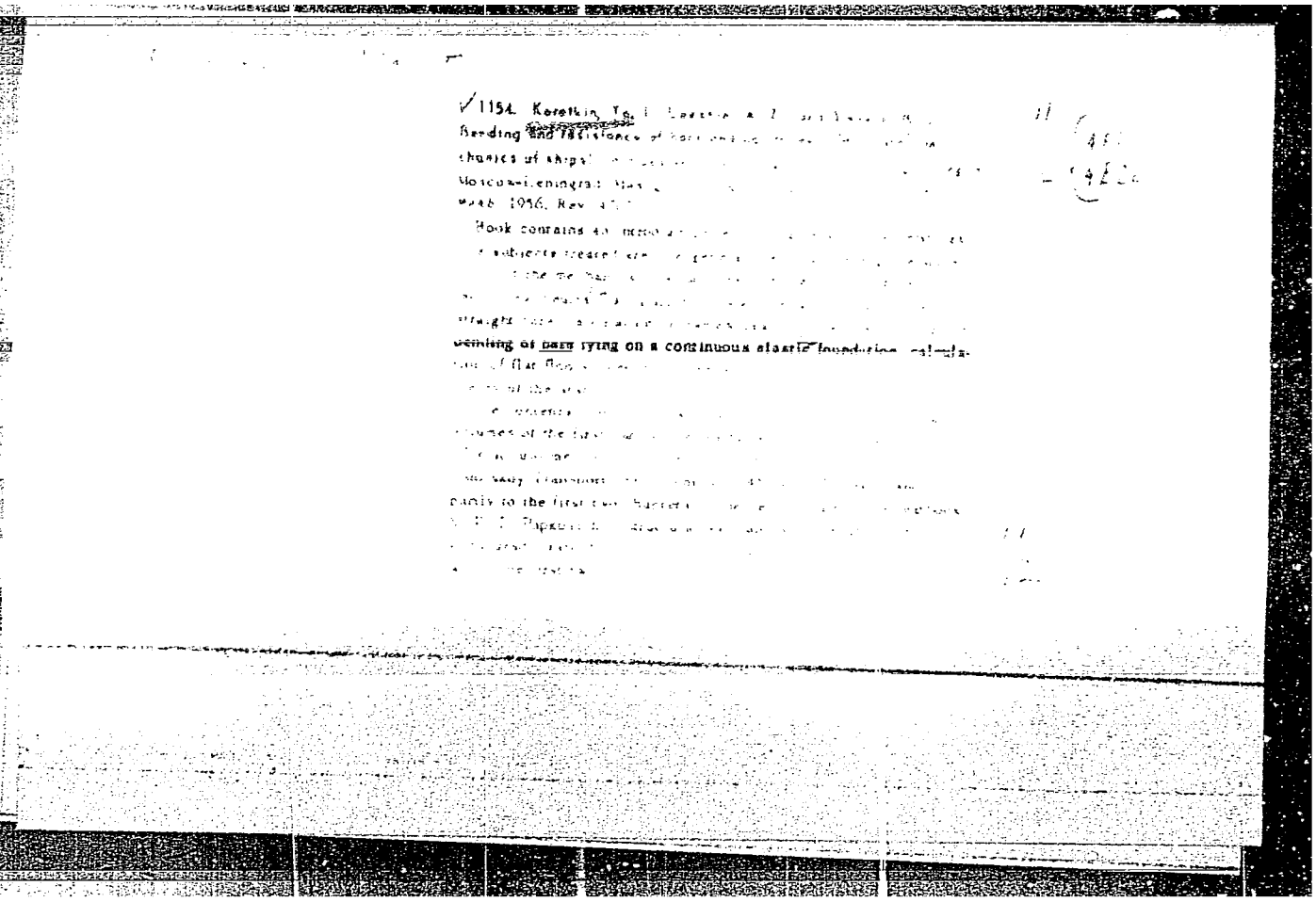
KOROTKIN, V.N.

