3,500 copies printed. (Series: Its: Trudy, v. 2)

Sponsoring Agency: Akademiya nauk SSSR. Institut mashinovedeniya. Resp. Ed.: I. V. Kragel'skiy, Doctor of Technical Sciences, Professor; Ed. of Publishing House: K. I. Grigorash; Tech. Ed.: S. G. Tikhomirova.

The collection published by the Institut mashinovedeniya, AN SSSR (Institute of Science of Machines, Academy of Sciences USSR) contains papers presented at the III Vsesoyuznaya konferentsiya po treniyu i iznosu v mashinakh (Third All-Union Conference on Friction and Wear in Machines, April 9-15, 1958.

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"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001444

Ratner, S. B., Klitenik, G. S., and Mel'nikova, M. V.

"On Frictional Wear (in the Abrasion) of Rubber" p 93

Sukhoye i granichnoye treniye. Friktsionnyye materialy (Dry and Boundary Friction. Friction Materials) Moscow, Izd-vo AN SSSR, 1960. 302 p. Errata slip inserted. 3,500 copies printed. (Series: Its: Trudy, v. 2)

Sponsoring Agency: Akademiya nauk SSSR. Institut mashinovedeniya. Resp. Ed.: I. V. Kragel'skiy, Doctor of Technical Sciences, Professor; Ed. of Publishing House: K. I. Grigorash; Tech. Ed.: S. G. Tikhomirova.

The collection published by the Institut mashinovedeniya, AN SSSR (Institute of Science of Machines, Academy of Sciences USSR) contains papers presented at the III Vsesoyuznaya konferentsiya po treniyu i iznosu v mashinakh (Third All-Union Conference on Friction and Wear in Machines, April 9-15, 1958.

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"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001444:

S/081/61/000/024/083/086
B101/B110

AUTHOR: Ratner, S. B.

TITLE: Rubber friction

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 24, 1961, 585, abstract 24P431 (Tr. 3-y Vses. konferentsii po treniyu i iznosu v mashinakh, v. 2. M., AN SSSR, 1960, 87 - 93)

TEXT: Data are given which confirm the existence of a friction of rest (FR) for rubber. The existence of Fh and the analysis of its dependence on slide velocity and temperature show that FR of rubber is similar both to the flow and to the FR of solids. The effect of load on FR is shown and the applicability of various equations to describe this effect at different loads is discussed. An increase in the rubber hardness effectively decreases FR at small loads. Ingredients, incompatible with rubber, may act as lubricants and reduce FR. The rubber composition influences FR in the same way as it influences deformation work at constant load. [Abstracter's note: Complete translation]

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"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001444

S/081/61/000/024/084/086
B101/B110

AUTHORS: Ratner, S. B., Klitenik, G. S., Mel'nikova, M. V.

TITLE: Frictional wear (abrasion) of rubber

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 24, 1961, 585, abstract 24P432 (Tr. 3-y Vses. konferentsii po treniyu i iznosu v mashinakh, v. 2. M., AN SSSR, 1960, 93 - 101)

TEXT: Abrasion (A) of rubber with sandpaper on the Grasseli machine shows a considerable spread of values which is due to the bending of the specimen. This spread can be eliminated by reducing the specimen height to 3.0 - 3.5 mm. If A is caused by a metal network, it is not influenced by the oiling of the friction contact. This makes it possible to investigate swelled rubbers. For A with sandpaper and with network $I = const\ P_p c$ holds for the intensity I of wear. P_p is the specific normal load, c a coefficient. For sandpaper $c \sim 1$ which corresponds to the Shalamakh equation; for network $c \geqslant 1$. Hence the influence of rubber hardness differs with different load. A satisfactory correlation exists between A with network and with steel disk. The correlation between A

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Frictional wear (abrasion) of rubber S/081/61/000/024/084/086 B101/B110

with sandpaper and A with the disk is poorer. The absolute wear correlates with the friction coefficient of rubber. [Abstracter's note: Complete translation.]

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"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001444

S/138/60/000/003/003/007
A051/A029

AUTHORS: Klitenik, G.S.; Ratner, S.B.

