

FUKS, G.B., inzh.; POKRASS, L.I., inzh.

Precast reinforced concrete rectangular pipes. Avt.dor. 23
no.3:25-26 Mr '60. (MIRA 13:6)
(Culverts)

L 26377-66

ACC NR: AP6007660

(A)

SOURCE CODE: UR/0413/66/000/003/0028/0028

AUTHORS: Barenboyn, I. Yu.; Dubrova, Ye. P.; Vasil'yev, V. D.; Lurik, N. M.; Radzevich, Ye. N.; Spitkovskiy, S. A.; Fuchs, G. B.; Fel'dman, M. B.; Leybman, Ya. M.; Kolomoyshev, B. B.; Flaks, V. A.; Khandzhi, V. V.; Gol'dfel'd, L. M.; Lifshits, I. L.

10
B

ORG: none

TITLE: A means of erecting railroad bridges of arched-span construction from separate sections. Class 19, No. 178393

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 3, 1966, 28

TOPIC TAGS: bridge, bridge construction, structural engineering, railroad bridge, cantilever bridge

ABSTRACT: This Author Certificate presents a means for erecting railroad bridges of arched span construction from separate sections. The sections are suspended and joined with struts of the structure above the arch by temporary sloping and horizontal members. These members serve as cross-stays and upper booms. The sections also feature a cantilever truss (see Fig. 1) with a triangular framing, the lower girder of which forms a semi-arch. The upper girder of the cantilever truss is set above the travel span, which includes separate elements of the truss used in mounting and elevating the structure. These members subsequently form a triangular cantilever

Card 1/2

UDC: 624.624

L 26377-66

ACC NR: AP6007660

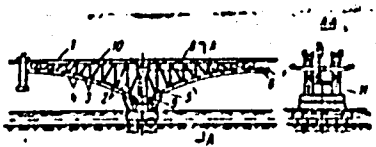


Fig. 1. 1 - upper string of the cantilever truss; 2 - struts; 3 - slanting members; 4 - lower string panels; 5 - anchor post; 6 - key block; 7 - floor plates; 8 - cables; 9 - anchor block; 10 - tension cables; 11 - joints.

frame, cross-stays and semi-arch sections. Each panel thus formed serves as a support for the next panel. The panels are rigidly fastened along the entire face, the process being repeated until the entire semi-arch is formed. Then cables are placed between the link sections and the support. When the cables are tightened, the semi-arches are rotated with respect to the support section, thus unloading the diagonal and horizontal members of the cantilever. The cables are removed, after which the travel-span plates are placed upon the structure above the arch between the link sections of the semi-arch and the support. When the wearing surface is completely laid, the remaining part of the cables is tightened. Favorable working conditions for the support are created by freeing the support from one-sided loadings; assembly of the semi-arch takes place simultaneously on both sides of the pier, with each addition being a cantilever addition. The abutment portion of the semi-arch is prepared in place between the first support block of the semi-arch and the pier. Forces in members of the cantilever are lessened by the introduction of stiffener cables in the upper girder at 1/2--2/3 of its design length. Moments in panels on the semi-arch are reduced through a skewed arrangement of axes of diagonals relative to points of intersection of the axes of vertical members and the semi-arch blocks. Joints are placed between adjacent semi-arches on the assembled panels, thus controlling the position of cantilever frames in the span. Orig. art. has: 1 figure.

Card 2/2 SUB CODE: 13/ SUBM DATE: 14Nov64

FUKS, Georg, prof. doktor meditsiny i filosofii

Roentgenotherapy for malignant tumors during surgery. Vest. rent.
i rad. 36 no. 2:3-9 Mr-Apr '61. (MIRA 14:4)

1. Iz Tsentral'nogo rentgenologicheskogo instituta pri gospitale
imperatora Frantsa Iosifa v Vene.

(CANCER) (X RAYS—THERAPEUTIC USE)

FUKS, G., inzh.

Better utilization of wood in construction. Avt.dor. 24 no.4:30
Ap '61. (MIRA 14:5)

(Wood)

FUKS, G.I., doktor tekhn.nauk, prof.; BOYKOV, G.P., kand.tekhn.nauk,
dotsent

Determination of the degree of blackness using two reference
standards. Izv.vys.ucheb.zav.; energ. 5 no.11:88-90 N '62. !
(MIRA 15:12)

1. Tomskiy ordena Trudovogo Krasnogo Znameni politekhnicheskii
institut imeni S.M. Kirova. Predstavlena kafedroy teoreticheskikh
osnov teplotekhniki.

(Heat—Transmission)

PROCESSES AND PROPERTIES INDEX

15

CA

Structure of soil colloids. I. Structure of colloidal ferric hydroxide. A. I. Rabinerson and G. E. Fuks. *Proc. Leningrad Dept. Geol. Inst. Ferri.* 22, 1-56 (1933); *cf. C. A.* 25, 8434. — A classification of soil colloids is suggested which depends on (a) slow coagulation with a local lowering of the ζ potential ($Fe(OH)_3$, $Al(OH)_3$), or (b) expansion of the sheath of hydration (bentonite, silicates).
R. C. A.

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

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

BC

a-1

Viscosimetric investigations of structure formation in ferric hydroxide sols. III. Destruction of ferric hydroxide sols on dilution. G. FUCHS and Z. KAMKOVA (Acta Physicochim. U.R.S.S., 1935, 3, 127-128).—The destruction of young and aged conc. Fe(OH)₃ sols and gels on dilution has been studied. The effect of adding FeCl₃ was also examined. The viscosity data indicate the existence of structures of different ages and solidity in the sol particles, which may be termed primary and secondary structures. The mechanism of destruction consists in the breakdown of secondary structures and displacement of the adsorption equilibrium with dilution.

A. J. M.

A12.31A METALLURGICAL LITERATURE CLASSIFICATION

EDOM SYWIDZAWA 1935-1979

1ST AND 2ND ORDERS 100 AND 4TH ORDERS

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

PROCESSES AND PROPERTIES INDEX

1ST AND 2ND ORDERS

2

ca
 The pressure viscosimetry of kaolin suspensions. G. Fuoss. *Acta Physicochim. U. R. S. S.* 3, 137-46 (1935) (in German).—Viscosity (η) increases rapidly with concn. η of sols reaches a max. after aging and then falls off. The maxima for the 5.32 and 10.43% sols come after 3 days and 4 days, resp., while for a 14.72% sol η falls off from the beginning. Mech. working increases aggregation. The greater the dispersion the more rapid the structure formation. Dln. causes coagulation. Dehydrating agents hasten the formation of structures. R. E. DeRight

CLASSIFICATION

A S B S L A D E T A L L U P K A L L I T E R A T U R E

PROCESSES AND PROPERTIES INDEX

7

LA

Spontaneous structure formation in ferric hydroxide sols.
 O. Fuhs and A. Rabinerson. *Acta Physicochim. U. R. S. S.* 6, 441-52(1930) (in German); cf. *C. A.* 29, 7756.
 The change in cond. and ζ of freshly prep'd. Fe(OH)₃ sols with time is attributed to slow hydrolysis of ferric salt in the intermicellar liquid. Equil. is reached in 2-6 days. Hydrolysis induced by heating the sol is only partially reversed on cooling, owing to a decrease in dispersion. Structure formation varies directly with degree of hydrolysis and is accounted for by desorption of the ferric ion. The velocity of coagulation after hydrolytic equil. is reached depends on the value of the zeta potential corresponding to the degree of desorption finally established. I. W. Rider

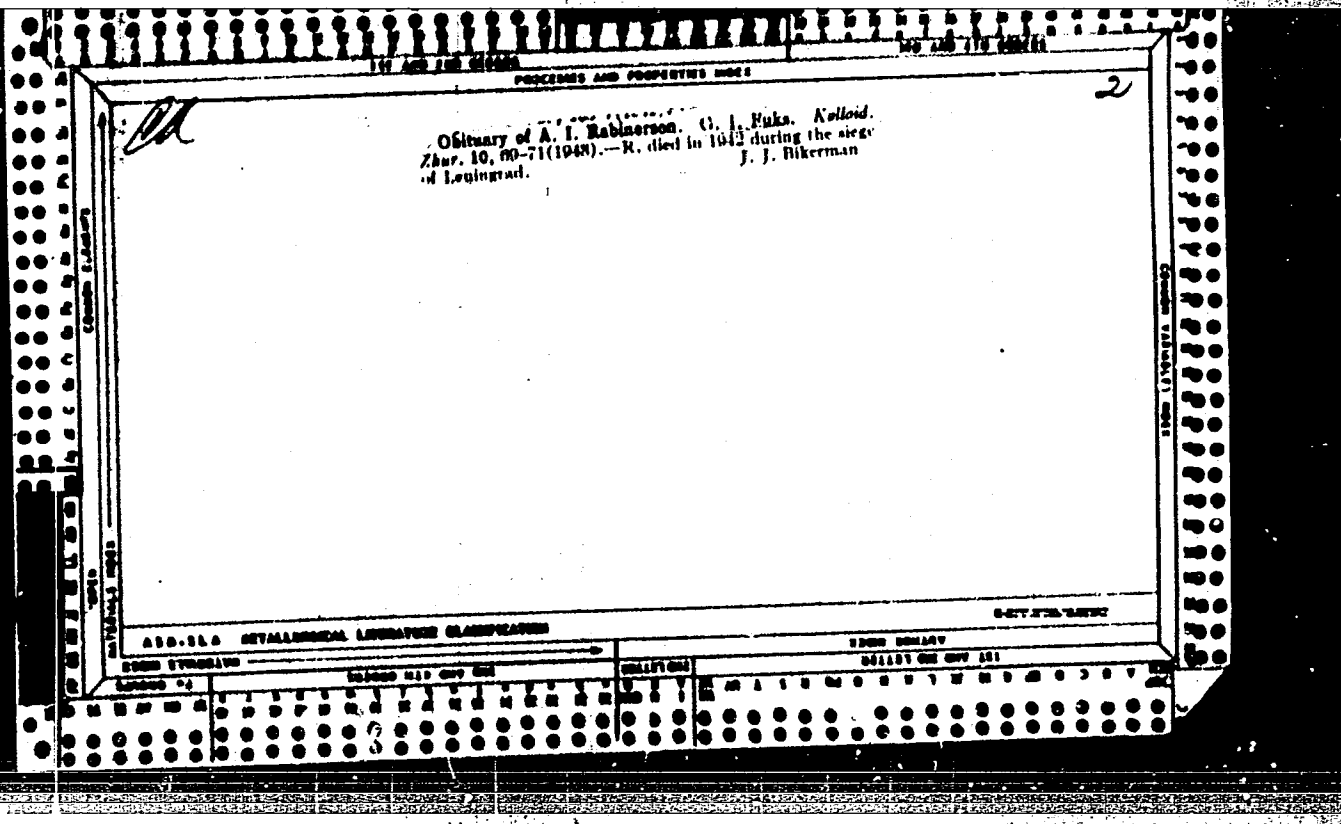
CLASSIFICATION

ASB 51A METALLURGICAL LITERATURE

COMMON ELEMENTS

MATERIALS INDEX

COMMON VARIANTS INDEX



SUBJECTS AND PROPERTIES INDEX

5

th

Structured ferric hydroxide sols obeying Poiseuille's law. O. L. Fulk. *Kolloid. Zfur.* 10, 165-8 (1948).—Fe(OH)₃ hydrate of 6.3-8.6% Fe₂O₃ prepd. by diln. of old concd. sols showed initially anomalous viscosity η ; over 3-10 days η fell and the anomalous pressure range decreased. At the end of that period slow increase of η set in again and was observed for 6 months; however, η did not attain the initial value (in the Poiseuille region) of the freshly dild. sols. At the end of the 10-day period of falling η , all sols except one were found to obey Poiseuille's law up to the turbulence limit, whereas sols prepd. directly from Merck's colloidal Fe(OH)₃ showed, at the same stage, anomalies at low pressures, at least in viscometers with a narrower capillary. The normal sols remain so for several months despite the slow rise of η , and hints of anomalies appear only towards the end of the aging period. Presence of a structure in the normal sols is evidenced not only by the slow increase of η but also by its abnormal concn. dependence, and by a sharp lowering of the crit. value of the Reynolds no. as compared with H₂O. Addn. of 12-30 milliequiv. NaCl to the normal sols raises η and develops anomalous viscosity; addn. of 8% Fe(OH)₃ or heating at 60-100° has the same effect. Higher concns. of electrolyte or prolonged heating transform the sol into a gel. The thixotable supermicellar structure present in the aging normal sols may be related to Heller's "gelsols" (*C.A.* 36, 311; 37, 560P).
N. Thon