The Sanitary Engineering Institute. Izv.ASiA 4 no.4:138-140 '62. (MIRA 16:1)

1. Starshiy inzh. informatsionno-izdatel'skogo sektora Instituta sanitarnoy tekhniki Akademii stroitel'stva i arkhitektury SSSR. (Sanitary engineering)



KOROTKIN, Ya.I. (Yakov Ivanovich)

PHASE I TREASURE ISLAND BIBLIOGRAPHICAL REPORT AID 415 - I

BOOK Call No.: AF621829

Authors: KOROTKIN, YA. I., LOKSHIN, A. Z. and SIVERS, N. L., Kandidats of Technical Sciences

Full Title: FLEXURE AND RESISTANCE OF BARS AND BAR SYSTEMS (STRUCTURAL MECHANICS OF A SHIP)

Transliterated Title: Izgib i ustoychivost' sterzhney i sterzhnevykh sistem

Publishing Data

Originating Agency: None

Publishing House: State Scientific and Technical Publishing House of Machine-Building and Shipbuilding Literature

Date: 1953 No. pp.: 519 No. of copies: 7,000

Editorial Staff

Editor: Kurdyumov, A. A. Tech. Ed.: None

Editor-in-Chief: None Appraiser: Solomenko, N. S.

Text Data

Coverage: The calculation of bars and systems of bars for bending stresses in a structure of a ship is explained in this book. The calculation of boxed systems is given special attention. Diagrams, graphs, formulae, etc.

This is a detailed coverage of the problem of bending of various kinds of bars. To study this book a knowledge of the differential calculus is necessary.

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Izgib i ustoychivost' sterzhney i sterzhnevykh sistem AID 415 - I

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porting sections; Coefficient of the supporting couple; Professor I. B. Bubnov's formulae; Three moments theory for continuous beams on an elastic base; Application of G. V. Klishevich's functions to the calculation of beams resting on a uniform elastic base; Influence of shearing forces on the bending of beams resting on an elastic base; Calculation of beams with variable cross-sections resting on an elastic base of variable rigidity. 263-347

Ch. VI Calculation of Flat Cover Systems

Basic assumptions; Determination of error in the value of the bending moment, and in the elastic line of the beam when the concentrated force is replaced by a distributed load; Calculation of cover systems with a small quantity of joint points; Choice of statically indeterminate values; Calculation of cover systems with a large quantity of identical beams of identical direction and with one cross connection; Cover systems with several cross connections. Basic system of Budnov's differential equations; Calculation of cover systems with several cross connections by the method of "principal bends". Basic equations; Calculation of cover systems with several cross connections by the method of expanding into series according to forms of free oscillations;

a centrally-compressed freely supported bar (Euler's basic case); Stability of centrally-compressed bar in case of other conditions of support; Stability of prismatic bars with elastically built-in ends; Stability of a continuous bar resting on rigid supports; Methods of finding Euler's loads based on application of differential equations of neutral equilibrium; Energetical method for finding Euler's loads in bars; Computing system in a general case of solving the problem by the energetical method; Examples of finding Euler's load by the energetical method; Method of consecutive integrations of the differential equation of the neutral equilibrium of bars; Combined method; Bubnov-Galerkin's method; Determination of the critical load of uniformly compressed bars of constant cross-section; Approximate appraisal of the influence of deviation from Hook's law for non-uniform compression of bars. Stability of a bar resting on uniformly elastic base; F. S. Yasinskiy's problem; Stability of the plane form of bending of beams of the ship's structure; Stability of a one-span bar resting on independent supports; Stability of a compressed bar, freely resting on several equidistant, elastic supports of equal rigidity; Stability of a simple cover system; Stability of

some frame constructions; Carrying capacity of compressed and bent bard.

Appendixes

481-518

Purpose: This is a textbook approved by the Main Administration of the Higher Education of the Ministry of Culture of the USSR for students of shipbuilding institutes of higher learning. It may be also useful to shipbuilding engineers interested in the calculation of the structure of ships.

Facilities: None

No. of Russian and Slavic References: 3 before 1938 and 4 after that date.

Available: A.I.D., Library of Congress.

KOROTKIN, Ya. I., LOKSHIN, A. Z. and SIVERS, N. L.

"Bending and Stability of Laminae and Circular Cylindrical Shells", Leningrad 1955.

124-57-1-1128

Translation from: Referativnyy zhurnal, Mekhanika, 1957, Nr 1, p 156 (USSR)

AUTHOR: Korotkin, Ya. I.