TITLE: A Study of the Wear Resistance in Rubber by Means of a Metal Grate

PERIODICAL: Kauchuk i Rezina, 1960, No. 3, pp. 19 - 25

TEXT: In order to increase the wear resistance of rubber, the authors point out the necessity of determining the mechanism of the wear and suggest that a more accurate investigation of rubber deterioration can be accomplished by using a metal grate. It is assumed that the wear in rubber takes place only due to forces of friction. Schallamach (Ref. 1) derived a formula expressing the connection between the mass reduction m, the distance between the combs r which form on the surface of the rubber during friction and the specific pressure p (Formulae 1 - 3). This theory can be confirmed by using the metal grate. The results of the investigation, using this grate, are submitted. It was found that with an increase in the load the wear increases according to the formula

$$m = m_1 p^{\alpha} = \frac{p^{\alpha}}{K_1};$$

where α (at a minimum value of 1) increases with an increase in the forces of

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S/138/60/000/003/003/007
A051/A029

A Study of the Wear Resistance in Rubber by Means of a Metal Grate

the intermolecular interactions in the rubber. These increase with the polarity of the rubber and the activity of the filler and drop with the introduction of a masticator or by swelling (with the wear of the rubber against the abrasive α = 1). The wear resistance coefficient usually increases with an increase in the hardness and durability of the rubber. If the value of α is known, then K_1, the wear resistance coefficient, can be computed. In order to make a physical evaluation of the wear resistance of the material not relating to the work of any specific product, it is more rational to make comparisons at the same degree of compression. It is pointed out that in evaluating the wear resistance of rubber intended for a specific article, the testing of the rubber should be carried out under conditions of the given deformation, given load or under the working conditions of the article in question. This problem was brought up in Reference 11 by Sakhnovskiy and co-workers. The mechanism of the wear in rubber on a metal grate is quite different to that of the wear on an abrasive surface. The filling of the rubber has different effects on the wear on an abrasive surface and on a metal grate. By analyzing this effect under working conditions the type of wear on the given article can be determined. There are 5 sets of figures and 11 ref-

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RATNER, S.B.

Comments on the article by A.M.Kogan and D.IA.Soboleva. Plast. massy no.3:47-48 '60.
(Plastics--Testing) (MIRA 13:6)

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"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001444

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S/191/60/000/007/012/015
B004/B056

15-8500

AUTHOR: Ratner, S. B.

TITLE: The Mechanical Testing of Plastics. Communication I. The Physical Characteristics of the Mechanical Properties of Polymers

PERIODICAL: Plasticheskiye massy, 1960, No. 7, pp. 59 - 66

TEXT: In view of the fact that there are no textbooks and no courses on the mechanics of polymers, the author endeavors, in a series of articles, to explain the most important results obtained for the technical use of polymer materials, for which purpose (in the following publications) the results obtained by the fiziko-mekhanicheskaya laboratoriya NIIPM (Physical and Mechanical Laboratory of the Scientific Research Institute of Plastics) are to be taken into account. In the present report the author defines the reasons for the elasticity of polymers as being the result of the length and flexibility of the molecule chain, and describes the three physical states of polymers (vitrification, high-elasticity, melting) (Fig. 1) and their

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The Mechanical Testing of Plastics. Communication I. The Physical Characteristics of the Mechanical Properties of Polymers

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B004/B056

dependence on load and temperature. On the basis of deformation as a function of temperature in the case of a different physical state (Fig. 2), the enforced elastic deformation is explained (figures showing polyamide samples Fig. 3), and in Fig. 4 the effect of temperature and rate of stress upon the behavior of a polymer is shown. The high-elastic state is defined as lying above the vitrification temperature T_v, the enforced elasticity as being below T_v (Table 1). In Table 2 a classification of all polymer materials and rubbers on the basis of their useful temperature T into six groups is given. A. Linear polymers: 1) Hard rubbers and vulcanizates: $T \gg T_v > T_{br}$ (brittleness temperature); 2) masticated rubbers: $T > T_v > T_{br}$; amorphous thermoplasts: $T_{br} < T < T_v$; B. Cross-linked polymers: 4) rubber $T > T_v > T_{br}$; 5) ebonite $T_{br} < T < T_v$; and 6) "Reactoplasts" $T > T_{br} < T_v$

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"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001444

The Mechanical Testing of Plastics. Communication I. The Physical Characteristics of the Mechanical Properties of Polymers

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The mechanical properties of the polymers are compared with those of other solids, especially of metals, and the corresponding equations are written down for deformation, hardness, elasticity, relaxation, creeping, softening temperature, fatigue (Fig. 5), friction (Fig. 6), and thermal expansion. From this comparison the author concludes that for plastics two categories of test methods are necessary: 1) such as give a general characterization of the material, and 2) such as determine the properties necessary for special purposes. There are 6 figures, 2 tables, and 23 references: 21 Soviet and 2 US.