ENTRUSTED PARTY

METALLURGICAL LITERATURE CLASSIFICATION

1961-1969

SUBJECTS AND PROPERTIES INDEX

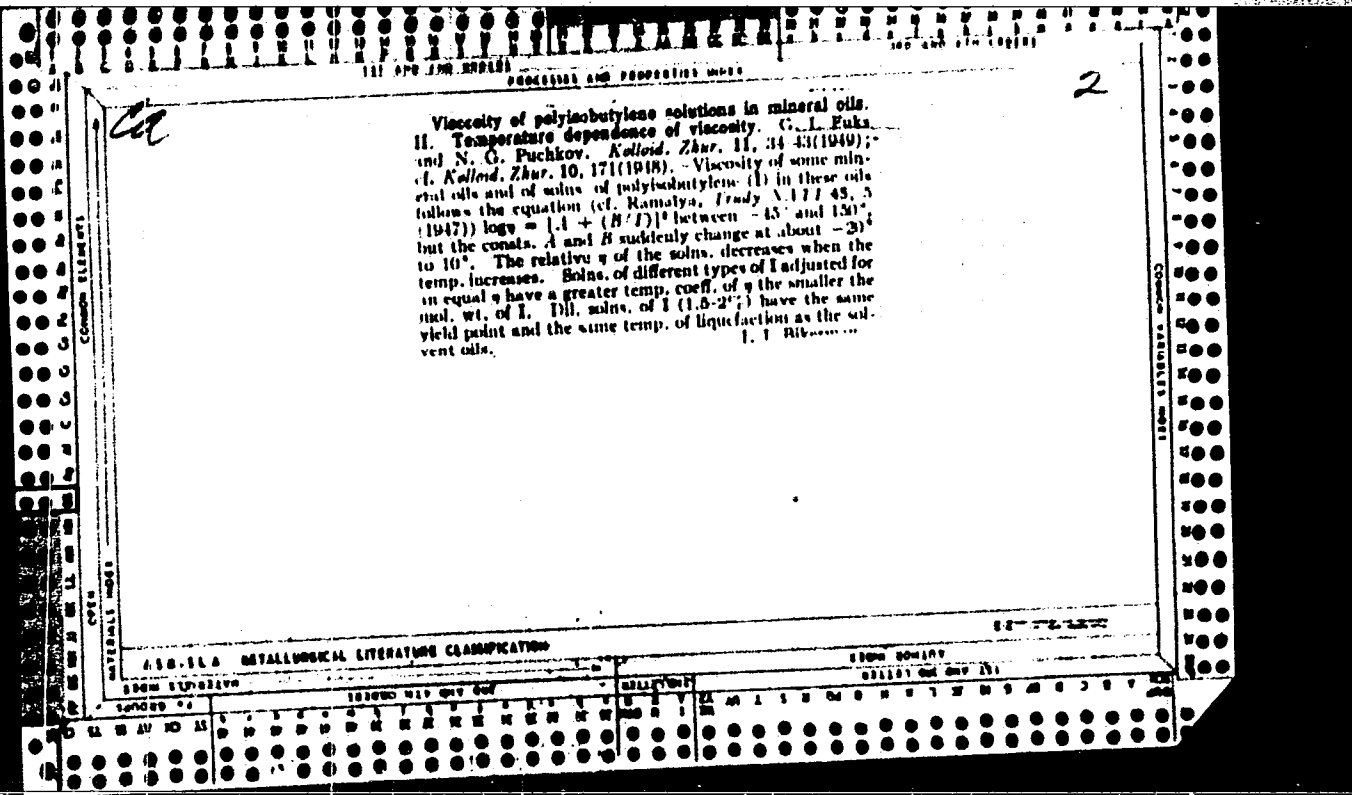
28

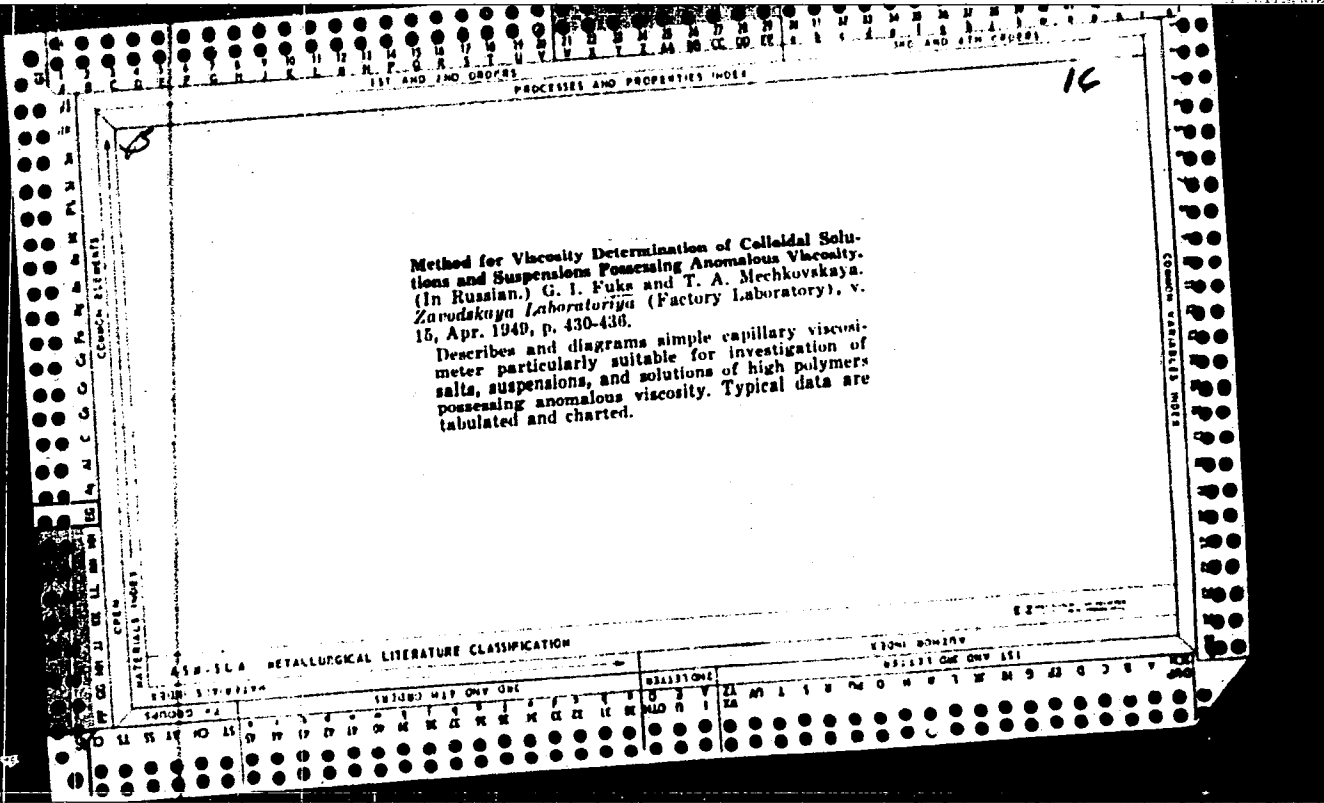
Investigation of Viscosity of Solutions of Polyisobutylene in Mineral Oils. I. Relationship of Viscosity to Concentration and Molecular Weight. (In Russian.)
 G. I. Pukh and N. G. Puchkov. *Kolloidnyi Zhurnal* (Colloid Journal), v. 10, Sept.-Oct. 1948, p. 371-381.

Proposes equations for the above relationship. It was found that Staudinger's equation could not be applied to the linear dependence of specific and relative viscosities on molecular weight in a wide range of concentration. The proposed generalized equation permits this determination. Data are tabulated and charted. 14 ref.

Physicochem Lab., Tskhritoneft

ALLUNICAL LITERATURE CLASSIFICATION





EVES, G. I.

26486 I klychnov, V. M. vliyanie nizkikh koncentratsiy elektrolitov na stseplenie mikroskopicheskih pochvnykh chastits. Trudy vsesoyuz. Nauch-Issled. In-ta ulobreniy, agrotekhniki i agropochvovedeniya, im. Gekroytsa, vyp. 22, 1949, s. 181-91- Bibliogr: 11 nazv.

SO: LETOPIS' NO. 35, 1949

FUKS, G. I.

PA 39/49T11

USSR/Chemistry - Suspension Mar 49
Chemistry - Dispersed Systems

"The Adherence of Microscopic Particles to the Hard Surface of Liquids," G. I. Fuks, V. M. Klychnikov, Ye. V. Tayganova, All-Union Sci Res Inst for Fertilizers, Agrotech, and Soil Studies imeni K. K. Gedroyts, 4 pp

"Dok Ak Nauk SSSR" Vol LXV, No 3

Studied adherence of monodispersed suspensions of quartz, glass, graphite, clay, soils, and resin to quartz, glass, metals, paraffin in water, mineral oils, and several other liquids. Submitted by Acad P. A. Rebinder, 3 Jan 49.

39/49T11

IA 151193

FUKS G. I.

USSR/Physics - Emulsions
Sols

21 Jun 49

"Flow of Dilute Structured Sols and Suspensions,"
G. I. Fuchs, 4 pp

"Dok Ak Nauk SSSR" Vol LXVI, No 6

Studied flow of 0.05-0.5% V₂O₅ hydrosols, 0.2-1.5% Graham sols Fe(OH)₃, 0.2-1.2% rubber solutions in a kerosene fraction (boiling point 200-320°), ceresin suspensions in medicinal vaseline oil and xylene and 0.1-2.5% water suspensions of bentonite and kaolin, saturated with Na⁺, K⁺, H⁺, and Ca⁺⁺ ions. Constructed special unit for this

USSR/Physics - Emulsions (Contd) 21 Jun 49

study, consisting of two coaxial cylinders, between which liquid under study was placed. Inner cylinder (radius 37 mm) was rotated at a constant speed (2.3 and 6 rpm). Motion of liquid was observed with the aid of particles (carbon, graphite, ZnO, aluminum) 0.5 μm in diameter deposited on the surface of the liquid. Distance between cylinders was 51 mm. Particles were placed along the radii every 3 or 1.5 mm. Submitted by Acad P. A. Reinder 26 Apr 49.