TITLE: The Stability of the Plates Constituting the Bottom Plating With Due Account of the Effect of the Continuous Floor Plates (Ustoychivost' plastin obshivki dnishcha s uchetom vliyaniya sploshnykh flor)

PERIODICAL: Leningr. korablestroit. in-ta, 1955, Nr 16, pp 11-20

ABSTRACT: The author examines the problem of the evaluation of the effect of the flexure of the floor plates, also that of the effect of the stiffening ribs attached to the floor plates, upon the Eulerian load on the bottom plates. The effect of the flexure of the floor plates is studied as a problem of the stability of a strip-beam that is elastically fixed on terminal and intermediate supports, corresponding to the fastening points of the floor plates to the bottom plates, and which become unstable on a cylindrical surface. The problem is solved by means of the angular deformation method. The most significant effect on the Eulerian load on the bottom plates is exerted by the stiffening ribs attached to the floor plates; this effect must be taken into

Card 1/2

The Stability of the Plates (cont.)

account. Calculations show that this effect introduces an increase in the Eulerian loads on the bottom plates by more than 100 percent. It is shown that stiffening ribs on floor plates installed in general practice (without calculation) have a rigidity significantly in excess of their critical rigidity and that their effect on the Eulerian load on the bottom plates can be accounted for with the aid of the calculation formula provided in the paper.

B. I. Slepov

1. Ship plates--Stability--Mathematical analysis

Card 2/2

KOROTKIN Ya. I.

SOV/124-58-5-5744

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 5, p 118 (USSR)

AUTHOR: Korotkin, Ya.I.

TITLE: On the Problem of Stability of Coverings and Plates With Consideration of the Torsional Rigidity of the Rafters (K voprosu ob ustoychivosti perekrytiy i plastin s uchetom zhestkosti krucheniya bimsov)

PERIODICAL: Tr. Leningr. korablestroit. in-ta, 1956, Nr 18, pp 13-22

ABSTRACT: At first the stability of a covering consisting of a large number of identical, equally spaced, longitudinal beams supported by a row of identical, equally spaced frame rafters is examined, as well as the stability of a plate stiffened by transverse rafters only, wherein consideration is given to the torsional rigidity of the transverse beams (rafters). It is shown that in either case the problem resolves into two individual problems, namely, 1) the problem of the oscillation of the rafters and 2) the problem of stability of a bar resting upon equally spaced elastic supports of specified rigidity, which constitute a fixed elastic attachment for the bar with a certain coefficient of yield. This coefficient turns out to be a constant all along the length of the rafters only in cases of freely supported rafter ends. Then the problem of stability of a bar on elastically fixed, elastic supports

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On the Problem of Stability (cont.)

is investigated relative to the problem of the magnitude of the critical flexural rigidity of the rafters. The slope-deflection method is used in solving the problem. The equations of stability are obtained from the conditions of the equilibrium of the supports and the equating to zero of the sum of the moments and the transverse forces. In drawing up the equations the author borrows the ready expressions obtained by P. F. Popkovich for the bending moments and the transverse forces produced by the sagging and slope deflection of the supports and also the tabulated functions of the values of A(u), B(u), and C(u), where $u = 1/2\ l\sqrt{T/Ei}$. The determination of the argument from the equations of equilibrium enables one also to find the Eulerian value of the compression force $T_e = (2u)^2 Ei/\ l^2$, as well as the parameter characterizing the cricical rigidity of the elastic supports. The investigation is conducted for cases where the number of spans of the bar is equal to 2, 3, and infinity. The results show that intermediate supports have a critical flexural rigidity value only for bars with two and an infinite number of spans while, at the same time, the rigidity increases with an increase in the elastic restraint of the supports. It turns out that for bars having three or more spans a critical rigidity value of the supports does not exist and that only perfectly rigid supports allow the full use of the increased Eulerian loading which can be obtained from the elastic restraint. It is noted that the

On the Problem of Stability (cont.)

influence of the torsional rigidity of the rafters upon the stability of the coverings and plates of realistic dimensional ratios is found to be quite insignificant and amounts to only a small percentage.

V. P. Belkin

1. Structures--Stability
2. Structures--Mathematical analysis

Card 3/3

124-58-6-7036

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 6. p 108 (USSR)

AUTHOR: Korotkin Ya. I.