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"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001444:

S/191/60/000/008/011/014
B004/B056

AUTHOR: Ratner, S. B.

TITLE: Mechanical Testing of Plastics. Report II. The Peculiarities of Test Methods for Plastics. Static Tests

PERIODICAL: Plasticheskiye massy, 1960, No. 8, pp. 53-59

TEXT: The present paper is a discussion of the specific properties of plastics and their test methods, which must be specially adapted to each individual application. After giving a survey of the systematic classification of test methods, the present paper deals with static methods. A table contains the existing methods for deformation and strength according to ГОСТ(GOST), OCT(OST), ASTMD, and DIN standards. The standards in most cases provide for a constant rate of load application, whereas the testing machines of the zavod "Metallist" (Plant "Metallist") and of western origin operate with constant deformation rates. A definition of the Komitet standartov (Committee on Standards) for hard plastics (modulus of elasticity $E > 10,000$ kg/cm^2), semihard ($10,000 > E > 4000$), soft plastics ($4000 > E > 200$), and elastics ($E < 200$ kg/cm^2) is presented.

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"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001444

Mechanical Testing of Plastics. Report II. S/191/60/000/008/011/014
The Peculiarities of Test Methods for Plastics. B004/B056
Static Tests

The author recommends the function $\sigma = f(\varepsilon)$ (Fig. 1) from which modulus, proportional limit, breaking length, and strength may be determined. If σ_1 is stress as function of deformation ε, the linearity of the function may be obtained from equation (2): $\sigma_2 = \sigma_1(1 + \varepsilon/100)^m \cong \sigma_1(1 + m\varepsilon/100)$, where $m \geqslant 1$ is determined empirically. The tangents of the σ_2 curves coincide with those of the σ_1 curves in the case of arbitrary m. The tangent of their angle of slope is equal to the initial modulus. For determination of the modulus of hard and semihard plastics, the following formula, which holds for wood according to ГОСТ-6336-52 (GOST 6336-52), was recommended by NIIPP. Together with R. A. Popova and A. P. Zuyev, the author determined the Brinell hardness of КФ-3 (KF-3), Voloknit, ФКПМ-15Т п. 451 (FKPM-15T p.451), ФКПМ-10 (FKPM-10), КПЖ-9 (KPZh-9), п/М-43 (p/M-43), К-18-2 (K-18-2), Viniplast, polypropylene, polyformaldehyde, Steklovoloknit п.6/60 (Plastic material with fiber glass p.6/60), caprone, resin-68, Khostalen, and high-pressure polyethylene (Fig. 2). Stable values were obtained at an indentation depth h = 0.3 - 0.5 mm.

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"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001444

Mechanical Testing of Plastics. Report II. S/191/60/000/008/011/014
The Peculiarities of Test Methods for Plastics. B004/B056
Static Tests

ГОСТ (GOST) standards, however, provide for stresses, at which h becomes either too large or too small for some plastics. The equations El = $(h_1 - h_2)/h_1$ (4) and P = h_2/h_1 (5) are recommended for determining elasticity and plasticity, respectively. Here, El + P = 1 (h_1 = indentation depth under load, h_2 - after removal of the load). ГОСТ 4670-49 (GOST 4670-49), however, does not provide for a separate determination of El and P, but only for that of El/P. For soft plastics, formulas (4) and (5) were transformed for elongation by means of a pendulum dynamometer. For the testing of polymers for relaxation at high temperature, the apparatus ППР-50 (PPR-50) of the СКИБМ (SKIBM) system is used in the USSR. The limited strength and its time- and temperature dependence according to the Zhurkov equation are pointed out. The tearing strength of rubber is standardized according to GOST 262-53; Fig. 3 shows the test arrangement. The author mentions S. P. Zamotayev, Head of the TsZL Uralmashzavoda (Central Plant Laboratory of the Ural Machine Plant), as well as B. I. Panshin, and thanks V. K. Bukarina of the fiziko-mekhanicheskaya

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"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001444

Mechanical Testing of Plastics. Report II. The Peculiarities of Test Methods for Plastics. Static Tests

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B004/B056

laboratoriya NIIPM (Physicomechanical Laboratory of the Scientific Research Institute of Plastics) for preparing the material. There are 3 figures, 1 table, and 21 references: 20 Soviet, 3 US, and 1 German.

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