151193

И. А. ПУЧКОВА,

"Improving the Viscosity and Temperature Properties of Lubricating Oils by Compounding Fractions", p 111, in the Monograph "Investigation and Use of Petroleum Products", edited by N. G. Puchkov, Gostoptekhizdat, Moscow-Leningrad, 1950.

CA 2

Aggregative stability and supermicellar structure (1).
1. Fuks *Kolloid. Zhur.* 12, 216-31 (1950); cf. preceding
abstr. -- A review, mainly of Prakov's work. J. J. B.

FUKS, G.I.; KUSAKOV, M.M., professor, redaktor; L'VOVA, L.A., vedushchiy redaktor; POLOSINA, A.S., tekhnicheskii redaktor

[Viscosity and plasticity of petroleum products] Viazkost' i plastichnost' nefteproduktov. Pod red. M.M.Kusakova. Moskva, Gos. nauchno-tekhn. izd-vo neftianoi i gorno-toplivnoi lit-ry, 1951. 27 p. [Microfilm] (MIRA 10:1)
(Petroleum products)

MINASYAN, M.A., inzhener; FUKS, G.I., kandidat khimicheskikh nauk.

Fat base for fine lubricating oils. Masl.-zhir.prom. 18 no.6:15-16 Je
'53. (MLRA 6:6)

1. Trest "Krasnodarzhirmaslo" (for Minasyan). 2. Nauchno-issledovatel'-
skiy institut chasovoy promyshlennosti (for Fuchs).
(Lubrication and lubricants)

FUKS, G.I.; SANDMIRSKIY, D.M.

Third All-Union Conference on Colloidal Chemistry. Koll.shur. 16
no.2:154-160 '54.
(MIRA 7:3)
(Colloids)

Fuks, G.I.

USSR/Chemical Technology - Chemical Products and Their Application. Treatment of Natural Gases and Petroleum. Motor Fuels. Lubricants. I-13

Abs Jour : Referat Zhur - Khimiya, No 4, 1957, 12975

Author : Fuks G.I., Gal'tsova N.Ye. Uss I.I.
Title : Low-Viscosity Watch Oils

Orig Pub : Chasovyye mekhanizmy, Sb. 1, M., Mashgiz, 1955, 165-185

Abstract : Preparation of low-viscosity oils for clockwork mechanisms, from oils of medium viscosity, can be effected by three methods: dilution with low viscosity synthetic components, removal of viscous components of fat by freezing or by adsorption separation (decrease in viscosity of bone oil, that is attained thereby, does not exceed 16%), chemical treatment of the oil involving ester interchange of fatty acid glycerides. Bibliography, 28 references.

Card 1/1

- 260 -

Fuks, G.I.

124-11-12792

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000513830003-8
Translation from: Referativnyy Zhurnal, Mekhanika, 1957, Nr. 11, p 68 (USSR)

AUTHOR: Fuks, G. I.

TITLE: The Lubricating Qualities of Instrument Lubricants.
(Smazoch'naya sposobnost' pribornykh masel)

PERIODICAL: Chasovyye mekhanizmy. Sb. 1, Moscow, Mashgiz, 1955, pp 186-215

ABSTRACT: The author reaches the conclusion that the lubricating qualities of a lubricant are determined by the interaction of the liquid molecules and the surface of the solid body, as well as by the capability of the thin layer of liquid to support heavy normal loads and to offer small resistance against tangential displacements. Therefore, lubricating qualities must be evaluated in terms of two quantities: 1) the resistance offered by a thin layer of liquid to normal and tangential stresses, or 2) the ratio of the one to the other. This ratio equals unity throughout the liquid, except that it grows within the boundary layer of the liquid. Four methods were developed for the investigation of the mechanical characteristics of the liquid boundary layer. One of these methods is based on the utilization of a variant of the four-bead device for the measurement of friction. The three other testing devices have been

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124-11-12792

The Lubricating Qualities of Instrument Lubricants (continued).

developed for the investigation of the statics and kinematics of the phenomenon of adhesion. One of the investigational methods developed permits the simultaneous determination of the clearance between surfaces in mutual contact and the reaction of thin liquid layers against normal loads.

The investigation shows that the friction coefficients of lubricated surfaces depend on the load, and that hence the Coulomb-Amanton law of friction does not apply here. Its characteristics are characterized with adequate accuracy by Deryagin's two-term expression. The investigation of the kinetics of adhesion of plane-parallel lubricated disks indicates that the thin layer of lubricant in the interstice between the metallic surfaces may be divided in three parts, according to their mechanical characteristics: 1) a plastic-viscous part, adhering to the metal; 2) a layer in which the viscosity is higher than average; 3) a layer in which the reference value of the viscosity prevails. The first and second layers constitute the boundary layer of the lubricant, the thickness of which does not exceed 0.40 micron. It is shown that the lubricating quality of a lubricant depends on its composition. It is greater in animal than in mineral fats, without, however, exhibiting

Card 2/3

124-11-12792

The Lubricating Qualities of Instrument Lubricants (continued)

any direct additive characteristics in mixtures of the two types of fats. The introduction of animal fats and, more especially, animal acids and other superficially active substances to mineral fats reduces the tangential and increases the normal components of the lubricating qualities of the lubricants, wherein the effectiveness of these additives depends greatly on the precise composition of the lubricant and the additives.

(B. G. Zaloga)

Card 3/3

FUKS, G.I.

~~XXXXXXXXXXXXXXXXXXXX~~

Investigating the mechanical properties of liquid films in the
space between solids. Zav.lab. 21 no.12:1455-1461 '55.(MLRA 9:4)
(Films (Chemistry))

FUKS, G.I.

124-58-6-6872

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 6, p 88 (USSR)

AUTHOR: Fuks, G.I.

TITLE: Investigation of Solid-particle Interaction in a Liquid by Methods of Adhesion and Friction Measurement (Issledovaniye vzaimodeystviya tverdykh chastits v zhidkosti metodami izmereniya prilipaniya i treniya)

PERIODICAL: V sb. Tr. 3-y Vses. konferentsii po kolloidn. khimii, 1953, Moscow, AN SSSR, 1956, pp 301-328

ABSTRACT: A brief survey is given of the problem of the interaction of highly dispersed particles in a liquid. Results are presented of the author's experiments on solid-particle interaction in a liquid by applying the following methods: 1) measurement of the static and kinetic adhesion of plane-parallel disks for various distances between them and rectangularly crossed threads; 2) measurements of the friction of beads in a liquid for varying loading and duration of contact. The variation in the temperature dependence of the disk separation time in mineral oils and the estimated liquid-flow activation energy for various clearances confirm the conclusion that the liquid boundary layers in contact with solid bodies possess a structure and mechanical properties different from the properties

Card 1/2

124-58-6-6872

Investigation of Solid-particle Interaction in a Liquid (cont.)

of the bulk of the liquid. It is noted that friction and adhesion in a liquid for average distances between bodies in contact do not depend on the second coefficient of viscosity (thick or fluid-film viscosity) of the liquid. It is shown that adhesion increases substantially with an increase in contact time and in specific loading; increased loading, addition of surface-tension reducing substances, and electrolytes lower the coefficient of friction. Bibliography: 61 references.

N. F. Bondarenko

1. Boundary layers--Physical properties
2. Boundary layers--Mechanical properties
3. Liquids--Properties
4. Adhesion--Analysis
5. Friction--Analysis

Card 2/2

FUKS, G. I.

"Study of the Interaction of Heavy Particles in Liquid by the Method of Measuring the Adherence and Friction" (Issledovaniye vzaimodeystviya tverdykh chastits v zhidkosti metodami izmereniya prilipaniya i treniya) from the book Trudy of the Third All-Union Conference on Colloid Chemistry, pp.301-328, Iz. AN SSSR, Moscow, 1956

(Report given at above Conference, Minsk, 21-4 Dec 53)

FUKS, G.I.

REBINDER, P.A., akademik, otvetstvennyy redaktor; YERMOLENKO, N.F.,
otvetstvennyy redaktor; KARGIN, V.A., akademik, redaktor; DUMANSKIY,
A.V., redaktor; DERYAGIN, B.V., redaktor; DOGADKIN, B.A., professor,
redaktor; FUKS, G.I., redaktor; YEGOROV, N.G., redaktor isdatel'stva;
MOSKVICHEVA, N.I., tekhnicheskiy redaktor

[Proceedings of the Third All-Union Conference on Colloidal Chemistry]
Trudy Tret'ei Vsesoyuznoi konferentsii po kolloidnoi khimii. Moskva,
Isd-vo Akademii nauk SSSR, 1956. 494 p. (MLRA 9:11)

1. Vsesoyuznaya konferentsiia po kolloidnoy khimii, 3d, Minsk, 1953.
 2. Chlen-korrespondent AN SSSR (for Dumanskiy, Deryagin) 3.
- Deystvitel'nyy chlen AN SSSR (for Yermolenko)
(Colloids)

FURS, G.I.

✓ 933. FOUR BALL APPARATUS FOR MEASURING THE ANTI-FRICTION AND ANTI-WEAR
PROPERTIES OF LUBRICANTS. W. FURS, G.I. (Trans. Am. Soc. Lubric. Engrs.,
1912, vol. 12, (S), 594-598).

933d
jmb

Fuks, G. I.

11 3
1-4E3d

Methods of investigation of lubricating oils at moderate temperatures. G. I. Fuks and N. F. Gal'sova. *Zavodskaya Lab.* 22, 133 (1966). A special app. was devised for the study of the oxidation of lubricants in thin layers at 25-100° (usually at 60 ± 1°) and with a bright illumination. Changes in viscosity, acidity, and the peroxide no. in 24 hrs. at 60° were detd. under mild oxidation conditions as oxidation indexes in the presence of antioxidants, and under manifold conditions. The tests showed that the peroxide no. was the most rapidly affected, acidity slower, and the viscosity the slowest. W. M. Streiberg

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Sci Res Inst. Watch Industry

FUKS, G.I.

LOSIKOV, B.V., prof, red; KREYN, S.M., prof. red; FUKS, G.I., kand.khim.nauk; red.;
LOSBYAKOVA, Ye.S., vedushchiy redaktor; MUKHINA, E.A., tekhn.red.

[Improvement in the quality and the use of lubricants; a collection
of papers] Povyshenie kachestva i primeneniye smazochnykh materialov;
sbornik dokladov. Moskva, Gos.nauchno-tekhn.izd-vo nefi.i gorno-
toplivnoi lit-ry, 1957. 364 p. (MIRA 10:12)

1. Moskovskiy dom nauchno-tekhnicheskoy propagandy imeni
F.E.Dzerzhinskogo.

(Lubrication and lubricants)

FUKS, G. I.

Oxidation of lubricating oils at low and medium temperatures. G. I. Fuchs and N. E. Gal'tsina. *Khimiya i Tekhnika Topliv i Masel*, No. 6, 25-31. The oxidation behavior of the following oils was studied: petroleum lubricating turbine oil, transformer oil, and their vacuum distilled oil; synthetic lubricating oil (dioctyl sebacate), bon'oil, castor oil, transformer and house oils. The oxidation products are being used at low or medium temps., and with accumulation of primary oxidation products and acids, often accompanied by a slight viscosity drop; decrease in the content of primary oxidation products and formation of secondary products, resulting in a viscosity rise. Oxidation takes place even at low temps., and the general nature of oxidation is not detd. by temp. in the -50 to +100° range, although the rate and the transition time into the upper oxidation stages are accelerated by a rise in temp. Mineral oils are more stable at temps. below 100° than are the fatty oils, but the difference in stability is reduced by an increase in temp. Stability is increased by distn. Antioxidants are effective at low and medium temps., and p-hydroxydiphenylamine is particularly effective with fatty oil lubricants. W. M. Sternberg.