TITLE: On the Stability of Cross-braced Longitudinal Bottom Ribs (K voprosu ob ustoychivosti dnishchevykh prodol'nykh reber pri nalichii rasporok)

PERIODICAL: Tr. Tsentr. n.-i. in-ta morsk. flota, 1957, Nr 9, pp 15-21

ABSTRACT: Stability-analysis formulae are derived for two continuous beams resting on equidistant supports and connected to each other at the center of their respective spans by a rigid cross brace; the interrelation of the compressive forces acting on the beams is considered given. This problem arose in connection with current design practice with respect to the longitudinal bottom assembly of transport vessels. In addition, stress-analysis formulae are given for this same beam system, and the question is examined as to which requires the thicker beam, design for strength or design for stability.

1. Ships--Design 2. Structures--Stability

Card 1/1

A. A. Kurdyumov

Korotkin, Ya. I.

SHIMANSKIY, Yu.A., akademik; MAKSIMADZHI, A.I., kandidat tekhnicheskikh nauk; KOROTKIN, Ya.I., kandidat tekhnicheskikh nauk.

New "Rules of classification and building of steel ships" in the U.S.S.R. Marine Register. Sudostroenie 23 no.1:4-10 Ja '57. (MIRA 10:10)

(Ships, Iron and steel) (Shipbuilding)

KOROTKIN, Ya.I., kand.tekhn.nauk; MAKSIMADZHI, A.I., kand.tekhn.nauk

Formulas for testing local strength of corrugated bulkheads. Sudostroenie 24 no.4:9-12 Ap '58. (MIRA 11:4)
(Bulkheads (Naval architecture)--Testing)

KOROTKIN, Ya.I.

Some problems of the general durability of tankers. Trudy LKI no.26:83-93 '59. (MIRA 14:9)

1. Kafedra stroitel'noy mekhaniki korablya Leningradskogo korablestroitel'nogo instituta.
(Tank vessels)

BEL'GOVA, M.A.; BOYTSOV, G.V.; KANFOR, S.S.; KOROTKIN, Ya.I.; KUZOVENKOV, B.P.; MAKSIMADZHI, A.I.; NEBYLOV, V.M.; SBOROVSKIY, A.K.; TAUBIN, G.O.; FILIPPEO, M.V.; CHUVIKOVSKIY, G.S.; SHIMANSKIY, Yu.A., akademik, red.; LUCHININOV, S.T., otv.red.; OSVENSKAYA, A.A., red.; KONTOROVICH, A.I., tekhn.red.

[Handbook on structural mechanics of ships] Spravochnik po stroitel'noi mekhanike korablia. Leningrad, Gos.soiuznoe izd-vo sudostroit.promyshl. Vol.3. 1960. 799 p.

(MIRA 14:1)

(Shipbuilding)

KOROTKIN, Ya.I., kand.tekhn.nauk

Behavior of deck plating with a transverse construction system beyond the resistance point. Trudy NTO sud. prom. no.35:39-61 '60. (MIRA 13:9)

(Hulls (Naval architecture))

BOYTSOV, Gennadiy Vladimirovich; NEBYLOV, Vladimir Matveyevich; TAUBIN, Georgiy Osipovich. Prinimal uchastiye SHAVROV, Yu.N.; BAYKOV, D.I., kand. tekhn.nauk, retsenzent; KOROTKIN, Ya.I., kand. tekhn.nauk, retsenzent; SHAKHNOVA, V.M., red.; TSAL, R.K., tekhn. red.

[Strength of ship structures from aluminum alloys; design and calculations] Prochnost' sudovykh konstruktsii iz aliumineievykh splavov; proektirovanie i raschet. Pod obshchei red. G.O.Taubina. Leningrad, Sudpromgiz, 1962. 211 p. (MIRA 15:7)
(Hulls (Naval architecture)) (Aluminum alloys)

KOZLYAKOV, Vitaliy Vasil'yevich; KOROTKIN, Yakov Isayevich; KURDYUMOV, Aleksandr Aleksandrovich; LOKSHIN, Aleksandr Zinov'yevich; POSTNOV, Valeriy Aleksandrovich; SIVERS, Nikolay L'vovich; YEKIMOV, V.V., doktor tekhn. nauk, prof., retsenzent; SEGAL', V.F., doktor tekhn. nauk, prof., retsenzent; SMOLEV, B.V., red.; ERASTOVA, N.V., tekhn. red.

