

Handwritten notes in the top left corner: "MAY 1955 M".

Faded, illegible text in the center of the page, possibly a technical report or document. The text is mostly obscured by heavy noise and grain.

KARLIK, M.

CZECHOSLOVAKIA/Analytical Chemistry - Analysis of Inorganic Substances. E-2

Abs Jour: Referat Zhur-Khimiya, No 5, 1958, 14209.

Author : Vydra F., Karlik M.

Inst :

Title : Conductometric Methods of Complexometric Titration. II.
Determination of Total Hardness of Water.

Orig Pub: Sb. chekhosl. khim. rabot, 1957, 22, No 3, 979-981

Abstract: See RZhKhim, 1957, 51566.

Card : 1/1

KARLIK, M.

25(5)
Leningrad. **PHASE I BOOK EXPLOITATION** SOV/2393

Mashinostroyeniye / ekonomika, organizatsiya i planirovaniye proizvodstva / mashinnoye stroitel'stvo, ekonomika, organizatsiya i planirovaniye proizvodstva (Series: Itsa Trudy, Nr 200) Errata slip inserted. 110 p. copies printed.

Sponsoring Agency: USSR, Ministerstvo vysshego obrazovaniya.
Kas. M. I. V. S. Sainov, Doctor of Technical Sciences, Professor;
Kas. I. Ye. N. Karlik, Candidate of Economic Sciences, Docent;
Tech. M. I. S. O. Poi'skaya.

PURPOSE: This collection of articles is intended for engineering and technical personnel of machine-manufacturing establishments.

COVERAGE: This collection covers the theoretical aspects of the economic, organization, and planning of production and the actual operation of machine-manufacturing establishments. The first five articles deal with problems of production and the production lines for lot production, variations arising of lots of parts, and duration of the machining cycle. The remaining articles are devoted to the economic cycle, the flow of new technology, problems of quality control, and to the question of specialization and cooperation. No perconalities are mentioned. References are given at the end of several articles.

Author: A. I. Ekonomik
Editor: A. I. Ekonomik
Translator: A. I. Ekonomik
Editor: A. I. Ekonomik
Editor: A. I. Ekonomik
Editor: A. I. Ekonomik

Author: N. N. and G. V. Kalakozskiy, Specialization and Cooperation in the Iron-casting Industry in the Leningrad Economic Region.

Author: Library of Congress
Card by/s

70/96
10-16-99

UDK, P. J. KABELK, M.

Röntgenoptische Determination of the bond of sulphur and
estimation of its content in the nickel catalyst. Chem. Z.
Cham 29 no. 9: 1959: 163-164.

I. Institut für analytische Chemie, Technische Universität für
Chemie, Prague.

I 04310-67 EWP(k)/EWT(m)/FWP(t)/FTI IJP(c) JD/HW
ACC NR: AP6018261 (N)

SOURCE CODE: UR/0133/66/000/002/0146/0151

AUTHORS: Boyarshinov, M. I. (Professor); Fayzullin, V. Kh. (Engineer); Karlik, M. I. (Engineer)

ORG: none

31
B

TITLE: Investigation into the causes of longitudinal thickness nonuniformity and its elimination during continuous strip rolling

SOURCE: Stal', no. 2, 1966, 146-151

TOPIC TAGS: sheet metal, steel, carbon steel, steel forging, metal rolling / St2 steel, 08kp steel, 15kp steel, St3 steel

ABSTRACT: The parameters which determine the thickness of continuously rolled sheets were investigated. The investigation was carried out on the sheet-metal rolling mill 1450 of the Magnitogorskiy Metallurgical Concern (Magnitogorskiy metallurgicheskiy kombinat). The effect of rolling temperature and tension on the thickness uniformity of low-carbon steel sheets was studied. The stand temperatures were calculated after the method of P. Lee, R. Sims, and H. Wright (Iron and Steel, 1962 v. 35, No. 14, p. 624--627), and the deformation resistance as a function of the rate of deformation, the temperature, and magnitude of compression was calculated after V. I. Zyuzin, M. Ya. Brovman, and A. F. Mel'nikov (Soprotivleniye deformatsii staley pri goryachey prokatke, Izd. Metallurgiya, 1964, str. 211--233). The experimental results are presented in

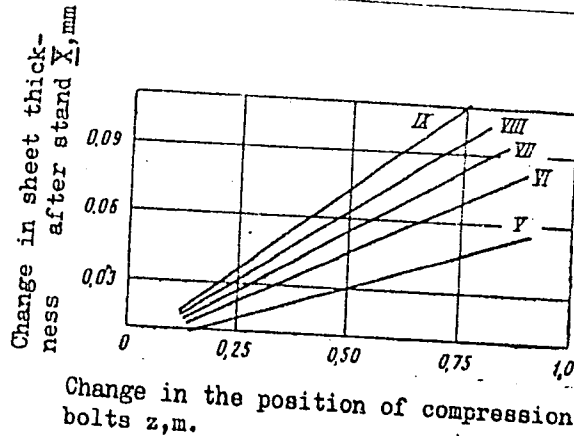
Card 1/2

UDC: 621.771.24

ACC NR: AP6018261

graphs and tables (see Fig. 1).

Fig. 1. Dependence of the decrease of sheet thickness Δ on the change in the position of compression bolts z , for stands V-IX, for additional pressure applied to these stands.



The following relationship between the distribution of the rolling stand pressure and the change in the sheet thickness was established

$$\Delta h_i = z_n \sum_{k=0}^m \frac{v_n}{v_{n+1}} \cdot \frac{1}{w_{n+1}}$$

where Δh_i is the change in longitudinal thickness, z_n - the position of compression bolt, v_n - rate of rolling, and $w = z/\Delta$. The indexes n and $n + 1$ refer to the stand numbers. It is concluded that an accurate knowledge of the relationship ω permits an accurate control of sheet thickness. Orig. art. has: 2 tables, 5 graphs, and 2 equations.

Card 2/2 *gd* SUB CODE: 13/ SUBM DATE: none/ ORIG REF: 004/ OTH REF: 001

KARLIK, V.

New trends in the design of lignite mines in South Moravia. p. 298.
UHLI, Prague, Vol. 4, no. 10, Oct. 1954.

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 5, No. 6,
June 1956, Uncl.

Korlik, V.

✓ 6. SHAFT SINKING BY THE DROP SHAFT PROCESS IN THE SOUTH MORAVIAN LIGNITE
FIELD: Friem, J. and Korlik, V. (Uhl (Coal, Prague), 1959, vol. 5, (9)). *Incl 2*
290-296; abstr. in Glückauf, 7 Jan. 1956, vol. 92, 72).

KLIMOVITSKIY, Mikhail Davidovich; KARLIK, Vitaliy Aleksandrovich;
CHARIKHOV, L.A., red.; VAGIN, A.A., red. izd-va; DOBUZHINSKAYA,
L.V., tekhn. red.

[Brief handbook on temperature control in ferrous metallurgy]
Kratkii spravochnik po teplovomu kontroliu v chernoi metallurgii.
Moskva, Metallurgizdat, 1962. 376 p. (MIRA 15:3)
(Metallurgical plants) (Temperature regulators)

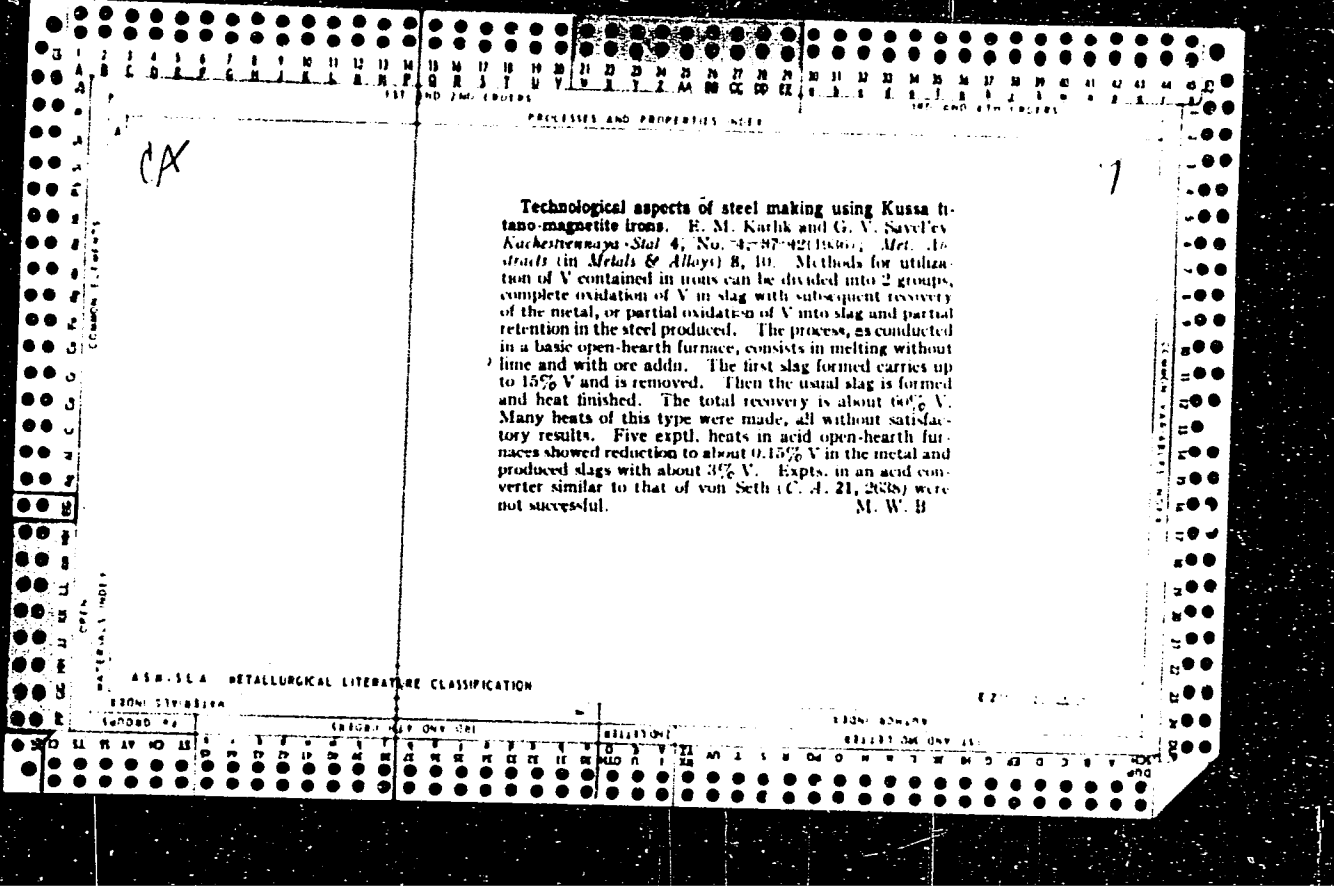
KULIKOVSKIY, A.; KARLIK, Ye.