5
#E30

11
gmb

FUKS, G.I.

MEKHAYLYUK, A.S., inzhener; FUKS, G.I., kand.khim.nauk.

Wear of materials used for making supports and axles of precision instruments. Priborostroenie no.9:18-21 S '57. (MIRA 10:10)
(Mechanical wear)

AUTHOR FUKS G.I. PA - 3165
 TITLE Motion of Liquids in Narrow Clearances Between Flat Solids Approach-
 ing Each Other.
 (O techenii zhidkostey v uzkih zazorakh mezhdu sblizhayushchima-
 isya ploskimi tverdymi telami -Russian).
 PERIODICAL Doklady Akademii Nauk SSR, 1957, Vol 113, Nr 3, pp 635-638 (U.S.S.R.)
 Received 6/1957 Reviewed 7/1957
 ABSTRACT In some of the author's previous papers (Zav.Lab.21,12,1455,1955
 and others) it was shown that the equation of Stephan (Zs.Ber.Akad.
 Wissen.69,713,1874) and Reynolds (Phil.Trans.Roy.Soc.177,157,1886)
 is not satisfied in the case of disks which are separated by suffi-
 ciently thin layers of mineral-and other lubricating oils, by stear-
 ic acid-solutions in organic solvents, and by aqueous solutions of
 electrolytes. In more recent experiments the following deviations
 from the equation were determined on the occasion of the circula-
 tion of the aforementioned liquids in narrow clearances: 1.) re-
 tardated flow in or-out of the liquid in the clearance. 2.) formation
 of a rest layer which cannot be pressed out in the case of a charge
 up to 8 kg/Qmm within 36 hours. 3.) rise of τ (time of approach, of
 stripping resp. of the flat-parallel disks) in the case of an increa-
 se of the length of contact. 4.) nonlinear dependence of time on $1/F$
 and $1/h_0^2$. (h_0 = the primary clearance, F = the normal (vertical) force
 which approaches or separates the disks). At the boundary between

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 Motion of Liquids in Narrow Clearances Between Flat Solids Approaching Each Other. PA - 3165

solid and liquid specifically molecular-surface properties were found.
 This indicates the dependence of the effect on the surface-active-sub-
 stances and on the electrolytes. It proves the formation of a spe-
 cial structure of the surface - layer in the case of the investigat-
 ed liquids in a depth of the order of $0,1\mu$. The nature of the desc-
 ribed effect is inhomogeneous and is, in particular, determined by
 not - balanced and balanced phenomena. (4 illustrations, 2 tables
 and 10 citations from Slavic publications).

ASSOCIATION Scientific Research-Institute of the Watch-Industry.
 PRESENTED BY REBINDER P.A., Member of the Academy
 SUBMITTED 18.7.1956
 AVAILABLE Library of Congress
 Card 2/2

AUTHORS: Fuks, G.I., Timofeyeva, L.V. 32-24-4-19/67

TITLE: A Method for the Estimation of the Corrosion Aggressivity of Lubricating Oil at Moderate Temperatures (Metod otsenki korrozionnoy agressivnosti smazochnykh masel pri umerennoy temperature)

PERIODICAL: Zavodskaya Laboratoriya, 1958, Vol. 24, Nr 4, pp. 427-429 (USSR)

ABSTRACT: The standard method according to GOST-7934-56 hitherto in use required an investigation lasting 30 days; in order to avoid this loss of time a new investigation method was developed in two varieties. The new method was worked out in consideration of the fact that a change of temperature from 20° to 80-100°C causes acceleration of oxidation but no change of the oils, and, in accordance with the electrochemical character of corrosion, that in the case of contact being established between two metals of different kind, acceleration of corrosion takes place too. As may be seen from a schematical drawing test vessels of cylindrical shape and certain dimensions containing the metal to be investigated are mounted on a revolving wheel in the oil. The difference between

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A Method for the Estimation of the Corrosion
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Temperatures

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the two varieties of this method is mainly caused by the shape of the test vessel and thus of the oil level. Experiments showed that brass corrodes sooner than steel, and that a simultaneous presence of both metals increases the velocity of corrosion still more. A rise of temperature as well as the presence of moisture increases corrosion in accordance with the aggressivity of the oil. The sensitivity of the method exceeds the standard method because, e.g., the influence exercised by 0.01% of water in oil upon corrosion is noticeable. Investigation results showed among other things that a 72 hours' test at 75° according to the first variety corresponds to a 30 days' test according to the standard method, as well as to natural wear at 20-50° for a period of 2-3 years in clockworks. A further saving of time was made possible by employing the second variety. There are 3 figures, 2 tables, and 2 references, 2 of which are Soviet.

ASSOCIATION: Nauchno-issledovatel'skiy institut chasovoy promyshlennosti
(Scientific Research Institute of the Clock- and Watch Industry)

1. Lubricating oils--Corrosive effect
2. Lubricating oils
--Temperature factors
3. Metals--Corrosion

Card 2/2

AUTHOR: Fuks, G.I.

SOV/69-20 -6-13/15

TITLE: The Investigation of the Boundary Friction and Adhesion With the Purpose of Studying the Interaction of Highly Dispersed Particles (Issledovaniye granichnogo treniya i prilipaniya s tsel'yu izucheniya vzaimodeystviya vysokodispersnykh chas-tits). 1. Some Boundary Properties of Solutions in Narrow Flat Clearances Between Solid Planes (1. O nekotorykh granichnykh svoystvakh rastvorov v uzkiykh ploskiykh zazorakh mezhdru tverdymi telami)

PERIODICAL: Kolloidnyy zhurnal, 1958, Vol 20., Nr 6, pp 748-758 (USSR)

ABSTRACT: Friction and adhesion of solid bodies in liquids is measured to study the lubrication properties of these liquids. The interaction of solid bodies of simple geometric form in aqueous solutions of electrolytes, surface-active substances, etc. is here investigated. Figure 1 shows the attraction forces of discs separated by turbine oil and NaCl solution. If the approach of the discs has reached its highest value, the layer between the discs is called the residual layer. The speed of attraction depends on the radius of the discs. The thickness of the residual layer is influenced by the composition of the liquids and the discs, the pressure and the temperature. The influence of the temperature is shown in Figure 3. The thickness of the re-

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The Investigation of the Boundary Friction and Adhesion with the Purpose of Studying the Interaction of Highly Dispersed Particles. 1. Some Boundary Properties of Solutions in Narrow Flat Clearances Between Solid Planes.

residual layer decreases with an increase in specific pressure (Fig. 3, Table 3). The resistance of the residual layer against thinning in the presence of surface-active substances is shown in Figure 4. It varies usually between 0.8 and 12 kg/sq cm. The loosening of the discs in electrolyte solutions and surface-active substances depends on the time of contact and the pressure. The coefficient of boundary thickening changes in a similar way (Fig. 6). This coefficient for LiCl solutions increases with the concentration of the solution (Fig. 7). The boundary viscosity is 1-6 times higher than space viscosity.

There are 5 tables, 8 graphs, and 27 references, 18 of which are Soviet, 7 English and 2 German.

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The Investigation of the Boundary Friction and Adhesion with the Purpose of Studying the Interaction of Highly Dispersed Particles. 1. Some Boundary Properties of Solutions in Narrow Flat Clearances Between Solid Planes.

ASSOCIATION: Nauchno-issledovatel'skiy institut chasovoy promyshlennosti, Moskva (Scientific Research Institute of the Watch Industry, Moscow)

SUBMITTED: May 27, 1957

1. Solutions--Boundary layers 2. Liquids--Adhesion 3. Solids
--Adhesion 4. Adhesion--Measurement 5. Lubricants--Test methods

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AUTHORS: Fuks, G. I., Kaverina, N. I. SOV/20-121-2-35/53

TITLE: The Influence of the Cation Radius Upon the Properties of the Boundary Layers of Electrolyte Solutions in Clearances Between Plane Surfaces of Quartz (Vliyanie radiusa kationov na svoystva granichnykh sloev rastvorov elektrolitov v ploskikh zazorakh mezhdu poverkhnostyami kvartsa)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol. 121, Nr 2, pp. 322 - 325 (USSR)

ABSTRACT: A very weak solution of the chlorine salt of alkali metals or earth alkali metals is brought between two plane parallel specular quartz disks; the disks are pressed together (load unto 8 kg/cm² during 3 - 9 hours). The boundary layer which is equal to half of the width of the clearance between the disks is measured, furthermore the thickness of the remaining layer is measured which is equal to half of the solution layer which cannot be pressed out of the free space between the plates; then the ratio of the viscosities η_0/η and the resistance of the residual layer to compression

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The Influence of the Cation Radius Upon the Properties of the Boundary
Layers of Electrolyte Solutions in Clearances Between Plane Surfaces of Quartz

$$\bar{E}_{\sigma_p' - \sigma_p''} = \frac{h_{\min}' (\sigma_p'' - \sigma_p')}{h_{\min}' - h_{\min}''}$$

is determined; h_{\min}' and h_{\min}'' denote the thickness of the boundary layer at specific loads σ_p' and σ_p'' . Then the dimensionless coefficient Ψ of the boundary thickening is determined to be specified by $\Psi = (t_{\text{pull}} \cdot \sigma_{\text{pull}}) / \eta$, where t_{pull} is the time during which a tensile stress is applied and σ_{pull} is the tensile stress. (The thickness of the investigated boundary layer did not exceed $0,35\mu$). Numerous results of such investigations and of the relations between the various factors are given. The influence of the temperature on the magnitude of Ψ shows that Ψ partly increases exponentially with the temperature. Investigations of the dependence of the thickness of the boundary layer of 0,01n- electrolyte solutions showed that h_{\min} is the highest when monovalent cations are used.

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SOV/20-121-2-35/53

The Influence of the Cation Radius Upon the Properties of the Boundary Layers of Electrolyte Solutions in Clearances Between Plane Surfaces of Quartz

(LiCl - $0,26\mu$, maximum value); BaCl₂ has the lowest value of h_{\min} . Also \bar{E} reaches higher values for monovalent cations than for bivalent ones, but here LiCl has the lowest value of \bar{E} and RbCl the highest one (concentration: 10 mg-equ/l at 20°C). There are 4 figures, 2 tables, and 11 references, 10 of which are Soviet.

PRESENTED: March 7, 1958, by P. A. Rebinder, Member, Academy of Sciences, USSR

SUBMITTED: February 28, 1958

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LOSIKOV, Boris Vital'yevich, prof., doktor tekhn.nauk; PUCHKOV, Nikolay Gavrilovich, kand.tekhn.nauk; ENGLIN, Boris Abramovich, kand.tekhn.nauk; FUKS, G.I., kand.khim.nauk; KAVERINA, N.I., kand.tekhn.nauk; L'VOVA, L.A., vedushchiy red.; FEDOTOVA, I.G., tekhn.red.