Courses at a school. Prof.-tekh. obr. 17 no.10:25-28 o '60.
(MIRA 13:10)

1. Direktor tekhnicheskogo uchilishcha No.3 (Rostov-na-Donu) (for Kulikovskiy).
(Rostov Province--Evening and continuation schools)

KARLIK, Ye.

Activities and concerns of master Koliankovskii. Prof.-tekh.
obr. 17 no. 12:21-22 D '60. (MIRA 13:12)
(Taganrog--Farm mechanization--Study and teaching)



KARLIK, Ye. M.

6733. Karlik, Ye. M. i Shvidkaya, G. N. Proizvodstvo igrushek
iz drevesnykh opilok sposobom goryachego pressovaniya. M., Kolz, 1954.
132 s. s. Ill. 22 sm. 3.00 ekz. 4 r. 50 k. -- Bibliogr: s. 129. --
(55-1978) p 688.72 & (016.3)

SO: Knizhnaya Letopis' No. 6, 1955

KARLIK, Ye.M., dotsent.

Hollow toys cast in paper materials. Det.khor. igr. no.1:
48-50 '55. (MLRA 10:2)

(Toys)

KARLIK, Ye.M.

Effect of technical progress and mass production on the
qualifications of workers. Trudy LPI no.186:18-27 '56. (MLRA 10:?)
(Efficiency, Industrial) (Labor productivity)

KARLIA, YE. M.

KLIMOV, A.N., kand.tekhn.nauk; SOKOLITSYN, S.A., kand.tekhn.nauk; ~~KARLIA,~~
Ye.M., kand.ekon.nauk, dots., nauchnyy red.; SAYRASKIN, A.G.,
red.izd-va; GURDZHIYEVA, A.M., tekhn.red.

[Ways of ensuring an even flow of work in industrial enterprises]
Puti obespechenia ritmichnoi raboty promyshlennogo predpriatiia.
Leningrad, Ob-vo po rasprostraneniuiu polit. i nauchnykh znani
RSFSR, Leningr. otd-nie, 1957. 51 p. (MIRA 11:5)
(Industrial management)

Karlik, Ye. M. PHASE I BOOK EXPLOITATION

469

Yel'yashevich, A.B., Karlik, Ye. M., and Shayovich, L.L.

Ekonomika sotsialisticheskogo mashinostroyeniya (The Economics of Socialist Machine Building) Moscow, Mashgiz, 1957. 475 p. 15,000 copies printed.

Reviewers: Novozhilov, V.V., Prof., Dr. of Economic Sciences, and Stepanov, G.A.; Ed. of Publishing House: Leykina, T.L.; Tech. Ed.: Speranskaya, O.V.; Managing Ed. of Leningrad Branch of Mashgiz: Bol'shakov, S.A.

PURPOSE: This book is a textbook for undergraduate students enrolled in engineering courses, as well as for personnel employed by planning and design organizations and by machine-building plants.

COVERAGE: The co-authors of this book endeavored to give a systematic presentation of the problems and development of socialist machine-building as a science. Though no complete

Card 1/90

The Economics of Socialist Machine Building 469

course in the economics of socialist machine-building is offered, a discussion is presented of its basic problems and the following aspects are examined: (1) scope and rate of machine-building development; (2) ways of improving machinery systems and the natural law governing the development of the machine-building industry; (3) personnel and organization of labor; (4) the natural law governing the progress of specialization and cooperation; (5) concentration and distribution of machine-building production; (6) problems concerning the effective use of fixed and turnover assets; (7) economic accountability of machine building. Chapters I, II, III, VII, IX, X, and XI were written by Professor A.B. Balashev; chapters IV, V, and XII, by Docent L.L. Shayovich; and chapters VI and VII by Docent Ye. M. Karlik. It is pointed out in the preface that the co-authors of this book constitute the nucleus of the Department of Machine-building Economics of the Leningrad Institute of Engineering Economics.

Card 2/90

Karlik, Ye. M.

KARLIK, Ye.M., kand.ekon.nauk, dots.

Specialization of the manufacture of fastenings used in machinery
industry in the Leningrad economic district. Vest.mash. 37 no.12:
78-81 D '57. (MIRA 10:12)
(Leningrad--Fastenings)

KARLIK, Ye.M.; MALAKHOVSKIY, G.V.

Specialization and cooperation on the part of iron foundries in
the Leningrad Economic Council. Lit. proizv. no.1:2-4 Ja '59.

(MIRA 12:1)

(Leningrad Province--Iron founding)

KARLIK, Ye.M., kand.ekonomicheskikh nauk, dotsent

Concentration of the production of small fastenings and
organization of specialized shops of an economic size.

Vest. mash. 41 no. 5:80-85 My '61.

(MIRA 14:5)

(Fastenings) (Factory management)

KARLIK, Ye.M., kand.ekonomicheskikh nauk

Some data on the concentration and specialization in the manufacture
of springs in the United States. Vest.mash. 41 no.10:81-83 0 '61.
(MIRA 14:10)

(United States---Springs (Mechanism))

KARLIK, Ye. M., kand. ekon. nauk

Concentration and specialization of spring manufacture in the
U.S.S.R. Vest. mashinostr. 42 no.10:78-81 0 '62.
(MIRA 15:10)

(Springs(Mechanism))

KARLIK, Ye.M.

Peculiarities of specialization in the manufacture of springs
and spring fittings in England. Kuz.-shtam. proizv. 5 no.9:
41-43 S '63. (MIRA 16:11)

KARLIK, Ye.M.

Several problems in the theory and methodology for establishing the size of a machinery manufacturing enterprise. Trudy LIP no.227:15-47 '63.

Classification of springs as the basis for determining the expediency of their type specialization. Ibid.:55-68
(MIRA 17:4)

KARLIK, Ye.M.; GRAYOV, A.P.

Working out a plan for machinery manufacturing branch specialization in a large economic region; based on the example of instrument manufacturing. Trudy LPI no.244:24-33 '65.

Concentration and specialization of production in the radio industry of the U.S.A. Ibid.:44-56 (MIRA 18:5)

KARLIK, Ye.M., doktor ekonom. nauk

Improving the quality of strings and increasing the economic
efficiency of their manufacture. Vest. mashinostr. 45 no.4:
73-75 Ap '65. (MIRA 18:5)

KARKHALEV, V.A. (Stalingrad)

Pregnancy with premature labor. Sov.med. 24 no.11:85-89 N '60.
(MIRA 14:3)

(PREGNANCY, COMPLICATIONS OF)

KARKHANIN, P.A.

CI

The influence of deoxidation on the properties of cupola iron. P. A. Karkhanin. *Letsnoe Delo* 12, No. 6, 3-6 (1941); *Chem. Zentr.* 1943, I, 81. The following 2 alloys are suitable deoxidizing agents for liquid cast iron: (1) Si 35-45, Al 30-40% and the remainder Fe and (2) Si 12-15, Al 12-18% and the remainder C. The first alloy is purged from ferrosilicon and Al, the 2nd, from C and Al. The deoxidizing agents prevent a white solidification of the cast iron and make possible a fine grain structure in thin-walled castings which otherwise would solidify white because of their chem. structure and conditions of cooling. Moreover, the Si content of the cast iron is somewhat increased by the deoxidizing agent and this results in an increased sepn. of graphite and a uniform distribution of the graphite throughout the cross section of the casting. In thin-walled castings and those of medium thickness the effect of the deoxidizing agent is to improve the mech. properties with increasing wall thickness (10-50 mm). For greater wall thickness (about 75 mm) the mech. properties of deoxidized and nondeoxidized castings are practically the same. With cast iron produced from one mixt. to give a white or semiwhite fracture the use of a deoxidizing agent sharply reduces the hardness. However, the hardness of such cast iron is not less than that of a high-grade cast iron having a pearlite groundmass.

M. G. Moore

ASB-514 METALLURGICAL LITERATURE CLASSIFICATION

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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KARKHANIN, P.A., inzhener.

Improving the technology of founding cast iron pistons. Lit. proizv.
no.5:12-14 My '57. (MIRA 10:6)

(Iron founding)

(Pistons)

KARLIK, Ye.S.; FRYUKOV, A.K.

Studying the utilization of working time by engineering and technical personnel. Nauch. trudy KNIIOI no.34-518-524 '64.

Investigating the effect of technical progress on the professional change in the labor force in Karaganda Basin mines.

Ibid.:524-529 '64.

(MIRA 18:4)

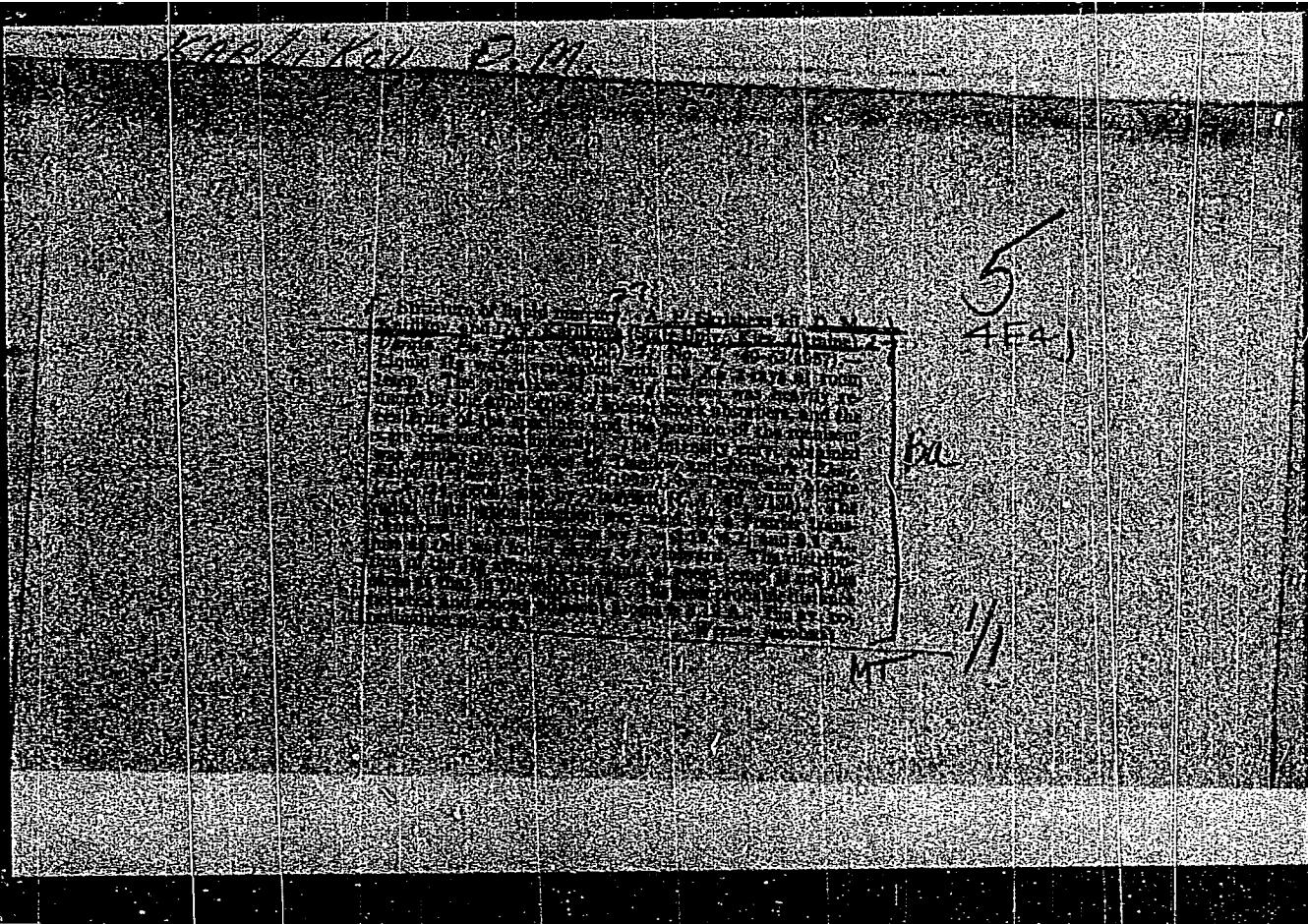
ZHOVTUKHA, G.A.; KARLIKOV, D.N.; KRASNITSKIY, S.Ya.

Theory and design of a slit thermoprecipitator. Sbor.nauch.trud.
Kriv.fil.IGD AN URSR no.1:186-192 '62. (MIRA 16:4)
(Dust--Thermal properties)

KARLIKOV, P. M.

Study investigations of the low-order reflections of cad-
 selenide amalgams in the liquid state. *Ukrainian Journal of
 Chemistry*, 1967, 41, 10, 1811-1814. *Ukrainian Journal of
 Chemistry*, No. 9, 1967. The amalgams in-
 vestigated contained 12.5, 25.0, 50.0, and 75.0% Cd, and
 in order to keep the amalgam liquid temp. of 70°C for the
 first and 50°C for the second. The last one was used.
 The X-ray diffraction curves showed that with increasing Cd
 content the low-order reflections increase from 0.2 to 0.5. The
 diffraction pattern shows that the compound is a stoichiometric
 compound present in these amalgams when liquid.
 Werner Jacobson

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KARLAKOV, D. V.

... of the structure of liquid crystals of similar nature... (State No. 234) (Russian Summary) ... of earlier ... similar viscous ... which showed ... were ... and they ... in order to find ... All these solutions were ... from ... and the radial ... are ...

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1-952

44

KARLIKOV, D. N. Cand Phys-Math Sci -- (diss) "The ^{near}~~short-range~~ order and viscosity of liquid amalgams of cadmium and zinc." Kiev, 1957. 9 pp including cover.

(Min of Higher Education UkSSR. Kiev State Univ im T. G. Shevchenko). 125 copies
(KL, 3-58, 95)

KARLIKOV, D.N.

20-2-35/60

AUTHORS: Golik, A. Z. , Karlikov, D. N.

TITLE: On the Relation Between the Coefficient of Viscosity and the Molecular Structure of Liquids (O svyazi koeffitsiyenta vyazkosti so strukturoy veshchestva v zhidkom sostoyanii)

PERIODICAL: Doklady Akademii Nauk SSSR, 1957, Vol. 114, Nr 2, pp.361-364 (USSR)

ABSTRACT: The relationship between the coefficient of viscosity and other physical properties, and particularly the structure of the substance in its liquid state are of great interest both for the development of the theory of the liquid state and of the viscosity, but also for the practical aspects of physical-chemical analysis. However, this set of interrelationships has not yet been clarified. On the one hand, the knowledge of the structure of liquids required for this purpose is lacking, and on the other hand the physical properties of the structure of liquids have not been investigated in sufficient detail. The authors of the paper under review made the attempt to overcome the difficulties, which are encountered

Card 1/3

APPROVED FOR RELEASE: 06/13/2000

CIA-RDP86-00513R000720720017-5"

On the Relation Between the Coefficient of Viscosity and the Molecular Structure of Liquids

in clarifying the relationships between viscosity and structure etc., by an economical selection of the objects of their investigation. For this purpose, also other properties were studied that are in some relationship with the structure. The objects were selected from the point of view of the similarity of their molecular structures. The following properties were studied within a wide temperature range: density, heat of vaporization, molecular dispersion of light, and critical temperature. It was demonstrated that the curves of temperature dependence of the viscosity and of the heat of vaporization are placed the higher, and the curves of compression are placed the lower, the higher the critical temperature of the substance under consideration. It was also proved that the interrelationship between viscosity and other properties connected with the structure, on the one hand, and the critical temperature, on the other hand, is a consequence of the periodic law of Mendeleev. The analysis of the curves of atomic distribution of the isoviscous solutions, as well as the analysis of the curves of intensity, show complete coincidence. Therefore it follows that liquids with identical coefficients of viscosity (isoviscous liquids) also have

Card 2/3

20-2-35/60

On the Relation Between the Coefficient of Viscosity and the Molecular
Structure of Liquids

identical orders of proximity and identical structures. There
are 4 figures, 1 table, and 9 references, 8 of which are
Soviet.

ASSOCIATION: State University imeni T. G. Shevchenko, Kiyev
(Kiyevskiy gosudarstvenny universitet im. T. G. Shevchenko)
Krivoy Rog Pedagogical Institute
(Krivorozhskiy pedinstitut)

PRESENTED: November 12, 1956, by G. V. Kurdyumov, Member of the Academy

SUBMITTED: November 6, 1956

AVAILABLE: Library of Congress

Card 3/3

KARLIKOV, D.W. [Karlykov, D.M.]

Short order X-ray investigation of liquid solutions of zinc in mercury
[with summary in English]. Ukr. fiz. zhur. 3 no.3:370-374 My-Je
'58. (MIRA 11:10)

1. Kiyevskiy gosudarstvennyy universitet i Krivorozhskiy pedinstitut.
(Zinc) (Mercury) (Liquid metals)

LASHKO, A.S.; KARLIKOV, D.N.

Calculating the distribution function for atoms in a liquid.
Sbor. nauch. rab. Inst. metallofiz. AN URSR no.9:198-209
'59. (MIRA 12:9)

(Liquid metals) (Atoms)

MIKHEL'SON, M.L. KARLIKOV, D.N.; ALFEROV, V.F.

The "three-thermometer" method for measuring the supersaturation of steam in a flow. Zav. lab. 31 no.9:1109-1110 '65. (MIRA 18:10)

1. Institut gornogo dela AN UkrSSR, Krivorozhakiy filial.

KARLIKOV, V. P.
USSR/Engineering - Hydromechanics

Card 1/1 Pub. 22 - 8/47

Authors : Karlikov, V. P.

Title : Solution of the linearized axially symmetrical problem on the point of an explosion in a medium of variable density

Periodical : Dok. AN SSSR 101/6, 1009 - 1012, Apr. 21, 1955

Abstract : A solution is presented on the problem of a strong explosion at a point in a gas, the density of which, in the undisturbed state, is expressed as follows:

$$\rho_1 = \rho_{01} - \epsilon r^k = \rho_{01} - \epsilon r^k \cos^k \theta,$$

where r is a distance between a point and the center of the explosion; θ is a latitude of the point from the axis (Oz), and ρ_{01}, ϵ, k are constants. Two USSR references (1946 and 1954).

Institution : M. V. Lomonosov State University, Moscow

Presented by: Academician L. I. Sedov, March 2, 1955

SOV/124-58-7-7436 D

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 7, p 15 (USSR)

AUTHOR: Karlikov, V.P.

TITLE: A Linearized Problem on the Propagation of Shock Waves Produced by a Powerful Explosion in an Inhomogeneous Atmosphere (Linearizirovannaya zadacha o raspostranении sil'nogo vzryva v neodnorodnoy atmosfere)

ABSTRACT: Bibliographic entry on the author's dissertation for the degree of Candidate of the Physical and Mathematical Sciences, presented to the MGU (Moscow State University), Moscow, 1958

ASSOCIATION: MGU (Moscow State University), Moscow

1. Shock waves--Propagation
2. Shock waves--Analysis
3. Explosions--Wave properties

Card 1/1

16(1), 10(1) 16.7600

69003

AUTHOR: Karlikov, V.P.

S/055/59/000/04/003/026 21

TITLE: Linearized Problem on the Propagation of a Strong Explosion
in an Inhomogeneous AtmospherePERIODICAL: Vestnik Moskovskogo universiteta. Seriya matematiki, mekhaniki,
astronomii, fiziki, khimii, 1959, Nr 4, pp 27-39 (USSR)

ABSTRACT: The first three paragraphs are already published by the author [Ref 2]. The author considers a strong point explosion in a gas the density of which is variable according to the law $\rho = \rho_0(1 - \epsilon z^2)$ (z - height). The linearized problem is reduced to the solution of a system of four ordinary differential equations of first order. § 4 and § 5 of the present paper are devoted to the solution of this problem. The author gives a series arrangement under consideration of the fact that the coefficients of the system have a simple pole; but it turns out that the obtained series converge very slowly so that the numerical solution is recommended. The principal difficulty is the determination of certain constants since in general it is not

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69003

Linearized Problem on the Propagation
of a Strong Explosion in an Inhomogeneous
Atmosphere

S/055/59/000/04/003/026

unique from which additional conditions they shall be
obtained.

The author mentions N.S.Mel'nikova-Burnova; he thanks L.I.Sedov
for the leading of the work.

There are 5 Soviet references.

ASSOCIATION: Kafedra gidromekhaniki (Chair of Hydromechanics)

SUBMITTED: April 1, 1959

Card 2/2

s/055/60/000/01/07/009

10.2000

AUTHOR: Karlikov, V.P.

TITLE: Linearized Solution of the Point Explosion Problem in a Medium
With Linear Density DistributionPERIODICAL: Vestnik Moskovskogo universiteta. Seriya I, matematika,
mekhanika, 1960, No.1, pp.60-65TEXT: The author considers a strong point explosion in a medium the
initial density of which is distributed linearly: $\rho_z = \rho_0 (1 - \epsilon z)$, ϵ - small, z - vertical coordinate. The adiabatic exponent is $\gamma = 1.4$.

The solution is

$$p = \frac{\rho_0 r^2}{t^2} \left[p_0(\lambda) + \epsilon r P^{(1)}(v_{ro}) \cos \theta \right]$$

$$v_r = \frac{r}{t} \left[v_{ro}(\lambda) + \epsilon r \frac{v_r^{(1)}(v_{ro})}{R_0(v_{ro})} \cos \theta \right]$$

$$(2) \quad \rho = \rho_0 \left[R_0(\lambda) + \epsilon r R^{(1)}(v_{ro}) \cos \theta \right]$$

$$v_\theta = \frac{r}{t} \epsilon r \frac{v_\theta^{(1)}(v_{ro})}{R_0(v_{ro})} \sin \theta,$$

Card 1/2

82515

S/020/60/133/04/05/031
B019/B060

24.2120

AUTHORS: Korobeynikov, V. P., Karlikov, V. P.