[Principles of the use of petroleum products] Osnovy primeneniia nefteproduktov. Izd.2., dop. i perer. Moskva, Gos.nauchno-tekhn. izd-vo neft. i gorno-toplivnoi lit-ry, 1959. 566 p. (MIRA 12:3)
(Petroleum products)

5(4).

SOV/69-21-4-22/22

AUTHOR: Fuks, G.I.

TITLE: ~~Problems of Colloid Chemistry at the VIII Mendeleev Conference~~
Problems of Colloid Chemistry at the VIII Mendeleev Conference

PERIODICAL: Kolloidnyy zhurna', Vol XXI, 1959, Nr 4, pp 509-511 (USSR)

ABSTRACT: The VIII Mendeleev Conference of General and Applied Chemistry was held in Moscow from 16 to 23 March 1959. The conference paid much attention to problems of colloid chemistry. Reports on the solvation of ions and molecules and the structure of the double layer of adsorbed ions were delivered at the section on electrochemistry. At the section on chemistry and technology of polymers, reports were delivered on the mechanical properties of polymers with fillers. At the section on chemistry and technology of silicates reports on the properties of argillaceous suspensions were made. The subsection "catalysis and adsorption" of the section of physical chemistry devoted one of its sessions (11 reports) to problems of physical adsorption and ion exchange. The section on colloid chemistry conducted 6 sessions (one was a joint

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session with the section of silicate chemistry), at which 57 reports and communications were delivered. The sessions were attended by 70 to 250 delegates, and the joint session by more than 600. The sessions of the section were crowded, which limited the discussions. The reports of the section were focussed on the following problems: 1) surface layers and thin films; adhesion (10 reports); 2) adsorption and adsorptional interaction (11 reports); 3) emulsion and foams (7 reports); 4) formation of colloids, strength and coagulation (11 reports); 5) physico-chemical mechanics and structuring processes (11 reports); 6) semicolloids and disperse systems in polymers (7 reports). Each of these problems was discussed at a special session of the section. The reports of V.P. Smilga and B.V. Deryagin were devoted to the role of electrons in the adhesion theory, and the reports of N.A. Krotova and L.P. Morozova were on adhesional connection and the methods of its investigation. Yu.F. Deynega, A.V. Du-

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manskiy, G.V. Vinogradov and I. Ye. Neymark delivered reports on the effect of the surface and its modification on the dielectric properties of some disperse systems. V.V. Karasev and B.V. Deryagin reported on new results in the measuring of the viscosity of fine wall (pristenny) layers of a liquid with the aid of the viscometric blowing out method. G.I. Fuks reported on the results of model investigations of elementary acts of interaction of solid particles in electrolyte solutions and showed the influence of electrostatic repulsion of diffuse layers, of hydrated ions and the surface properties of particles on this effect, in dependence on the distance between the particles. M.S. Ostrikov reported on his method of visual investigation of the development and "self-healing" ("samozalechivaniye") of cracks in transparent material at the change of the load. With the aid of this method the author modelled and studied drying and soaking processes of disperse and high-molecular systems. The report of S.I. Popel'

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was on the interphase tension of iron at the interface with a silicate smelt (measuring by the form of the drops), and the report of N.V. Pertsov was on the surface activity of liquid metallic coverings and their effect on the strength of the metals. A number of reports on adsorption and adsorptional interaction were concerned with the theoretical and practical aspects of this problem. Deep-seated pitch coals, which are taking on an ever-increasing importance in the national economy of the Belorusskaya and adjacent oblasts, were minutely characterized in the work of N.F. Yermolenko and Z.A. Krivchik, who reported on the structure and the adsorptional activity of these coals. A.B. Taubman and S.A. Nikitina considered the role of the kinetic factor in adsorption and wetting phenomena and showed, that for the practical use of wetting agents for the interception of dust their efficiency can be determined not so much by high surface activity under static conditions as by the ca-

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capacity of quickly forming equilibrium adsorption layers. P.I. Yermilov told of his studies into the dependence of the efficiency of alkylphenol polyethyleneglycol ether solutions on their structure. I.Ye. Neymark reported on the results of his study of the effect of chemical modification of mineral sorbent surfaces on the adsorptional properties of the sorbents. P.V. Moryganov considered the thermodynamics of the dyeing process of cellulose fibers, B.N. Mel'nikov proposed equations for the description of the kinetics of fiber dyeing. V.F. Androsov described the effect of different factors on the selection of sols from vats by synthetic fibers (caprone and nitron). A.A. Kharkharov reported on his investigations in the field of dyeing synthetic fibers (nitron and lavsan) with soluble and insoluble dyestuffs. The reports of A.A. Morozov, R.M. Dranit-skaya and Ye.K. Tsuguy on the division of green and violet modifications of chromium sulfate and the report of G.V. Nemirov on the sorption on cellulose from aqueous solutions

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of some salts concerned special problems of adsorption of electrolytes and the properties of adsorbents. The communication of Ye.M.Kazakov and G.A. Kitayev on electron-microscopic investigations of the film formation mechanism of copper hydroxide on a solid surface belonged to the group of reports devoted to the problem of adsorptional interaction. Although for formal reasons the session of the section dealing with the problem "emulsions and foams" was opened with a report of V.F. Boyko, the investigations of this author exceed the limits of this problem and are devoted to the development of a method of plotting diagrams, which show composition, state and properties of multicomponent disperse systems. Ye.M. Aleksandrova, V.N. Tsvetkov and N.S. Razumikhina reported on their works concerning non-electrolytic coagulation of polystyrene latexes. The report of A.I. Yurzenko and F.V. Kucher was devoted to some peculiarities in the course of chain reactions in hydrocarbon emulsions sta-

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bilized by surface-active emulsifiers. A.B.Taubman and A.F. Koretskiy reported on the role of the structuro-mechanical properties of adsorbed layers in the stabilizing action of solid emulsifiers. M.A. Korbuz delivered a report on "the Role of the Emulsifier as Kinetic Factor of Emulsional Acidification of Hydrocarbons". S.M. Levi reported on the investigation of structuro-mechanical properties of gelatine and photographic emulsions, which permit the establishment of a number of dependences necessary for the development and substantiation of the technology of spreading light-sensitive emulsions on supports. M.B. Radvinskiy reported on the mechanism of the effect of chemical foam-extinguishers and proposed a new scheme of production of an efficient foam extinction device applicable to systems which boil under pressure. The report of the head of the Dutch school of colloid chemistry, G.Kruyt (G.Kroyt), which opened the discussion of the problem of formation and stability of colloids showed the

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Problems of Colloid Chemistry at the VIII Mendeleev Conference

relativity of the border between simple and polymeric molecules. The Yugoslav chemist B. Težak reported on investigations intended for the design of plane and volumetric models of disperse systems, which are in the process of sedimentation. Z.Ya. Berestneva and V.A. Kargin reported on the crystallization mechanism of colloid titanium dioxide. This work appeared as the continuation of a series of electron-microscopic investigations of the authors, intended to clarify the mechanism of formation of colloid particles. B.V. Deryagin delivered two reports. In the first of these, original devices for the investigation of disperse systems or surface particles in the flow (flow ultramicroscope, flowmeter of condensation nuclei etc) were described. In the second report, he considered the peculiarities of heterocoagulation, the elements of the theory of this effect, and he described model experiments, which confirm the foundation of the theory. Yu.M. Glazman and D.N. Stra-

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Problems of Colloid Chemistry at the VIII Mendeleev Conference

zhesko delivered a report on "the Significance of Adsorptional Phenomena in the Mechanism of Coagulation of Lyophobic Salts by Electrolytes". In his report on the preparation and the properties of concentrated metal salts, E.M. Natanson generalized his prolonged research in this field and pointed to a number of practical applications of metal sols. The communication of S.G. Teletov was devoted to the results of the investigation of the reversibility of hydrosol Fe_2O_3 - dry gel, and to the effect of copper acetate on this process. In his report S.Ye. Kharin (on the example of colophony salts and transformer oil emulsions) considered the applicability of thermodynamic methods for the description of the stability of equilibrium (more correctly - conditional equilibrium...) colloid systems. K.S. Lyalikov reported on investigations of the recrystallization process of polydisperse systems stabilized against aggregation. In the report of P.M. Silin the theoretical and experimental investigations of the author in the field of saccharose crystalli-

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Problems of Colloid Chemistry at the VIII Mendeleev Conference

zation were generalized. Problems of physico-chemical mechanics and structurizing processes were discussed at the joint session of the sections of colloid chemistry and silicate chemistry. The discussion was opened with a report of P.A. Rebinder "Basic Problems of Physico-chemical Mechanics of Disperse and High-Molecular Structures". Ye.Ye. Segalova reported on her works in the field of the kinetics of the development of crystallization structures and of the increase of their stability. O.I.Luk'yanova reported on the structuro-chemical conditions of stabilization of sulfates by hydration, and Ye.B. Andreyeva - on crystal structurization of calcium hydrochlorine aluminate. M.P. Volarovich and I.V. Churayev reported on the results of the investigation of the physico-chemical properties and the structure of peat, with the aid of radioactive isotopes. In the reports of N.V. Mikhaylov and Ye.Ye. Kalmykova, and in those of N.V. Mikhaylov, the physico-chemical theory of

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Problems of Colloid Chemistry at the VIII Mendeloyev Conference

concrete and its individual applications were further developed. The structurizing role of fillers in the cement paste was demonstrated. O.P. Mchedlov-Petrosyan, F.A. Latsyshev, A.G. Bunakov and N.A. Levchuk reported on "the Thermodynamic Investigation of Cement Vibro-Activation". The author considered the mechanism of the hardening of variously-composed cements. G.I. Logginov reported on the rules governing the binding of calcium oxide with quartz sand. The report of G.V. Tsitsishvili, D.N. Barnabishvili and K.Ye. Avaliani was devoted to the adsorptional properties and the structure of montmorillonites. The physico-chemical foundations of the formation of a metallo-ceramic body were set forth in the report of V.N. Yeremenko. The reports on semicolloid and disperse systems in polymers concerned specified, but important practical or theoretical aspects of these problems. To this category belonged the report of V.I. Yakimova, S.L. Talmud and K.P. Mishchenko

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Problems of Colloid Chemistry at the VIII Mendeleev Conference

on the interaction of cellulose with liquids, the communication of M.I. Knyaginichev and Yu.R. Bolkhovitina on the properties of starch in salt solutions, and the report of A.A. Morozov and S.N. Stavrov on the results of the investigations of cation-substituted specimens of Black Sea agaroid and White Sea agar-agar. L.I. Belen'kiy, M.Ye. Kazanskaya and T.V. Bromberg reported on their work in the field of dye-stuff absorption spectra. The displacement phenomena of these spectra permitted evaluation of the molecular interaction in semicolloid systems. E.V. Frisman reported on the application of the method of investigation of double light refraction for the determination of the form of macromolecules in the solution. A.P. Demchenko reported on "Lyophilic Property and Some Problems of the Theory of Directed Detergent Synthesis". The work of the section of colloid chemistry was summarized in a conclusive report of its head P.A. Rebiner. In its decisions, the section welcomed the success-

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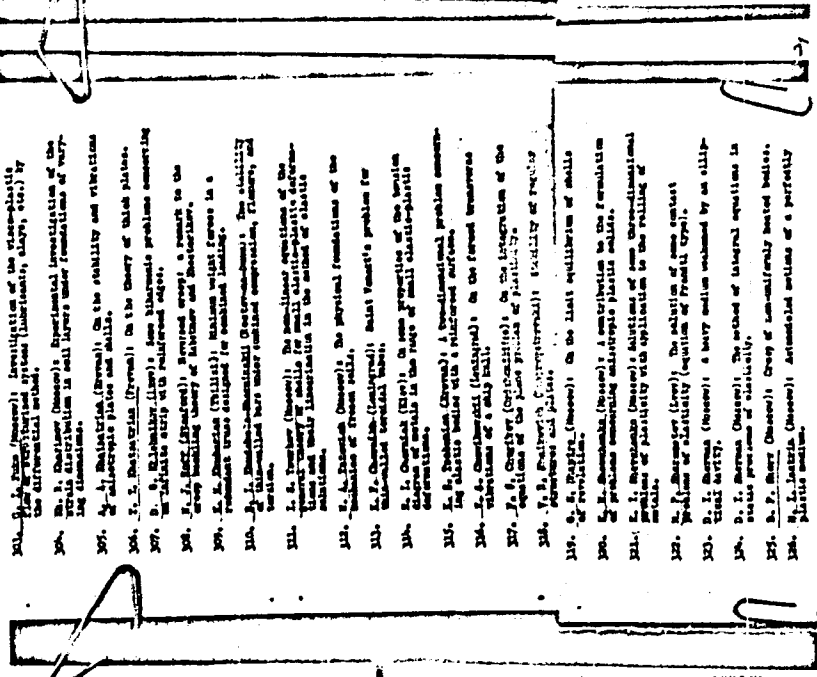
Problems of Colloid Chemistry at the VIII Mendeleev Conference

ful development of applied and theoretical colloid chemistry in the Soviet Union. The work of the section of colloid chemistry of the VIII Mendeleev Conference number and significance of delivered reports yielded little to the work of normal conferences on colloid chemistry, despite the fact that the last of this kind was held in Tbilisi less than a year ago. The volume of "Kolloidnyy zhurnal" does not correspond to such a development of the science of colloids, which leads to considerable delays in the publication of the works. The section appealed to the AS USSR to increase the volume of Kolloidnyy zhurnal by no less than 50%. Welcoming the rise of a new branch of science, physico-chemical mechanics, the section appealed to the AS USSR to speed up the organization of an institute of physico-chemical mechanics. In its decisions, the section also posed the problem of the organization of a permanent-working colloquium on colloid chemistry and planned for the organization of a normal conference on colloid chemistry in 1961.

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FUK, G.I.

Report presented at the 1st All-Union Congress of Theoretical and Applied Mechanics, Moscow, 27 Jan - 3 Feb '60.



- 301. G. I. Fok (Moscow): Investigation of the viscoplastic flow of anisotropic systems (fibers, slabs, etc.) by the differential method.
- 302. B. I. Gerasimov (Moscow): Experimental investigation of the stress distribution in wall layers under conditions of varying dimensions.
- 303. G. I. Gerasimov (Moscow): On the stability and vibrations of anisotropic plates and shells.
- 304. G. I. Gerasimov (Moscow): On the theory of thick plates.
- 305. G. I. Gerasimov (Moscow): Some kinematic problems concerning the stability of shells.
- 306. G. I. Gerasimov (Moscow): Revised theory of laminar and shell-like structures.
- 307. G. I. Gerasimov (Moscow): A method of solving the problem of the stability of shells.
- 308. G. I. Gerasimov (Moscow): On the stability of shells under combined compression, tension, and torsion.
- 309. G. I. Gerasimov (Moscow): On the stability of shells under combined compression, tension, and torsion.
- 310. G. I. Gerasimov (Moscow): On the stability of shells under combined compression, tension, and torsion.
- 311. G. I. Gerasimov (Moscow): On the stability of shells under combined compression, tension, and torsion.
- 312. G. I. Gerasimov (Moscow): On the stability of shells under combined compression, tension, and torsion.
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- 317. G. I. Gerasimov (Moscow): On the stability of shells under combined compression, tension, and torsion.
- 318. G. I. Gerasimov (Moscow): On the stability of shells under combined compression, tension, and torsion.
- 319. G. I. Gerasimov (Moscow): On the stability of shells under combined compression, tension, and torsion.
- 320. G. I. Gerasimov (Moscow): On the stability of shells under combined compression, tension, and torsion.
- 321. G. I. Gerasimov (Moscow): On the stability of shells under combined compression, tension, and torsion.
- 322. G. I. Gerasimov (Moscow): On the stability of shells under combined compression, tension, and torsion.
- 323. G. I. Gerasimov (Moscow): On the stability of shells under combined compression, tension, and torsion.
- 324. G. I. Gerasimov (Moscow): On the stability of shells under combined compression, tension, and torsion.
- 325. G. I. Gerasimov (Moscow): On the stability of shells under combined compression, tension, and torsion.
- 326. G. I. Gerasimov (Moscow): On the stability of shells under combined compression, tension, and torsion.

FUKS, G.I.

Reduction in the hardness of quartz and ruby induced by adsorption in solutions of neutral electrolytes. Koll. zhur. 22 no.2:256-258 Mr-Apr '60. (MIRA 13:8)

1. Nauchno-issledovatel'skiy institut chasovoy promyshlennosti, Moskva.

(Quartz)

(Rubies)

FUKS, G.I.; MIKHAYLYUK, A.S.

Measurements of boundary friction and adhesion, designed to determine the interaction of highly disperse particles. Part 3: Effect of neutral electrolytes on the friction of quartz, ruby and agate at high contact pressures. Koll. zhur. 22 no. 6:720-729 N-D '60. (MIRA 13:12)

1. Nauchno-issledovatel'skiy institut chasovoy promyshlennosti, Moskva.

(Quartz)

(Agates)

(Rubies)

80068

5.4400

AUTHOR: Fuks, G. I.S/020/60/132/01/043/064
B004/B007TITLE: The Mechanisms of the Action of Neutral Electrolytes on the Cohesion
of Particles in a Coagulation Structure

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol 132, Nr 1, pp 164 - 167 (USSR)

TEXT: The author investigated the influence of electrolytes on the interaction of particles by measuring the thickness and the resistance of the boundary layer of electrolyte solutions between polished plane-parallel quartz disks (Ref 4) and by measuring the friction of a spherical surface of negatively-charged quartz and positively-charged ruby in the electrolyte (Ref 5). The distance between the quartz disks was varied between 3 - 5 and 0.02 μ and measured. Contact pressure was between 0.04 - 10 kp/cm². The kinetic cohesion of the quartz disks and the time of their separation depends, as shown by table 1, on the composition of the solution. It follows from table 2 that also the thickness of the remaining layer depends on the composition of the solution. From the data obtained the author draws the conclusion that the distance between the quartz disks depends on the thickness of the diffuse layers of adsorbed ions and on the interaction of these layers. For the repulsion of the diffuse layers equations were derived

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The Mechanisms of the Action of Neutral
Electrolytes on the Cohesion of Particles
in a Coagulation Structure

S/020/60/132/01/43/064
B004/B007

by B. V. Deryagin (Ref. 8) and A. N. Frumkin (Ref. 9). The author gives the equation in a new form. $F_r = KZ^2C \exp(-hKZ\sqrt{C})$, where F denotes the repulsive force of the conjugate diffuse layers, Z - the ion charge, C - concentration, and h - the distance between the surfaces. Fig. 2 confirms the agreement of experimental data with the values calculated according to this equation for electrolyte concentrations up to 8 - 10 mg-eq/l. In concentrated solutions non-electrostatic factors of interaction occur, probably because of further or secondary hydration of the ions (Refs. 10, 11). Table 3 gives the coefficients of friction of ruby and quartz in 0.001 N solutions of neutral electrolytes. The data do not follow the equation derived for the repulsive force. The coefficient of friction depends on the charge number of anions and cations, which indicates the participation of ions not bound to the surface. Fig. 3 shows the dependence of the coefficient of friction of ruby and its wear upon its microhardness which is differently influenced by the electrolytes. There are 3 figures, 3 tables, and 13 Soviet references.

Card 2/3

The Mechanisms of the Action of Neutral
Electrolytes on the Cohesion of Particles
in a Coagulation Structure

80063
S/020/60/132/01/43/064
B004/B007

ASSOCIATION: Nauchno-issledovatel'skiy institut chasovoy promyshlennosti
(Scientific Research Institute of the Clock- and Watch Industry)

PRESENTED: December 8, 1959 by P. A. Rebinder, Academician

SUBMITTED: December 1, 1959

Card 3/3

FUCKS, G.I.

SOV/5955

PHASE I BOOK EXPLORATION

Vsesoyuznaya konferentsiya po treniyu i izmou v mashinakh. 3d, 1956.

oldpodnaimcheskaya teoriya smazki. Opory stol'zhniya. Smazka i smazochivaya materialy (Hydrodynamic Theory of Lubrication. Oldpodnaimcheskaya Teoriya Smazki i Smazochivaya Materialy Moscow, Izdat. AN SSSR, 322 p. Errata slip inserted. 3,500 copies printed. (Series: Itz. Trudy, v. 3))

Sponsoring Agency: Akademiya nauk SSSR. Institut mashinovedeniya. Resp. Eds. for the Section "Hydrodynamic Theory of Lubrication and Slip Bearings": Ye. M. Gut'yar, Professor, Doctor of Technical Sciences, and A. K. P'yuchik, Section, "Lubrication and Lubricant Materials," G. V. Vinogradov, Professor, Doctor of Chemical Sciences; Ed. of Publishing House: M. Ya. Klebanov; Tech. Ed.: G. M. Ose'tova.

FORNOTE: This collection of articles is intended for practicing engineers and research scientists.

COVERAGE: The collection published by the Institut mashinovedeniya AN SSSR (Institute of Science of Machines, Academy of Sciences, USSR) contains papers presented at the III All-Union Conference on Friction and Wear in Machines which was held April 9-15, 1958. Problems discussed were in Hydrodynamic Theory (Cont.) SOV/5055

Ruliyev, A. M. Results of the Work of the Azili NP (Azerbaijan Scientific Research Institute of the Petroleum Industry) in the Field of Synthesis, Investigation, and Application of Additives to Lubricating Oils 366

Ruchkov, M. G., M. S. Borovskiy, and V. D. Reznikov. Change in the Chemical Composition and in the Operating Properties of Oils During Use in an Engine 373

Ramazin, K. S., and A. Kh. Sil'va. Mechanism of the Corrosive Activity of Oils and the Protective Action of Additives 381

Rukhovich, M. Ye., Gal'tsova, K. Ya., Kirpuchov, I. S., Rukhovich, and I. I. Uss. On the Applicability of Synthetic Esters as Lubricant Materials 386

Rukhovich, I. I., and M. I. Kayrina. Lubricating Capacity and Properties of the Boundary Layer of Oils (Physical Significance and Characteristics of the Lubricating Capacity of Oils) 397

Rukhovich, I. I., and P. P. Zrudniy. Mechanical Destruction of Solutions of Polymers in a Flow (Published in 1959 under the title: "Mechanical Destruction of Solutions of Polyisobutylene in Mineral Oils") ("Zhurnal i tekhnologiya topliv i masel", No. 2, 1959) 408

Rukhovich, V. P. Elastic-Endurance Properties of Lubricant Materials ("Izv. AN SSSR, Otd. Mashinika i mashinostroyeniya", No. 2, 1959) 408

Rukhovich, Ye. M., and S. G. Arabyan. Development of an Accelerated-Engine Method for Testing Oils ("Dizel'niye Traktory i sel'khozmasliny", No. 9, 1958) 408

EMINOV, Ye.A.; OSHER, R.N.; PATSUKOV, I.P.; CHEKAVTSEV, N.A.; MAZYRIN, I.V.;
FUKS, G.I.; VLADZHIYEVSKIY, A.P.; PATSUKOV, I.P.; AYDEYEV, A.V.;
LOPOYAN, G.S.; PETROV, G.G.; KOZOREZOVA, A.A.; LISITSKIY, K.Z.;
YAKOBI, M.A.; BELYANCHIKOV, G.P.; IVANOV, V.S.; VORONOV, N.M.; RU-
MYANTSEV, V.A.; ZILLER, G.K.; BEREZHAYAYA, V.D.; LEVINA, Ye.S.,
vedushchiy red.; TROPIMOV, A.V., tekhn.red.