TITLE: On the Interaction of Strong Explosion Waves With an
Electromagnetic Field ¹

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 133, No. 4,
pp. 764-767

TEXT: The first part of the paper deals with the investigation of a point explosion in an ideal gas with infinitely large electrical conductivity, assuming the existence of a weak homogeneous magnetic field.²¹ Owing to the weak magnetic field, the motion of the medium can be neglected in first approximation, and the problem has an axial symmetry on account of the homogeneous magnetic field. Proceeding from the induction equation, the equations (3) are obtained for the radial and the transverse components of the magnetic field, and are then discussed. An already known formula is then given for the calculation of the current in the zone of gas motion. In the second part, the authors discuss the emission of electromagnetic waves caused by strong shock ¹

Card 1/3

82515

On the Interaction of Strong Explosion Waves
With an Electromagnetic Field

S/O20/60/133/04/05/031
B019/B060

waves in conducting media within an electric or magnetic field, and also the increase in the electrical conductivity of the gas behind the wave front of the shock waves caused by the interaction of the above electromagnetic waves with the shock waves. It is assumed in the further tasks that the electrical conductivity is infinitely large behind the shock wave front, but vanishing in front of it, and furthermore, the influence of the electric or the magnetic field on the gas motion is neglected due to the smallness of the electromagnetic field. Proceeding from the assumption that the electric and magnetic field strengths are equal in front of and behind the shock wave, the vector product (4) is obtained for the field strength in front of the shock wave. Plane waves are examined next, with \vec{E} parallel to the Y-axis and \vec{H} parallel to the Z-axis. (6) is then obtained for (4) and it is shown that H_z and E_y also satisfy equations $E_y + H_z = \Phi(\xi)$, $E_y - H_z = F(\eta)$, besides the wave equations. Here, $\xi = x - ct$, $\eta = x + ct$, $\Phi(\xi)$ and $F(\eta)$ are arbitrary functions, and c is the light velocity. Finally, the propagation of a plane shock wave and a strong explosion on a plane are investigated as concrete examples. In the first example, expressions are found for

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On the Interaction of Strong Explosion Waves
With an Electromagnetic Field

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B019/B060

$H_{z1}(x, t)$ and $E_{y1}(x, t)$ (index 1 refers to the zone in front of the shock wave), as well as for H_z for the zone of the gas motion behind the shock wave front. Similar formulas are obtained for the second example. The results obtained here can be used for determining the parameters of a gas-dynamic shock wave, if the parameters of the emitted electromagnetic wave are known. There are 5 Soviet references.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M.V. Lomonosova
(Moscow State University imeni M. V. Lomonosov)

PRESENTED: April 1, 1960, by L. I. Sedov, Academician

SUBMITTED: March 20, 1960

Card 3/3

S/020/60/133/005/004/019
B019/B054

AUTHOR: Karlikov, V. P.

TITLE: On the General Theory of Axisymmetric Motions of a Gas ²¹

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 133, No. 5,
pp. 1049 - 1052

TEXT: The author investigates a class of axisymmetric irregular adiabatic motions of an ideal gas ¹ the characteristics of which may be represented as an expansion in positive powers of the linear coordinate. The author proceeds from the equation system (1) for gas dynamics in spherical coordinates, and writes down the solution (2) of this system in a general form. These solutions are expansions in positive powers of the radius r . After an extensive calculation, the author develops a system for the coefficients of these power series, and indicates an algorithm for the calculation of these coefficients. L. I. Sedov (Ref. 1) is mentioned. There is 1 Soviet reference. VC

Card 1/2

KOROBAYNIKOV, Viktor Pavlovich; MEL'NIKOVA, Nina Sergeyevna; RYAZANOV,
Yevgeniy Vasil'yevich, Prinsipali uchastiye: KARLIKOV, V.P.;
YAKIMOV, Yu.L.; SHUSTOV, S.N., red.; AKSEL'ROD, I.Sh., tekhn.red.

[Point explosion theory] Teoriia tochechnogo vzryva. Moskva, Gos.
izd-vo fiziko-matem. lit-ry, 1961. 332 p. (MIRA 14:9)
(Explosions)

3,2600(1538,1502)

26742
S/040/61/025/003/019/026
D208/D304

AUTHORS: Karlikov, V.P., and Korobeynikov, V.P. (Moscow)

TITLE: On perturbations of the electromagnetic field under the action of a shock wave when conductivity is discontinuous

PERIODICAL: Akademiya nauk SSSR. Otdeleniye tekhnicheskikh nauk. Prikladnaya matematika i mekhanika, v. 25, no. 3, 1961, 554 - 556

TEXT: Electromagnetic waves are investigated here by subjecting them to the action of spherical shock waves, spreading in a weak electromagnetic field. It is assumed that the mechanism of generation of the electromagnetic wave is related to the appearance of the discontinuity in conductivity on the passage of the shock wave through gas. Velocity of the shock wave $D(t)$ where t - time, is assumed known. If the subscript (1) denotes the region in front of the shock wave and subscript (2) the region behind it, then

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D208/D304

On perturbations of the ...

$$H_1 = H_2, \quad E_{1\tau} = E_{2\tau} \quad (1)$$

where E_τ - tangential component of electric field vector. In view of infinite conductivity of gas behind the shock wave, one has

$$E_2 = -\frac{1}{c} v_2 \cdot H_2 \text{ in a moving coordinate system, and} \quad (2)$$

$$E_{1\tau} = -\frac{1}{c} [(v_2 - D) \cdot H_1]_\tau$$

in the stationary coordinate system. In the medium of zero conductivity and $\mu = \epsilon = 1$,

$$\frac{1}{c} \frac{\partial E}{\partial t} = \text{rot } H, \quad \frac{1}{c} \frac{\partial E}{\partial t} = -\text{rot } E. \quad (3)$$

The spherical shock wave is then considered. Initial magnetic and electric fields are taken to be H_0 and E_0 respectively. The spherical coordinate system is used (r, θ, φ) and θ is the angle of H . The following cases are then solved. 1) For $E_0 = 0, H_0 \neq 0$, and mo-

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D208/D304

On perturbations of the ...
of the shock wave given by

$$D = \frac{dr_2}{dt} = \frac{c_2(\xi_2, r_2)}{\alpha_2(\xi_2, r_2)}, \quad \xi_2 = ct - r_2, \quad r_2(0) = 0$$

$$\varphi(\xi_2, r_2) = \xi_2 \sum_{k=0}^m g_k \xi_2^k [\xi_2 + (k+2)r_2], \quad 0 \leq m < \infty \quad (7)$$

$$\psi(\xi_2, r_2) = r_2^2 - \xi_2 \sum_{k=0}^m g_k \xi_2^k [(k+2)r_2 + \xi_2 + \xi_2^2 r_2^{-1} (k+3)^{-1}]$$

where g_k are constants, the solution is

$$E_r = E_\theta = 0, \quad H_\varphi = 0$$

$$E_\varphi = H_0 \sin \theta \frac{\xi_2}{r^2} \sum_{k=0}^m g_k \xi_2^k [\xi_2 + (k+2)r] \quad (8)$$

$$H_r = -\frac{2H_0}{r^3} \xi_2^2 \cos \theta \sum_{k=0}^m \frac{g_k}{k+3} \xi_2^k [\xi_2 + (k+3)r] + H_0 \cos \theta$$

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On perturbations of the ...

$$H_0 = -\frac{H_0}{r} \xi \sin \theta \sum_{k=0}^m \epsilon_A \xi^k \left[k + 2 + \frac{\xi}{r} + \frac{\xi^2}{(k+3)r^2} \right] - H_0 \sin \theta \quad (8)$$

2) If $D = D_0 = \text{const}$, $H_0 \neq 0$, $E_0 \neq 0$ and H_0 orthogonal to E_0 , then the solution is found by putting $\lambda = r/D_0 t$, separating the variables in (3) and solving the resulting equations. The final result is

$$\begin{aligned} H_r &= H_0 A \left(B + \frac{2}{\delta^2} \frac{1}{\lambda} - \frac{2}{3\delta^4} \frac{1}{\lambda^3} \right) \cos \theta \\ H_\theta &= H_0 A \left(-B - \frac{1}{\delta^2} \frac{1}{\lambda} - \frac{1}{3\delta^4} \frac{1}{\lambda^3} \right) \sin \theta + E_0 A_1 \left(-\frac{1}{\delta} + \frac{1}{\delta^3} \frac{1}{\lambda^2} \right) \cos \varphi \\ H_\varphi &= -E_0 A_1 \left(-\frac{1}{\delta} + \frac{1}{\delta^3} \frac{1}{\lambda^2} \right) \sin \varphi \cos \theta \\ E_r &= E_0 A_1 \left(-B_1 - \frac{2}{\delta^2} \frac{1}{\lambda} + \frac{2}{3\delta^4} \frac{1}{\lambda^3} \right) \sin \varphi \sin \theta \end{aligned} \quad (9)$$

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On perturbations of the ...

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D208/D304

$$E_0 = -E_0 A_1 \left(B_1 + \frac{1}{\delta^2} \frac{1}{\lambda} + \frac{1}{3} \frac{1}{\mu^4} \frac{1}{\lambda^3} \right) \sin \varphi \cos \theta$$

$$E_\varphi = H_0 A_1 \left(-\frac{1}{\delta} + \frac{1}{\delta^3} \frac{1}{\lambda^2} \right) \sin \theta - E_0 A_1 \left(B_1 + \frac{1}{\delta^2} \frac{1}{\lambda} + \frac{1}{3\delta^4} \frac{1}{\lambda^3} \right) \cos \varphi \quad (9)$$

where

$$A = \frac{3\alpha\delta^4}{\alpha(4\delta^3 - 3\delta^2 - 1) - 3(1 - \delta^2)}, \quad B = \frac{-3(1 - \delta^2) - \alpha(1 + 3\delta^2)}{3\alpha\delta^4} \quad \left(\delta = \frac{D_0}{c} \right)$$

$$A_1 = \frac{3\delta^4}{1 + 3(\alpha + 1)\delta^2 - 4\delta^3 - 3\alpha\delta^4}, \quad B_1 = \frac{-1 - 3(\alpha + 1)\delta^2 + 3\alpha\delta^4}{3\delta^4}$$

3) (8) can be utilized for approximate determination of electromagnetic parameters if $D(t)$ is different from (7) and can be used if $D(t)$ and $r_2(t)$ are tabulated. Also if the initial position of the electromagnetic wave is given by $r = r_0$, then the substitution $r = r - r_0 - ct$ should be used in (8). There are 5 references: 4 Soviet-bloc and 1 non-Soviet-bloc. The reference to the English-

Card 5/6

On perturbations of the ...

26742
S/040/61/025/003/019/026
D208/D304

language publication reads as follows: R. Gallet, Propagation and production of electromagnetic waves in a plasma, Supplem. Nuovo, Cimento, 1959, v. 13, ser. 10, N. 1, pp. 234 - 256.