[Manual on the uses and consumption standards of lubricants] Spra-
vochnik po primeneniю i normam rashoda smazochnykh materialov.
Moskva, Gos.nauchno-tekhn.izd-vo neft. i gorno-toplivnoi lit-ry,
1960. 703 p. (MIRA 13:4)
(Lubrication and lubricants)

FUTILOVA, Iya Nikolayevna, Primal uchastiye FUKS, G.I. PAVLOVA,
N.N., red.; GOROKHOVA, S.S., tekhn.red.

[Laboratory manual of colloid chemistry] Rukovodstvo k prakti-
cheskim zamiatiam po kolloidnoi khimii (glavy 7-9 sost.G.I.Fuks).
Izd.4., perer. i dop. Moskva, Gos.izd-vo "Vysshaya shkola,"
1961. 341 p. (MIRA 15:5)

(Colloids)

DERYAGIN, B.V., *otv.red.*; ZAKHAYAYEVA, N.N., *red.*; KROTOVA, N.A., *red.*;
KUSAKOV, M.M., *red.*; NERPIN, S.V., *red.*; PROKHOROV, P.S., *red.*;
TALAYEV, M.V., *red.*; FUKS, G.I., *red.*; BANKVITSER, A.L.,
red.izd-va; RYLINA, Yu.V., *tekhn.red.*

[Investigations in the field of surface forces; collection of reports made at the Conference on Surface Forces, April 1960]
Issledovaniia v oblasti poverkhnostnykh sil; sbornik dokladov na konferentsii po poverkhnostnym silam, aprel' 1960 g. Moskva, 1961. 231 p. (MIRA 14:4)

1. Akademiya nauk SSSR. Institut fizicheskoy khimii. 2. Chlen-korrespondent AN SSSR (for Deryagin).
(Surface chemistry)

31900

S/643/61/000/000/006/007

E075/E485

15.6000
11.9000

AUTHOR: Fuks, G.I.

TITLE: Properties of solutions of organic acids in hydrocarbon liquids at solid surfaces

SOURCE: Konferentsiya po poverkhnostnym silam. Moscow, 1960. Issledovaniya v oblasti poverkhnostnykh sil; sbornik dokladov na konferentsii. Moscow, Izd-vo AN SSSR, 1961. At head of title: Akademiya nauk SSSR. Institut fizicheskoy khimii. 99-112

TEXT: A number of investigators have shown in the past decade that surface forces can penetrate liquids to a depth of many molecular layers. In the present work, a study is made of the properties of boundary layers which are formed on solid surfaces by the hydrocarbon solutions of organic acids. An attempt is made to determine the relationship between static or quasi static properties of the layers, the structure, composition and concentration of the acids (mainly fatty acids) and the composition of solvent. The apparatus used consisted of two flat parallel discs (diameter 2 to 17 mm) with small holes in the centre. The Card 1/5

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Properties of solutions of organic ...

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E075/E485

discs were thermostated and placed in liquid under study. The top disc was rigidly attached to a parallel plate condenser, one plate of which moves together with the disc. The capacity changes in an electric circuit connected to the condenser measured the distance between the discs in the range of 0.02 to 5-10 microns with a precision of 0.01 microns. The liquid between the discs was gradually squeezed out by a pressure (0.08 to 30 kg/cm²) applied to the top disc. The surface finish of the discs was such that the boundary layers having a thickness greater than 0.02 microns could be investigated. Resistance to rotation of one disc relative to the other was measured by a suitable spring system. It was shown in the initial experiments that the rate with which the distance between the discs decreased, whilst liquid is forced out from the gap between them, is given by the Stefan-Reynolds equation for distances above several tens of microns. However, the rate of liquid displacement from the gap under a given load decreases markedly when the distance falls to lower values. Finally a residual liquid layer remains between the discs which cannot be displaced by the pressures used. Low molecular weight hydrocarbons investigated (benzene, n-hexane, cyclo-hexane,
Card 2/5

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E075/E485

Properties of solutions of organic ...

isooctane and n-decane) did not form the residual layers in contrast to mineral oils and hydrocarbon solutions of fatty acids. The load applied to the discs determines the thickness of the residual layer. Its resistance to further compression grows as the thickness decreases. When the load is temporarily decreased, the thickness increases; this demonstrates the existence of a cleaving pressure of the residual layers. The results presented show that: a) the thickness of the residual layer formed from hydrocarbon solutions of fatty acids depends on the chain-length of the acid, molecular structure of the solvent and the nature of solid surface; b) the thickness of the residual layer is a linear function of the chain length of the hydrocarbon radical; c) the thickness increases with the increasing concentration of a fatty acid dissolved in low-molecular weight hydrocarbons: mineral oils, which themselves form thick residual layers, are less sensitive to this concentration effect; d) the thickness of oriented layers is affected ("softened") by increasing temperature, slowly at first and more rapidly as the heating progresses; however, at temperatures near 100°C, the layers are still not completely destroyed; e) solvents take part in the formation

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Properties of solutions of organic ...

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E075/E485

of residual layers; it is postulated that the molecules of solvent are situated between the ends of hydrocarbon chains thus lowering their interaction; this effect depends on the structure of solvent molecules; f) the resistance to displacement (flow) of the residual layers and, consequently, the static friction under condition of boundary lubrication, is determined by the thickness of residual layers; in this case the role of the fatty acids is to increase the cleaving pressure (which is proportional to the length of fatty acid molecules) but for a constant thickness of the layers the length of the molecules does not influence the static friction. B.V.Deryagin, M.M.Kusakov, N.I.Kaverina, S.M.Serikova, N.I.Rydenkov and G.S.Bratova are mentioned in the paper for their contributions in this field. There are 13 figures, 2 tables and 21 references: 12 Soviet-bloc, 2 Russian translations from non-Soviet-bloc publications and 9 non-Soviet-bloc. The four most recent references to English language publications read as follows:
Ref.7: A. Moore. Proc. Roy. Soc., Ser. A, 195, 231.
Ref.17: F.Bowden, D.Tabor. The Friction and Lubrication of Solids. Oxford, 1950; E.Tringle. Trans. Farad. Soc., 1950, no.46, 93.
Ref.18: J.Menter, D.Tabor. Proc. Roy. Soc., Ser. A, 1951, v.204, 514.
Card 4/5

31900

S/643/61/000/000/006/007

Properties of solutions of organic .. E075/E485

J. Sanders, D. Tabor, *ibid.*, 525;
Ref.21: J. McBain, *Colloid Science*. Boston, 1950, 17;
J. Hess. *Fette and Seifen*, 1939, 46, 572.

ASSOCIATION: NII chasovoy promyshlennosti Gos. Komiteta Soveta
Ministrov SSSR po avtomatizatsii mashinostroyeniya
(NII of the Watchmaking Industry, State Committee of
the Council of Ministers of USSR for the
Automatization of Machinery Construction)

X

Card 5/5

S/081/62/000/005/078/112
B162/B101

AUTHOR: Fuks, G. I.

TITLE: The mechanism of action and the effectiveness of additives which increase the lubricating capacity

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 5, 1962, 527, abstract 5M210 (Sb. "Prosadki k maslam i toplivam". M., Gostoptekhizdat, 1961, 228-238)

TEXT: This is a critical review. Proof is given as to the polymolecularity of the boundary layer of a lubricant. On examining the mechanism of the lubricating action of oils it was concluded that additives which increase the lubricating capacity of oils are substances which, when added to the oil, lessen the resistance to the mutual displacement of the contacting solids and which increase the resistance to the thinning of the boundary oil layer. When selecting additives it is necessary to take into account the thickness of the oil layer between the components, the rate of displace- ✓

Card 1/2

S/081/62/000/005/078/112
B162/B101

The mechanism of action ...

ment, the mechanical and chemical characteristics of the solid surfaces,
and the composition of the oil. 41 references. Abstracter's note: Complete
translation.]

Card 2/2

FUKS, G.I.

Synthetic watch-lubricating oils. Priborostroenie no. 5:24-26 My '61.
(MIRA 14:5)

(Clocks and watches--Lubrication)

FUKS, G.I., doktor tekhn.nauk, prof.

Use of tables for calculating the adiabatic process of an ideal gas.
Izv. vys. ucheb. zav.; energ. 5 no.6:123-127 Je '62. (MIRA 15:6)

1. Tomskiy ordena Trudovogo Krasnogo Znameni politekhnicheskoy institut
imeni S.M.Kirova. Predstavlena kafedroy teoreticheskoy i obshchey
teplotekhniki.

(Gases)

STREL'TSOV, V.V.; SHCHUKIN, V.K.; REBROV, A.K.; FUKS, G.I.; KUTATELADZE, S.S.;
LYKOV, A.V.; PREDVODITELEV, A.S.; KONAKOV, P.K.; DUSHCHENKO, V.P.;
MAKSIMOV, G.A.; KRASHNIKOV, V.V.

Readers' response to I.T. El'perin's article "Terminology of heat and
mass transfer" in IFZh No.1, 1961. Inzh.-fiz. zhur. 5 no.7:113-133
Jl '62. (MIRA 15:7)

1. Khimiko-tekhnologicheskii institut, g. Ivanovo (for Strel'tsov).
 2. Aviatsionnyy institut, Kazan' (for Shchukin, Rebrov). 3. Poli-
tekhnicheskii institut, Tomsk (for Fuchs). 4. Institut teplofiziki
Sibirskogo otdeleniya AN SSSR, Novosibirsk (for Kutateladze). 5.
Energeticheskii institut AN BSSR, Minsk (for Lykov). 6. Gosudarstven-
nyy universitet imeni Lomonosova, Moskva (for Predvoditelev). 7.
Institut inzhenerov zheleznodorozhnogo transporta, Moskva (for Konakov).
 8. Institut legkoy promyshlennosti, Kiyev (for Dushchenko).
 9. Vsesoyuznyy zaochnyy institut pishchevoy promyshlennosti, Moskva
(for Maksimov). 10. Tekhnologicheskii institut pishchevoy
promyshlennosti, Moskva (for Krasnikov).
- (Heat--Transmission) (Mass transfer)

L 17699-63 EPR/EWP(j)/EPF(c)/EWT(m)/BDS/ES(w)-2 AFFTC/AFGC/ESD-3/SSD
Ps-l/Pc-l/Pr-l/Pab-l RM/WW/RH/MAY/DJ

88
87

ACCESSION ER: AP3004220

S/0065/63/000/007/0058/0062

AUTHORS: Fuks, G. I.; Blekherov, M. M. (Deceased)

TITLE: Approaches to the use of fluorhydrocarbons and chlorofluorhydrocarbons as highly stable instrument oils

SOURCE: Khimiya i tekhnologiya topliv i masel, no. 7, 1963, 58-62

TOPIC TAGS: hydrocarbon, instrument oil, friction coefficient, fatty acid, colloid solution, boundary layer

ABSTRACT: Highly dispersed (colloidal) suspensions of up to 0.04% fatty acid in fluoro- and chlorofluorhydrocarbons were prepared by the condensation method and with a co-solvent (chloroform or carbon tetrachloride) subsequently distilled off. The coefficients of friction of steel vs. steel, steel vs. ruby, and, in some instances, Alloy VK-6 vs. ruby, were then determined for a range of temperatures, additive concentrations, and numbers of carbon atoms of the fatty acid additive. It was found that the dispersions prepared are stable and are good lubricants at temperatures above the melting point of the dispersed fatty acid. It is postulated that the fatty acid is only able to form the necessary boundary layers from the molten state. Orig. art. has: 5 figures and 3 tables.

Card 1/4 ASSOCIATION: Scientific Research Institute for the Watch Industry.

FUKS, G.I., doktor tekhn. nauk; FUKS, L.G., inzh.

Concerning an error in the handbook "Engineering thermodynamics"
by M.P. Vukalovich and I.I. Novikov. Izv. vys. ucheb. zav.;
energ. 6 no.9:121-122 S '63. (MIRA 16:12)

1. Tomskiy ordena Trudovogo Krasnogo Znameni politekhnicheskiv
institut imeni S.M. Kirova. Predstavlena kafedroy teoreticheskoy
i obshchey teplotekhniki.

FUKS, G.I.; NIKOLAYEVA, N.I.

Determination of maximum shear stress by means of a conic plastometer
of increased sensitivity. Zav.lab. 29 no.11:1339-1341 '63.

(MIRA 16:12)

1. Nauchno-issledovatel'skiy institut chasovoy promyshlennosti.

ACCESSION NR: AR4015135

S/0124/63/000/012/E122/E122

SOURCE: RZh. Mekhanika, Abs. 12B754

AUTHOR: Fuks, G.I.

TITLE: On the computation of ideal gas mixing processes

CITED SOURCE: Izv. Tomskogo politekhn. in-ta; v.119, 1963, 54-58

TOPIC TAGS: ideal gas, ideal gas mixture, gas mixture

TRANSLATION: The author examines the mixing of ideal gases in the presence of heat transfer. Section 1 deals with a method of computing all of the mixture parameters: the temperature, total enthalpy, velocity, et al., which are involved in the mixing of flows of the individual gases. Here it is assumed that all of the gas parameters prior to mixing, as well as the gas mixture pressure p and the cross-sectional area of the channel S are given. In Section 2 he presents the appropriate method of computation for mixing processes in a constant volume. The computational methods described are based on the use of thermodynamic

Card 1/2

ACCESSION NR: AR4015135

property tables for gases and molar formulas. Because of this, the computational methods turned out to be relatively simple. V.M. Kuptsov.

DATE ACQ: 31Dec63

SUB CODE: FL

ENCL: 00

Card 2/2

FUKS, G.I.; NIKOLAYEVA, N.I.

Effect of neutral electrolytes on coagulation interaction in a
suspension of glass globules. Dokl. AN SSSR 153 no.2:398-400
N '63. (MIRA 16:12)

1. Nauchno-issledovatel'skiy institut chasovoy promyshlennosti.
Predstavleno akademikom P.A.Rebinderom.

FUKS, G.I.; BRATOVA, G.S.

Effect of organic acids on the boundary friction and
sticking of solids in hydrocarbon liquids. Dokl. AN SSSR
153 no.5:1125-1128 D '63. (MIRA 17:1)

1. Nauchno-issledovatel'skiy institut chasovoy promyshlen-
nosti. Predstavleno akademikom P.A. Rebinderom.

EMINOV, Ye.A.; SINITSYN, V.V.; OSHER, R.N.; CHEKAVTSEV, N.A.; PATSUKOV, I.P.; USOV, A.A.; FUKS, G.I.; VLADZIYEVSKIY, A.P.; AVDEYEV, A.V.; ARZUMANOV, Sh.P.; PETROV, G.G.; KOZOREZOVA, A.A.; LISITSKIY, K.Z.[deceased]; YAKOBI, N.A.; BELYANCHIKOV, G.P.; IVANOV, V.S.; VORONOV, N.M.; RUMYANTSEV, V.A.; TROFINUK, V.A.; BERSHTADT, Ya.A.; ZILLER, G.K.; BEREZHNYAYA, V.D.; KLEYMENOVA, K.F., ved.red.; TITSKAYA, B.F., ved. red.

[Manual on the use and norms for the expenditure of lubricants]
Spravochnik po primeneniui i normam raskhoda smazochnykh materialov. 2. perer. i dop. izd. Moskva, Khimiia, 1964. 855 p.
(MIRA 18:3)

FUKS, G.I.

Proof and presentation of the second law in a course of
technical thermodynamics. Izv. TPI 125:8-12 '64.

(MIRA 18:8)

L 4934-66 EWT(m)/EWP(w)/EPF(c)/T/EWP(t)/EWP(b)/ETC(m) JD/WW/DJ/GS

ACC NR: AT5022676

SOURCE CODE: UR/0000/65/000/0228/0232

AUTHORS: ⁴⁴ Khandal'sman, Yu. M.; ⁴⁴ Fuks, G. I.

ORG: Scientific Committee on Friction and Lubrication, AN SSSR (Nauchnyy sovet po treniyu i smazkam AN SSSR) ³⁵ ^{BTI}

TITLE: Means for decreasing friction torque in miniature sleeve bearings ¹⁷

SOURCE: AN SSSR. Nauchnyy sovet po treniyu i smazkam. Teoriya treniya i iznosa (Theory of friction and wear). Moscow, Izd-vo Nauka, 1965, 228-232

TOPIC TAGS: ¹⁸ instrument bearing, instrument pivot, bearing friction, precision bearing ¹¹

ABSTRACT: Methods for decreasing the friction torque in precision bearings (instrument pivots, etc) by decreasing the shaft diameter or by improving the frictional properties of the pivot materials were investigated. Based on work by N. I. Kol'chin (Mekhanika mashin, t. II M.-L., Mashgiz, 1963) and I. V. Kragel'skiy (O dvuchlennom sakone treniya. Dokl. AN SSSR, 1960, t. 140, No. 5), the friction torque can be expressed as $M_s = M_0 + K_r P$

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ACC NR: AT5022676

2

(where K = constant, r_{ts} = pivot radius, P = load). This relationship was experimentally verified by measuring pivot torques (0.3-1.0 mm diameter pivots) according to the method described by Yu. M. Khandel'sman, V. V. Dokuchalova, and A. S. Mikhaylyuk (Izmereniye malykh momentov trovaniya. Izmeritel'naya tekhnika, 1962, No. 2). Thus, friction torque can be decreased by decreasing the pivot diameter and by providing overload supports which protect the pivots (0.08-0.15 mm diameter shafts have been used with overload capabilities to 10 000 grams). The coefficient of friction is known to be proportional to the contact area and increases with decreasing clearance. After decreasing the pivot length (to decrease contact area), it is advisable to provide a curved contact area which helps to keep liquid lubricants in the contact area. Since the friction coefficient does not necessarily decrease with improved surface finish (A. S. Akhmatov⁴⁴ Molekulyarnaya fizika granichnogo treniya. Fizmatgiz, 1963) one should determine the optimum finish rather than specify the finest finish which can be provided. A survey of lubrication methods has been presented previously (G. I. Fuks and L. V. Timofeyeva. Kachestvo i primeneniye pribornykh masel i smazok. TsBTI, 1959). The work has resulted in the development of bearings with friction torques on the order of 0.001 gm·cm and centering accuracy of 0.002 mm. Orig. art. has: 1 table, 4 figures, and 4 formulas.

Card 2/3

L 4934-66

ACC NR: AT5022676

SUB CODE: IE, MT/

SUBM DATE: 18May65/

ORIG REF: 007

BC
Card 3/3

FUKS, G.I., prof., doktor; LYALIKOV, A.S.

Calculation of the overheating of the winding surfaces of the additional resistances of electric measuring instruments. Izv.TPI 137:3-12 '65.

Concise method for calculating the overheating of resistor winding surfaces of electric measuring instruments. Ibid.: 13-21. (MIRA 19:1)

LYALIKOV, A.S.; FUKS, G.I., prof., doktor; LONINOV, G.D.

Selection of additional resistances of electric measuring instruments according to their power rating and hull characteristics. Izv.TPI 137:22-24 '65.

(MIRA 19:1)

FUKS, G.I.

25674

Stepen' sovershenstva Teplosilovoy Ustanovki Izvestiya Tomskogo Politekhn. in-ta im. Kirova, T. LXVI, VYP. 2, 1948, s. 91-112-Bibliogr: 16 Nazv.

SO: LETOPIS' No. 34

FUKS, G.I.

25673

Raschet Adiabaticeskogo I. Politropicheskikh Protsessov Po Srednoy Teploemkosti
Izvestiya Tomskogo Politekhn. in-ta im. Kipova, T. LXVI, VYP. 2, 1948, s. 113-19.

SO: LETOPIS' No. 34

FUKS, G.I.

25671

K Voprosu O Postroenii univernal'noy Teplovoy diagrammy ideal'nogo gaza. Izvestiya
Tomskogo Politekh. in-ta in. Iorva, T. LXVI, VYP. 2, 1948, s. 121-25.

SO: LETOPIS' No. 34

FUKS, G.I.

#5672

Nekotorye Vozmozhnosti Uvelicheniya Otdachi Teplovykh Ustanovok. Izvestiya Tomskogo Politekhn. in-ta Kirova, T. LXVI, VYP. 2, 1948, s. 127-43.-Bibliogr. 6 Nazv.

SO: LETOPIS' No. 34

FUKS, G. I.
Professor.-doktor

Tomskiy politekhnicheskoy institut.
" Konferentsiya po voprosam partiynosti nauki " .
Report about technical thermodynamics.

F.R
E1.R
D.R
E3.R
C2aa.R

Source: Vestnik Vysshey Shkoly, No. 6, 1949, p. 57.
Izdatel'stvo, " Sovetskaya Nauka " .

4-5000

FUKS, G.I., doktor tekhnicheskikh nauk. (Reviewer)

"Technical thermodynamics." M.P.Vukalovich, I.I.Novikov. Reviewed
by G.I.Fuks. Elek.sta. 25 no.2:62-64 # 154. (MLRA 7:2)
(Vukalovich, M.P.) (Novikov, I.I.) (Thermodynamics)

Fuks, G. I.

AID P - 2772

Subject : USSR/Engineering
Card 1/1 Pub. 110-a - 14/14
Author : Fuks, G. I., Doc. Tech. Sci., Prof.
Title : H. I. Belokon' "Termodinamika" (Thermodynamics)
Gosenergoizadt 1954 (Book Review)
Periodical : Teploenerg., 9, 63-64, S 1955
Abstract : The book reviewed is criticized for some new theories
presented by the author and is considered to be of
little value to students because of its erroneous
statements.
Institution : None
Submitted : No date