SUBMITTED: February 18, 1961

Card 6/6

41511

S/040/62/026/005/016/016
D234/D308

26.1410

AUTHORS: Karlikov, V. P. and Korobeynikov, V. P. (Moscow)

TITLE: Motion of a plane piston in a medium having finite conductivity, taking into account the effect of electromagnetic field

PERIODICAL: Prikladnaya matematika i mekhanika, v. 26, no. 5, 1962, 970-972

TEXT: The velocity of the piston U is assumed to be constant and the conductivity is assumed to vary in the direction of U as sx^{-1} . The magnetohydrodynamic equations are formulated taking into account the displacement currents. At the initial time instant (when the pistons begin to move), a constant field H_0 , directed along the z axis, is given. The solutions are expanded in powers of a small parameter $q = H_0^2/D_0^2\rho_0$, where D_0 is the velocity of the shock wave for $H_0 = 0$ and ρ_0 the initial density. The authors find the zero

Card 1/2

Motion of a plane ...

S/040/62/026/005/016/016
D234/D308

order and first order terms of the solution.

SUBMITTED: June 21, 1962

Card 2/2

L 17038-63 EPR/EPA(b)/EWT(1)/EWG(k)/BDS ASD/ S/207/63/000/002/016/025
AFFTC/ESD-3/AFWL Ps-4/Pd-4/Pz-4 WW/JHB/TF

76

AUTHOR: Karlikov, V. P., Korobeynikov, V. P., and Ryazanov, Ye. V. (Moscow)

TITLE: An approximate method for solving explosion problems in certain
ideally compressible media

PERIODICAL: Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki, no. 2,
1963, 132-134

TEXT: During explosions in certain ideal media, like water or water-containing ground, the motion of the liquid near the gaseous cavity agrees with the theoretical calculations of the displacement for the case of an explosion within an incompressible liquid. N. N. Kochina and N. S. Mel'nikova (Ref. 2: DAN SSSR, 1961, vol. 138, no. 2) enumerated the properties which distinguish media having the above-mentioned characteristics. Under such circumstances the compressibility substantially influences the fluid motion only within a relatively narrow region adjoining the shock wave containing large gradients of density, pressure, and velocity. The authors expect that the just mentioned facts are favorable for the existence of an approximate solution of the problem stated in the title. They start at time $t = 0$ with an instantaneously produced spherical volume of gas within

Card 1/2

L 17038-63

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An approximate method...

a compressible medium at rest and of uniform density prior to the explosion. The gas is hot, highly compressed, and has an initial energy E_0 . The motion of the liquid behind the wave front is described by a spherically symmetric system of equations of gas dynamics. The results of the approximate calculations are compared with the exact solution of the automodel explosion problem presented by N. N. Kochina and N. S. Mel'nikova (Ref. 5: PMM, 1958, vol. 22, no. 1). The errors of the approximate results are within 20% of the exact values and should be considered satisfactory. The calculations can be extended to the case when the density of the region in the vicinity of the gas bubble is not constant but, e.g., depends on time.

SUBMITTED: January 31, 1963

Card 2/2

KARLIKOV, V. P.

AID Nr. 948-11 22 April

PARAMETERS AND SHAPE OF A SHOCK WAVE FRONT PRODUCED BY AN INTENSE EXPLOSION (USSR)

Korobeynikov, V. P., and V. P. Karlikov. IN: Akademiya nauk SSSR. Doklady, v. 148, no. 6, 21 Feb 1963, 1271-1274. S/020/63/148/006/006/023

An approximate method is presented for calculating the parameters and shape of a shock wave in a point explosion in an inhomogeneous medium. Analytical relationships permitting determination of the shape are given, together with the law of its change with time. A theoretical determination of the wave front parameters based on data on the strong-detonation and asymptotic laws of shock wave decay is carried out. It is assumed that the point explosion takes place in an ideal gas (adiabatic index, 1.4). The calculated values of excess pressure $\Delta p_2/p_1$ are plotted in a graph. The results of a numerical calculation carried out on the "Strela" computer for the case when $h=8$ and $l \leq 3$ are given in a table. It is concluded that the method can be applied to the problem of explosions in a nonisothermic atmosphere. [ANB]

Card 1/1

KARLIKOV, V.F.; KROBEYNIKOV, V.F.; CHUSHKIN, P.I. (Moscow)

"On the analysis of explosion in compressible media"

report presented at the 2nd All-Union Congress on Theoretical
and Applied Mechanics, Moscow, 29 Jan - 5 Feb 64.

I. 09100-67 EWP(m)/EM(1) WJ
ACC NR: AF6030114 (N)

SOURCE CODE: UR/0421/66/000/004/0089/0093

AUTHOR: Karlikov, V. P. (Moscow); Sholomovich, G. I. (Moscow)

ORG: none

TITLE: Method for approximate calculation of the effect of the walls in cavity flow past a body in hydrodynamic tubes

SOURCE: AN SSSR. Izvestiya. Mekhanika zhidkosti i gaza, no. 4, 1966, 89-93

TOPIC TAGS: cavity flow, hydrodynamic theory, fluid flow

ABSTRACT: The article considers the homogenous steady state flow of an ideal, weightless incompressible fluid past an axisymmetric object in a cylindrical tube. We introduce the control surface shown by the dotted line in Fig. 1.

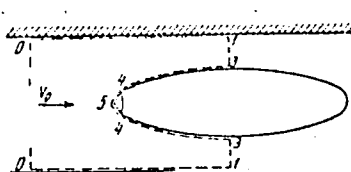


Figure 1.

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I. 09400-67

ACC NR: AF6030114

Cross section 0-0 represents the flow far ahead of the body, and cross section 1-1 the middle of the cavity. Designating by V , p , and ρ the velocity, the pressure, and the density, we assume integral laws for the conservation of mass, and the change in the momentum imparted to the volume of the fluid included within the control surface. In projection on the axis of the tube we have

$$\rho \int_{(S_0-S_3)} V^2 dS - \rho \int_{S_3} V^2 dS = \int_{S_0} V dS - \int_{(S_0-S_3)} p dS - \int_{S_{34}} p dS - \int_{S_{45}} p dS \quad (1)$$

Here the subscripts indicate: 0--cross section 0-0; 1--cross section 1-1; 3--the boundary of the cavity; S_0 and S_3 --the areas of the transverse cross sections of the tube and the middle point of the cavity; S_{34} and S_{45} --the projection of the area of the lateral surface of the cavity from the breakaway point of the jet to the middle point, and the projection of the wetted surface of the body on the plane of the transverse cross section of the tube. Assuming that V_0 and p_0 are constant over the whole cross section, while the pressure p_3 is constant along the surface of the cavity, and designating by X the force due to the resistance of the body, we have:

$$\rho \int_{(S_0-S_3)} V^2 dS - \rho V_0^2 S_0 = p_0 S_0 - \int_{(S_0-S_3)} p dS - p_3 S_3 - X \quad (2)$$

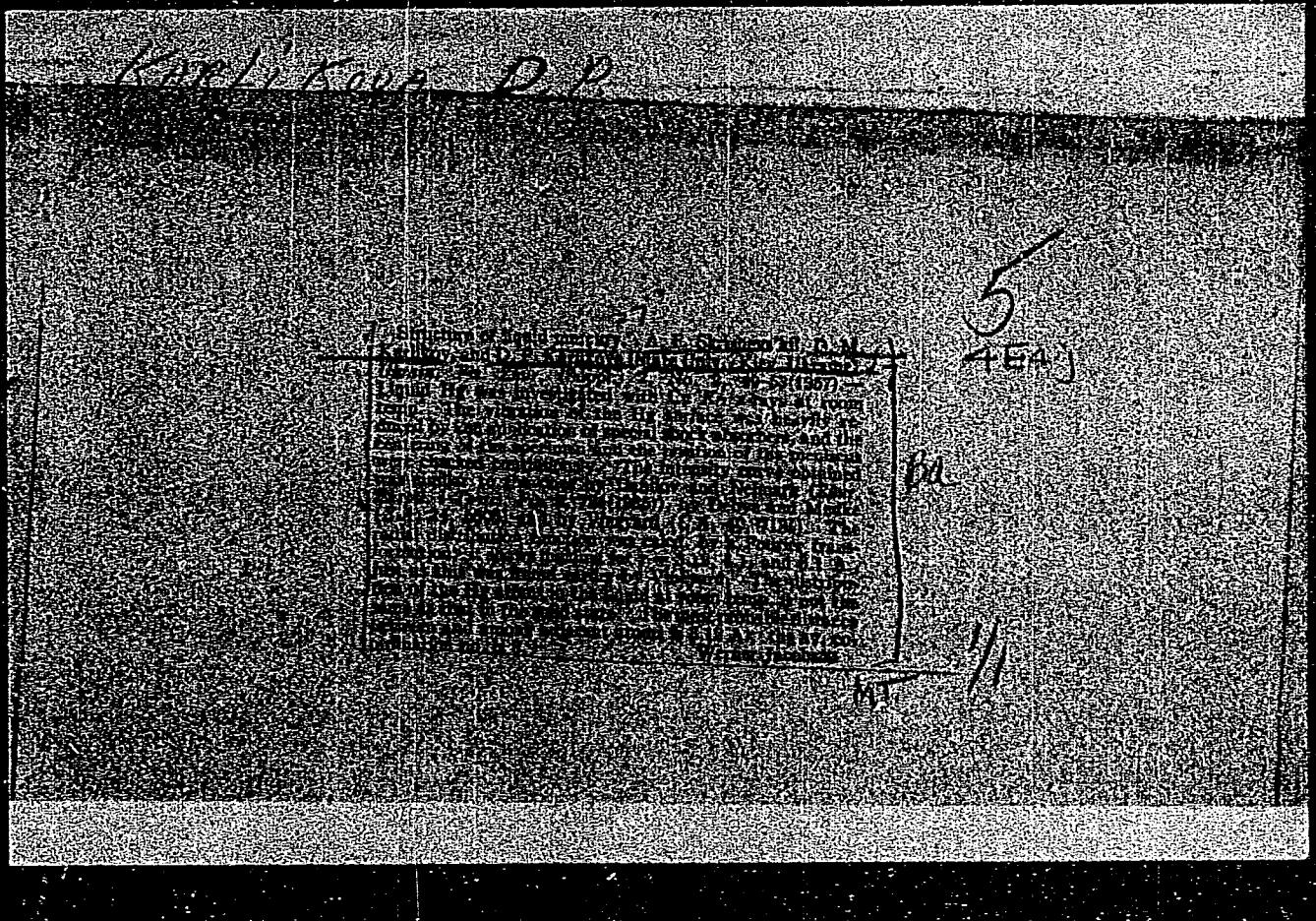
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ACC NR: AF6030114

A system of equations is developed on the above basis, and calculations by this system are compared satisfactorily with existing literature data. Orig. art. has: 14 formulas and 4 figures.

SUB CODE: 20/ SUBM DATE: 25Feb66/ ORIG REF: 005/ OTH REF: 004

Card 3/3



L 35381-66

ACC NR: AP6026853

SOURCE CODE: CZ/0060/66/000/002/0087/0091

AUTHOR: Bazant, Stanislav--Bazant, S. (Doctor of medicine); Karlikova, Libuse
(Doctor of medicine)

ORG: Military Spa Institute /headed by Lieutenant Colonel, Doctor of Medicine
Bohumil Polak/, Marianske Lazne (Vojensky lazensky ustav)

18
B

TITLE: Epididymitis in soldiers

SOURCE: ²² Vojenske zdravotnicke listy, no. 2, 1966, 87-91

TOPIC TAGS: army medicine, genitourinary system disease, tuberculosis

ABSTRACT: The article describes the treatment and clinical aspects of 220 cases treated at the Institute in the period 1957-1963. The disease developed quickly (1-2 days) in 61% of the cases; the cause in 47% remained unknown, in 12 it was due to an injury, in 14% to urological causes, and in 20% it was of tuberculous origin. Laboratory methods of diagnosis are described. Normally the disease required 9 days of hospital treatment, and several weeks of additional treatment at the Spa Institute. In 50% the cure was quick and complete; some of the aspects of residual difficulties are discussed. The author thanks Doctor J. Tuby, Chief of the Urology Department UVN in Prague, for providing the case history documentation. Orig. art. has: 4 tables. JPRS: 36,834

SUB CODE: 06 / SUBM DATE: none / ORIG REF: 002 / OTH REF: 014

Card 1/1

UDC: 616.689-002: 356.33

0916 2608

PROKUDIN, M., kapitan; MARIN, A., leytenant

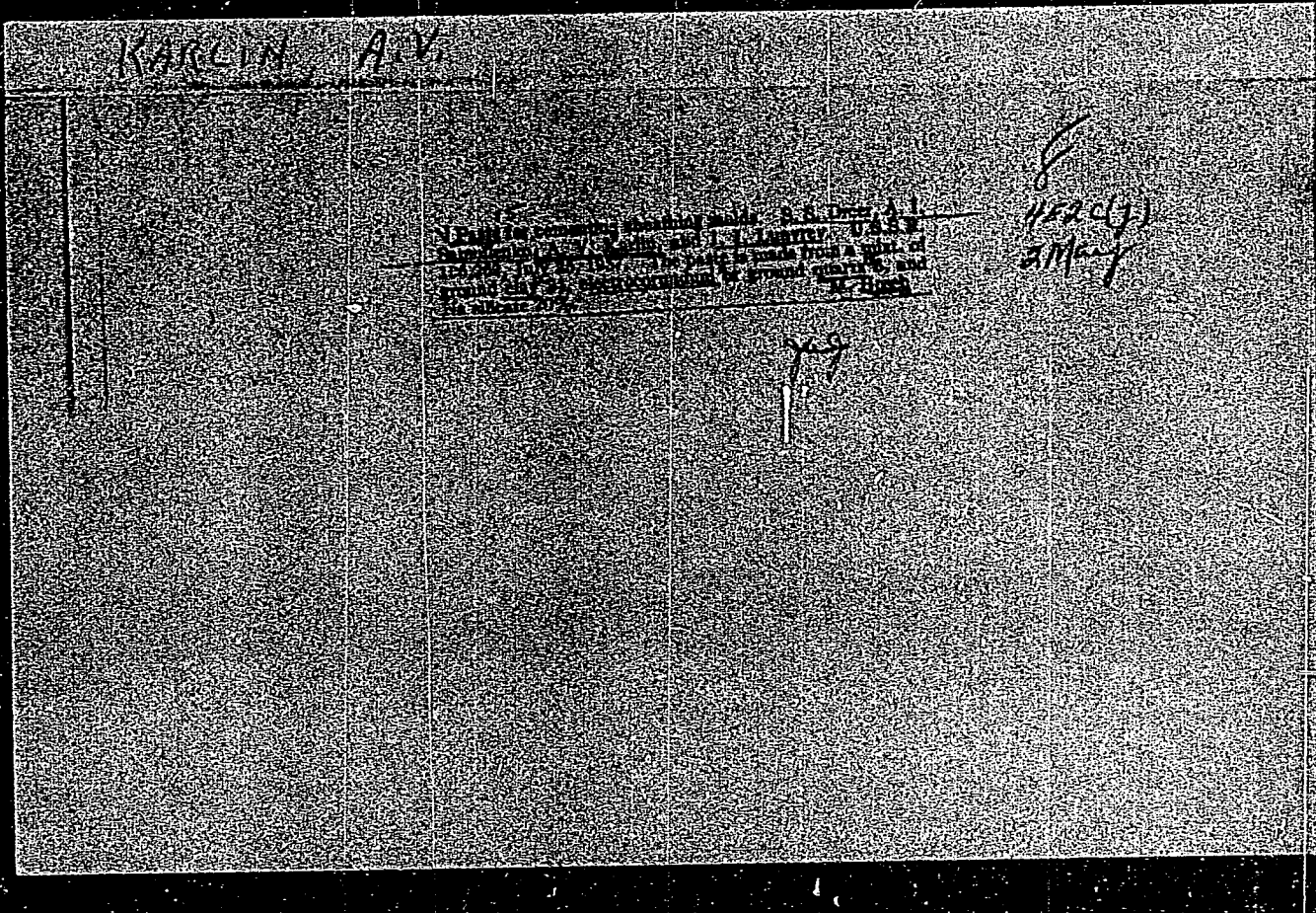
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(MIA 17:12)

BARLIN, A.V.

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AUTHORS: Klebanskiy, A. L., Fikhtengol'ts, V. S., Kerain, A. V. 79-12-28/43

TITLE: Investigations in the Field of the Synthesis of Silicon-Organic Compounds (Issledovaniye v oblasti sinteza kremniyorganicheskikh soyedineniy).
V. The Synthesis of Polysiloxanes With Combined Radicals (V. Polucheniye polisiloksanov so smeshannymi radikalami).

PERIODICAL: Zhurnal Obshchey Khimii, 1957, Vol. 27, Nr 12, pp. 3321-3321 (USSR).

ABSTRACT: In the present work the authors try to explain the effect of polar substituents on the characteristics of polysiloxanes. For this purpose chloromethyl- and dichloromethyl derivatives of methylsiloxanes were produced by direct chlorination of the corresponding methylchlorosilanes with ultraviolet radiation with subsequent hydrolysis and polycondensation. The chlorination of dimethyldichlorosilane was carried out according to data from publications by conducting the sulfuric acid dried chlorine through dimethyldichlorosilane in the stirring flask with ultraviolet radiation (quartz lamp with in the flask). After the direct chlorination of diethyl- and trimethylchlorosilane under these conditions the chlorinated final products were isolated. These, as well as their compounds with dimethyldichlorosilane after the hydrolyses with methylalcohol resulted in the corresponding polysiloxanes.

Card 1/2

Investigations in the Field of the Synthesis of Silicon-Organic Compounds. 79-12-28/43

V. The Synthesis of Polysiloxanes With Combined Radicals.

nes. The authors stated the better solubility of the hydrolysis products, which have chloromethyl derivatives, in water and methanol as well as their more complicated polycondensation compared with pure dimethylsiloxanes. The authors also showed that the presence of chloromethyl groups in the caoutchouc-type polysiloxanes causes a certain deterioration of the physico-mechanical parameters of rubber but makes it more resistible against frost. The authors assume that the chlorine atom could be replaced by the SH-group. There are 1 table, and 6 references, 1 of which is Slavic.

SUBMITTED: October 22, 1956.

AVAILABLE: Library of Congress.

1. Silicon compounds (organic) - Synthesis

Card 2/2

128-58-6-10/17

AUTHORS: *KARLIN, A. V.*
Lupyrev, I.I., Candidate of Technical Sciences, Drayer, S.S.
Engineer, Stavitskiy, I.K., Engineer, Karlin A.V., Engineer,
Kryukovskaya, Z.M., Engineer

TITLE: Separating Lubricants for Shell Molds (Razdelitel'nyye smazki
dlya obolochkovykh form)

PERIODICAL: Liteynoye Proizvodstvo, 1958, Nr 6, p 27 (USSR)

ABSTRACT: This article contains information on "SKT-2" and "SKT-3" lu-
bricants for shell molds. These lubricants are based on
methylsilicon vat residues, and are 10 to 12 times cheaper
than the ethylsilicon liquid No. 5 (TU MKhP 2416-50), which
previously was extensively used for shell molds. The new lu-
bricants are also more stable at high temperatures and cause no
scale on the surface of mold boards. They were developed by
the authors.

AVAILABLE: Library of Congress

Card 1/1 1. Lubricants-Applications 2. Synthetic lubricants-Applications

30461

S/138/61/000/011/001/007
A051/A126

15,9205

AUTHORS: Borisov, S. N., Karlin, A. V., Malysheva, I. A.

TITLE: Vulcanization of cyclic dimethyl- and diethylsiloxane copolymers

PERIODICAL: Kauchuk i rezina, ²⁰no. 11, 1961, 4 - 8

TEXT: A study was made of the effect of the benzoyl peroxide and (ZnO, TiO₂, Fe₂O₃) metal oxide additions, on the thermal stability of vulcanizate mixtures based on dimethyldiethylsiloxane rubber. The possibility of using cyclic low-molecular dimethyl- and diethylsiloxanes instead of the formerly used individual methyltetramer and ethyltrimer, for the production of polydimethyldiethylsiloxane rubbers, was further investigated. It was found that the latter, synthesized by catalytic polymerization of cyclic dimethyl- and diethylsiloxane mixtures, do not differ in their properties from similar rubbers produced from the methyltetramer and ethyltetramer mixtures. The dimethylethylsiloxane polymers require a smaller quantity of benzoyl peroxide for the vulcanization than the CHT (SKE) rubber. Vulcanizates based on the mixtures of dimethyldiethylsiloxane rubbers, containing titanium dioxide instead of zinc oxide, retain their elasticity for long periods of time at 200 - 225°C, and for shorter periods at 250°C. They also have a high

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S/138/61/000/011/001/007
A051/A126

Vulcanization of...

frost resistance at -70°C . It is proven experimentally, on the example of ethylsiloxane polymers that the zinc oxide, usually contained in the rubber mixtures, increases their structuralizing processes. Since under stable conditions, the rates of polymerization of the hexaethylcyclotrisiloxane and octaethylcyclotetra-siloxane, under the effect of H_2SO_4 , have the ratio of 1.84 : 1, and their weight ratio in the products of complete hydrolysis of diethyldichlorosilane is also 70 - 75 : 30 - 25, it was assumed that the replacement of M_2-45 methylhydrolysate with M_2-4 fraction, and E_2-34 ethylhydrolysate with E_2-3 fraction, would have no significant effect on the conditions of production and properties of the dimethyl diethylsiloxane elastomers, and would at the same time lower to a large extent the consumption coefficients of the initial monomers. The experimental polymerization was conducted in two different ways: under the action of concentrated sulfuric acid, and in the presence of an alkali. Although the mechanism of the protective action of iron oxide and titanium oxide was not established, attention is drawn to the high protective action of metal oxides with varying valencies on the siloxane rubbers. Experiments showed that iron oxide and titanium oxide inhibit the oxidation process of the dimethyldiethylsiloxane rubbers. Further data obtained showed that the addition of zinc oxide to the composition of the heated

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S/138/61/000/011/001/007
A051/A126

Vulcanization of...

sistant rubbers, based on polysiloxane rubbers, would be unsatisfactory. There are 6 tables and 4 Soviet-bloc references.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut sinteticheskogo kauchuka im. S. V. Lebedev (All-Union Scientific Research Institute of Synthetic Rubber im. S. V. Lebedev)

X

Card 3/3

15-9205

2209

27575
S/190/61/003/009/010/016
B110/B101

AUTHORS: Borisov, S. N., Stavitskiy, I. K. (Deceased), Karlin, A. V.,
Malysheva, I. A.

TITLE: Ethyl siloxane elastomers. I. Copolymerization of octamethyl
cyclotetrasiloxane with hexaethyl cyclotrisiloxane

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 3, no. 9, 1961,
1377-1382

TEXT: The highly heat-resistant polydimethyl siloxane (PDMS) rubbers are elastic up to 250-300°C and have a low glass transition temperature (-130°C). Replacement of CH₃ radicals by larger organic groups, e.g., methyl-phenyl siloxane, renders the polycrystallization difficult, improves the properties of the vulcanizate at low temperatures, but does not change the glass transition temperature. As a direct synthesis of methyl-phenyl siloxane is not possible, and silane chloride mixtures were formed on phenylation of methyl dichloro silane by the Grignard synthesis, whose separation was difficult, it was necessary to use better accessible monomers for the production of frost-resistance rubbers. The purpose of the present paper
Card 1/6

Ethyl siloxane elastomers. ...

27575
S/190/61/003/009/010/016
B110/B101

was the synthesis of methyl-ethyl siloxane elastomers on the basis of octamethyl cyclotetrasiloxane and hexaethyl cyclotrisiloxane. According to the nomenclature suggested by N. N. Sokolov (Metody sinteza poliorganosiloksanov (Methods of synthesis of polyorganosiloxanes), Gosenergoizdat, 1959, pp. 127-132) the former is denoted by M_2-4 , the latter by E_2-3 . These two components, obtained by hydrolysis of dimethyl dichloro silane and diethyl dichloro silane, respectively, were co-polymerized in the cold in the presence of 2% by weight of concentrated H_2SO_4 under stirring for 5 hr with subsequent addition of 1% of weight of H_2O . At almost equimolecular initial ratio, co-polymerization takes place readily, forming rubber-like high-molecular polymers. Table 1 presents the properties of the resultant polydimethyl-diethyl siloxane rubbers. The molecular weights were determined by the equation derived by Burry-Korolev for high-molecular linear PDMS: $[\eta]_{\text{benzene}} = 2.15 \cdot 10^{-4} M^{0.65}$. Filling and vulcanization were similar as with CKT (SKT) rubber (polymer = 100; powdered silica gel Y-333 (U-333) = 50; ZnO = 5; benzoyl peroxide = 2 parts by weight). The assigned and real content of dimethyl siloxane links in the polymers was determined indirectly by IR spectra on Card 2/6

Ethyl siloxane elastomers. ...

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B110/B101

the 1267 cm^{-1} band of the Si-CH_3 bond. With increasing content of diethyl siloxane chains in the copolymer, the elasticity of vulcanizates decreases in parallel to the decrease of their swelling in organic solvents. When $(\text{C}_2\text{H}_5)_2\text{SiO (DE)} > 15$ mole%, no rubber-like vulcanizates were obtained by the treatment commonly used for SKT (10 min vulcanization in the press at 120°C ; 6 hr additional thermostat vulcanization at 200°C with a temperature rise of $1^\circ\text{C}/\text{min}$). If, however, the second stage (6 hr at 200°C) is omitted, compounds containing 45 mole% DE give rubber-like vulcanizates. With 1-15 mole% DE their strength corresponded to that of SKT vulcanizates, 10% DE vulcanizate was well elastic. They were more frost-resistant than SKT. The coefficient of frost resistant was ~ 1 at -60 to -70°C for rubbers with 6-10 mole% DE. Acid catalysts which required troublesome washing-out were replaced by alkaline catalysts: M_2-4 and E_2-3 (92 : 8) were polymerized under stirring and heating in a stream of dry N_2 on the reflux condenser in the presence of a catalyst from cyclodimethyl siloxanes and KOH. The properties of vulcanizates obtained with 0.0075% KOH practically correspond to those obtained with 2% H_2SO_4 . The authors thank

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Ethyl siloxane elastomers. ...

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S/190/61/003/009/010/016
B110/B101

N. V. Kozlova for taking the spectra, N. G. Sviridova for performing the alkaline polymerization. There are 2 figures, 4 tables, and 7 references: 6 Soviet and 1 non-Soviet. The reference to English-language publication reads as follows: Ref. 1: R. A. Pike, J. E. McMahon, V. B. Jex et al., J. Organ. Chem., 24, 1939, 1959; T. C. Williams, R. A. Pike, F. Fekete, Industr. and Engng. Chem., 51, 939, 1959.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut sinteticheskogo kauchuka im. S. V. Lebedeva (All-Union Scientific Research Institute of Synthetic Rubber imeni S. V. Lebedev) X

SUBMITTED: December 6, 1960

Table. Properties of elastomers obtained by co-polymerization of methyl tetramer with ethyl trimer in the presence of H_2SO_4 .

Legend: (1) Polymer properties; (2) characteristics of standard vulcanizates; (3) sample no.; (4) molar ratio of $M_2-4 : E_2-3$; (5) % volatile content, 3 hr, 150°C; (6) solubility in benzene; (7) molecular weight $\cdot 10^{-3}$; (8) tensile strength; (9) relative elongation; (10) coefficient of frost
Card 4/6

159205

32350

S/190/62/004/001/012/020
B101/B110

AUTHORS: Borisov, S. N., Karlin, A. V., Malysheva, I. A.

TITLE: Ethyl siloxane elastomers. III. Methyl-ethyl siloxane rubbers

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 4, no. 1, 1962, 74-79

TEXT: The preceding communication II was published in Kauchuk i rezina, no. 11, 4, 1961. To obtain rubbers which remain elastic even at low temperatures, C_2H_5 was partially substituted for the CH_3 group in polydimethylsiloxane rubber. N. S. Shvarts catalytically synthesized the methyl-ethyl-dichlorosilane from methyl-dichlorosilane and ethylene: boiling point $99.3 - 100^\circ C/756$ mm Hg; $n_D^{20} = 1.4189$; $d_4^{20} = 1.0612$, $MR_D = 34.01$. From aqueous-alcoholic hydrolysis of this monomer the following was obtained (total yield 63% by weight): 1,3,5-trimethyl-1,3,5-triethyl-cyclo-

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Ethyl siloxane elastomers. ...

trisiloxane (I) (b. p. 78 - 78.4°C/10 mm Hg, $n_D^{20} = 1.4108$; $d_4^{20} = 0.9457$, $MR_D = 69.43$, $\eta^{20} = 2.00$ cp) and 1,3,5,7-tetramethyl-1,3,5,7-tetra-ethyl-cyclo-tetrasiloxane (II) (b. p. 110 - 111°C/10 mm Hg; $n_D^{20} = 1.4161$; $d_4^{20} = 0.9548$; $MR_D = 92.75$, $\eta^{20} = 4.29$ cp). Under the action of acid or alkaline catalysts (H_2SO_4 or KOH), new, high-molecular, rubber-like polymers resulted from copolymerizing cyclic methyl-ethyl- and dimethyl siloxanes (ratio 96 : 4 to 84 : 16). These polymers contain $(CH_3)_2SiO$ and $CH_3C_2H_5SiO$ links having molecular weights from 260,000 to 973,000. The samples vulcanized with 1 part by weight of benzoyl peroxide, 2 parts by weight of TiO_2 , 50 parts by weight of powdered silica gel per 100 parts by weight of polymer showed resistance to frost increased with increasing content of $CH_3C_2H_5SiO$ links (Fig. 1). After 10 days' heating at 200°C, tensile strength was 41 kg/cm²; relative elongation 230%. Comparison with diethyl- and methyl-phenyl siloxane rubbers showed for the resistance to

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frost the following order: $(C_2H_5)_2SiO \approx (CH_3)_6C_6H_5SiO > (CH_3)_2C_2H_5SiO$.
Therefore, the synthesis of polydimethyl siloxanes with $(C_2H_5)_6C_6H_5SiO$ or
 $(C_6H_5)_2SiO$ links is considered to be prospective. There are 2 figures,
3 tables, and 7 references: 5 Soviet and 2 non-Soviet. The reference to
English-language publications reads as follows: K. E. Polmanteer, M. J.
Hunter, Rubb. World, 138, 95, 1958; J. Appl. Polymer Sci., 1, 3, 1959.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut sinteticheskogo kauchuka im. S. V. Lebedeva (All-Union Scientific Research Institute of Synthetic Rubber imeni S. V. Lebedev)

SUBMITTED: February 1, 1961

Card 3/4/3

S/080/62/035/004/021/022
D205/D301

15. 9701

AUTHORS: Borisov, S. N., Karlin, A. V., and Sviridova, N. G.

TITLE: Simultaneous polymerization of octamethyl cyclotetra-
siloxane and decamethyl pentacyclosiloxane

PERIODICAL: Zhurnal prikladnoy khimii, v. 35, no. 4, 1962, 917-919

TEXT: In the production of the thermally stable polymethylsiloxane resin OKT (SKT) low-molecular cyclic dimethylsiloxanes are employed as the starting product. The influence of the starting products composition on the molecular weight and technological properties of the polymethyl disiloxane resin was not sufficiently investigated before. Polymerization of the binary mixtures of octamethyl cyclo-tetrasiloxane (M_2-4) and decamethyl cyclopentasiloxane (M_2-5) taken in the weight ratios 90:10, 70:30, 50:50, 30:70, 10:90 was performed by stirring in the presence of (a) 2% W/W concentrated H_2SO_4 for 5 hours at room temperature with subsequent introduction of 1% W/W of H_2O ; (b) 6% W/W aluminum sulfate dihydrate, taken as a 33%
Card 1/3

Simultaneous polymerization of ...

S/030/62/035/004/021/022
D205/D301

paste of the catalyst in siloxane oil, for 5 hours at 100°C; (c) catalyst based on potassium siloxanates for 3 hours at 140°C in a current of dry nitrogen. The increase of the M₂-5 content from 10 to 90% lowers the molecular weight of the elastomers from 700,000 to 500,000 roughly. This increase leads also to a somewhat higher relative elongation and freezing resistance coefficients in the vulcanized resins. These influences are less pronounced when method (b) is used. The polymers obtained by this method are of a higher molecular weight than those obtained by method (a). The conversion in both methods was more than 90%. The conversion in the alkaline method (c) was lower. With the increase of the M₂-5 content from 10 to 90% the amount of volatiles increased from 14 to 17%. The properties of the resins prepared by the 3 methods were comparable. It is concluded that the differences induced by the varying composition of the starting mixture are practically insignificant. There are 7 references: 5 Soviet-bloc and 2 non-Soviet-bloc. The references to the English-language publications read as follows: W. Patnode and D. F. Wilcock, J. Am. Chem. Soc., 68, 358, (1946); H.J.

Card 2/3

Simultaneous polymerization of ... S/080/62/035/004/021/022
D205/D301

Hunter, J. F. Hyde et al, *ibid.*, 68, 667, (1946).

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut sinte-
ticheskogo kauchuka im. Akad. S. V. Lebedeva (All-
Union Scientific Research Institute of Synthetic Rub-
ber im. Academician S. V. Lebedev)

Card 3/3

X

BORISOV, S.N.; KARLIN, A.V.; ~~Prinimali uchastiye~~; MALYSHEVA, I.A.;
BANDURINA, R.A.

Organic silicone elastomers containing diphenyl siloxan links
in the basic chain. Kauch.i rez. 21 no.12#3-5 D '62.

(MIRA 16:1)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut sinteticheskogo
kauchuka im. S.V.Lebedeva.

(Elastomers)

(Siloxanes)

38518

S/138/62/000/006/001/008
A051/A126

15.9205
AUTHORS: Borisov, S.N., Karlin, A.V., Chudesova, L.M., Galil-Ogly, F.A.,
Chebysheva, L.M.

TITLE: Properties of ethylphenylsiloxane rubbers

PERIODICAL: Kauchuk i rezina, no. 6, 1962, 3 - 6

TEXT: The relation between the methylphenylsiloxane ring content in rubbers and their optimum frost resistance was determined by producing and investigating polymers containing from 2 to 10 mol % of the methylphenylsiloxane rings. Optimum frost resistance was found in rubbers based on polymers and containing 8 mol % methylphenylsiloxane rings. The substitution of the latter with diethylsiloxane rings yields elastomers with the following characteristics: a) the ability to vulcanize with lesser quantities of benzoyl peroxide and with weak vulcanizing agents, such as dicumyl peroxide; b) a higher resistance to accumulation of residual deformations after compression; c) resistance to destruction in closed systems. A study of synthesized ethylphenylsiloxane elastomers showed that they combine the advantages of both the diethylsiloxane and methylphenylsiloxane elas-

Card 1/2

S/138/62/000/006/001/008
A051/A126

Properties of....

tomers. They vulcanize with a lesser quantity of benzoyl peroxide and dicumyl peroxide, as compared to the methylphenylsiloxane rubbers. They have a higher resistance to destruction in closed systems and regeneration capacity after simultaneous action of elevated temperatures and loads. The rubbers based on the ethylphenylsiloxane polymers are equal to the methylphenylsiloxane rubbers in their thermal and frost resistance, within a temperature range of -100 to +250°C. The properties of ethylphenylsiloxane rubbers are improved by substituting the Y-333 (U-333) silica gel with the more active BC-280 (BS-280). There are 2 tables and 3 figures.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut sinteticheskogo kauchuka im. S.V. Lebedeva i Nauchno-issledovatel'skiy institut rezinovoy promyshlennosti (All-Union Scientific Research Institute of Synthetic Rubber im. S.V. Lebedev and the Scientific Research Institute of the Rubber Industry)

Card 2/2

L 9880-63 KPR/EWP(j)/EPP(c)/EWT(m)/BDS--
AFFTC/ASD--Ps-4/Pc-4/Pr-4--RM/WN/MAY
ACCESSION NR: AP3000942

S/0064/63/000/003/0006/0011

AUTHOR: Karlin, A. V. (Candidate of technical sciences); Mitrofanov, L. A. 72
71

TITLE: Production of pure dimethylcyclsiloxanes 7

SOURCE: Khimicheskaya promyshlennost', no. 3, 1963, 6-11

TOPIC TAGS: dimethylsiloxanes, dimethylsiloxane rubber, dimethyldichloro-
silane, hydrolysis, depolymerization, SKT, monomer purity 15

ABSTRACT: Because the properties of dimethylsiloxane rubber are greatly affect-
ed by the purity of the monomer, a process for making pure dimethylcyclsiloxanes
(DMCS) was developed at VNIISK. The process is based on the difference in the
behavior of DMCS and their trifunctional contaminants in the presence of aqueous
KOH. The difference is that while the contaminants polymerize irreversibly, the
DMCS enter the equilibrium: polymer - reversible reaction - DMCS, which is
shifted to the right on DMCS distillation. Preliminary laboratory and pilot-
plant studies of the hydrolysis of impure dimethyldichlorosilane (DDS) and of

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L 9880-63

ACCESSION NR: AP3000942

the depolymerization of the hydrolyzate were carried out. It was shown that the latter's composition and properties are determined not only by the DDS/water ratio and reaction temperature but also to a great extent by the agitation rate. The following process was developed: DDS and water in a 1/2 ratio are fed continuously to a cooled, stirred vessel where DDS hydrolyzes at 20C; after separation from the 24% HCl formed, the hydrolyzate is neutralized; the neutralized hydrolyzate is depolymerized with 50% KOH as the DMCS are distilled off (laboratory conditions, 20 mm Hg and a pot temperature of 90 to 100C). After drying, the distilled DMCS, whose trifunctional compound content is equal to or less than 0.02 mol %, are used to make SKT rubber. When the hydrolyzate volume reaches 1/150 of its initial value, the residue is further depolymerized (laboratory pot temperature, 150 to 190C) to distill a second DMCS fraction from the irreversible-polymer residue. The SKT rubber met VTU LU 51-57 specifications. Orig. art. has: 9 figures, 3 formilas, and 1 table. 15

ASSOCIATION: VNIISK

SUBMITTED: 00

DATE ACQ: 31May63

ENCL: 00

SUB CODE: 00

NO REF SOV: 009

OTHER: 009

Card 2/2rh/104

KARLIN, A. V., kand. tekhn. nauk; MITROFANOV, L. A.

Preparation of pure dimethylcyclosiloxanes. Khim. prom. no.3:
166-171 Mr '63. (MIRA 16:4)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut sinteti-
cheskogo kauchuka imeni Lebedeva.

(Silicon organic compounds)

KARLIN, A. V.; BORISOV, S. N.

"Proizvodstvo polisiloksanovykh elastomerov v Sovetskom Soyuze."

report submitted for 35th Intl Cong, Industrial Chemistry, Warsaw, 15-19
Sep 64.

Vsesoyuznyy nauchno-issledovatel'skiy institut sinteticheskogo kauchuka
im S. V. Lebedev, Leningrad.

L 00930-66 EWT(m)/EPF(c)/EWP(j) RM

ACCESSION NR: AP5022089

UR/0138/65/000/008/0006/0008

678.84:678.01:536:495:54-44

AUTHOR: Davydova, V. P.⁴⁴; Lebedeva, Z. S.⁴⁴; Karlin, A. V.⁴⁴

22
25
B

TITLE: Thermal stability of siloxane rubbers obtained with acid or alkaline catalysts

16 15,44

SOURCE: Kauchuk i rezina, no. 8, 1965, 6-8

TOPIC TAGS: organosilicon compound, siloxane, rubber, thermal stability, catalytic polymerization, synthetic rubber, siloxane rubber, acid catalyst, alkaline catalyst, catalyst removal, thermal stability improvement, silicone rubber

ABSTRACT: The presence of residual alkaline or acid catalysts used for the polymerization of organocyclosiloxanes impairs the thermal stability of the siloxane rubbers obtained. The results of a study on the effect of such catalysts and methods for their removal from the final products are given in the paper. Samples of vinyl group-containing dimethylsiloxane rubbers SKTV and SKTV-1² were used which differed in the content of methylvinylsiloxane repeat units (from 0.1 to 0.5 mol%). The following catalysts were used: potassium polydimethylsiloxanediolate, alkaline; tetramethylammonium polydimethylsiloxanediolate, alkaline, thermally decomposable; aluminum

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L 00930-66

ACCESSION NR: AP5022089

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sulfate in polysiloxane paste, acid. The following treatments were applied for removal of the catalyst from the final product after polymerization: washing with water, neutralization either with ferric hydroxide (GOST 4150-48) or U-333 white filler, heating under vacuum, or reprecipitation. It was found that the thermal stability of polysiloxane rubbers freed from the catalyst by water wash is considerably impaired under thermo-oxidative conditions. The other treatments mentioned above produce better results. It was also found that the above siloxane rubbers, obtained by polymerization with alkaline catalyst, are as good as the acid catalyst rubbers with respect to thermal stability both under vacuum and in air. A comparison of the thermal stabilities of unwashed and washed samples which were subsequently neutralized with U-333 white filler indicated that their thermal stabilities were nearly the same. It was assumed that the residual alkaline catalyst is blocked by white filler and does not affect the thermal stability of the rubber. The thermal stability of the samples was determined by weight loss. Orig. art. has: 3 figures and 1 table.

[BN]

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut sinteticheskogo kauchuka im. S. V. Lebedeva (All-Union Scientific Research Institute of Synthetic Rubber)

10/44
Card 2/3

L 00930-66

ACCESSION NR: AP5022089

SUBMITTED: 00

ENCL: 00

SUB CODE: MT, TD

NO REF SOV: 001

OTHER: 005

ATD PRESS: 4077

Card 3/3 *AP*

ACC NR: AP6029928

(A)

SOURCE CODE: UR/0413/66/000/015/0090/0090

INVENTORS: Karlin, A. V.; Mitrofanov, L. A.; Trofimov, V. M.

ORG: none

TITLE: Method for obtaining low-molecular weight α, ω -dihydroxypolysiloxanes.
Class 39, No. 184453 \downarrow

SOURCE: Izobret prom obraz tov zn, no. 15, 1966, 90

TOPIC TAGS: siloxane, water, polymerization, basic catalysis, catalysis

ABSTRACT: This Author Certificate presents a method for obtaining low-molecular weight α, ω -dihydroxypolysiloxanes from cyclosiloxanes, e.g., octamethylcyclotetrasiloxane or dimethyl phenylcyclsiloxane at high temperatures and pressures. To simplify the process, the cyclosiloxane is reacted directly with water in the presence of catalytic amounts of alkali.

SUB CODE: .07/ SUBM DATE: 18Jun65

Card 1/1

UDC# 678.84

KARLIN, B.I., inzh.

Modeling the wear of impeller blades in suction dredges. Trudy VIGM
no.22:168-186 ' 58. (MIRA 11:11)
(Dredging machinery)

KARLIN, B. I., Candidate Tech Sci (diss) -- "Modeling the wear of the working blades of the wheel of a pump dredge when operating on finely granular soil". Moscow, 1959. 16 pp (Min Higher Educ USSR, Moscow Order of Lenin Power Engineering Inst), 150 copies (KL, No 23, 1959, 166)