[Book of problems on the structural mechanics of ships] Zadachnik po stroitel'noi mekhanike korablia. [By] V.V. Kozliakov i dr. Leningrad, Sudpromgiz , 1962. 254 p. (MIRA 15:6)
(Naval architecture--Problems, exercises, etc.)

KOROTKIN, Ya.I.

Calculating bending moments in the midship section of a ship. Trudy LKI no.38:89-95 '62. (MIRA 16:7)

1. Kafedra stroitel'noy mekhaniki korablya Leningradskogo korablestroitel'nogo instituta.
(Mechanics, Applied) (Hulls (Naval architecture))

MAKSIMADZHI, Aleksandr Isaakovich; NOVIKOV, Oleg Aleksandrovich; SOKOLOV, Lev Georgiyevich; KOROTKIN, Ya.I., kand. tekhn. nauk, retsenzent; CHUVIKOVSKIY, G.S., inzh.; LISOK, E.I., red.

[Low-alloy steel in shipbuilding] Nizkolegirovannaia stal' v sudostroenii. Leningrad, Sudostroenie, 1964. 299 p. (MIRA 18:1)

KOROTKIN, Ya., I., kand. tekhn. nauk

Estimating the general strength of tank vessels. Sudostroenie 30 no.5:11-15 My '64. (MIRA 17:6)

VASIL'YEV, Aleksey Leonidovich; GLOZMAN, Moisey Kalmanovich; PAVLINOVA, Yevgeniya Alekseyevna; FILIPPEO, Maksim Valentinovich; GOMBERG, Ye.M., inzh., retsenzent; KOROTKIN, Ya.I., kand. tekhn. nauk, retsenzent; KONTOROVICH, B.M., nauchn. red.; KLIORINA, T.A., red.

[High-strength corrugated ship bulkheads] Prochnye sudovye gofrirovannye pereborki. [By] A.L.Vasil'ev i dr. Leningrad, Sudostroenie, 1964. 315 p. (MIRA 18:3)

KOROTKIN, Yakov Isayevich; BELKIN, V.P., doktor tekhn. nauk, retsenzent; YEKIMOV, V.V., doktor tekhn. nauk, retsenzent; ROSTOVTSEV, D.M., kand. tekhn. nauk, otv. red.; OSVENSKAYA, A.A., red.

[Problems of the strength of seagoing transport vessels] Voprosy prochnosti morskikh transportnykh sudov. Leningrad, Sudostroenie, 1965. 387 p. (MIRA 18:10)

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Korotkin, YAkov Isayevich

14

Problems of strength of marine transport vessels (Voprosy prochnosti morskikh transportnykh sudov) Leningrad, Izd-vo "Sudostroyeniye," 1965. 387 p. illus., biblio. 2250 copies printed.

TOPIC TAGS: strength of ship, ship deflection, ship bending moment, ship strength normalization, shipbuilding classification rules

PURPOSE AND COVERAGE: The external forces acting on hulls of marine transport ships and the rules of classification societies concerning the overall and local strengths of ship hulls are discussed. The problem of strength standardization is analyzed, based on practical experience in building and operating ships and using approximate analysis methods. The book is intended for workers in research and structural design organizations, the merchant marine, and the USSR Register. The book can also be useful to students in advanced courses in shipbuilding faculties.

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ACC NR: AM6004100

Part Five. Some problems of evaluating a ship's hull structures
Ch. XVII. Problems of evaluating the cross-section of an equivalent beam -- 361

References -- 380

SUB CODE: 13 / SUBM DATE: 24Apr65/ ORIG REF: 064/ OTH REF: 062/

Card 4/4 FW

35121
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E031/E184

10.6200

AUTHORS: Shishov, V.S., and Korotkin, Yu.G.

TITLE: The calculation of the kinetic energy of an aircraft absorbed by the wheel brakes on landing

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Aviatsionnaya tekhnika, no.4, 1961, 149-155

TEXT: In the general case it is not possible to obtain analytical expressions for the kinetic energy absorbed by wheel brakes, because either the angle of incidence varies or the braking conditions change. Hence a graphical method of evaluating the integral concerned is proposed. The nomograms are based on the energy balance equation for the aircraft run,

$$A_c + A_p = A_a + A_{tk} \quad (5)$$

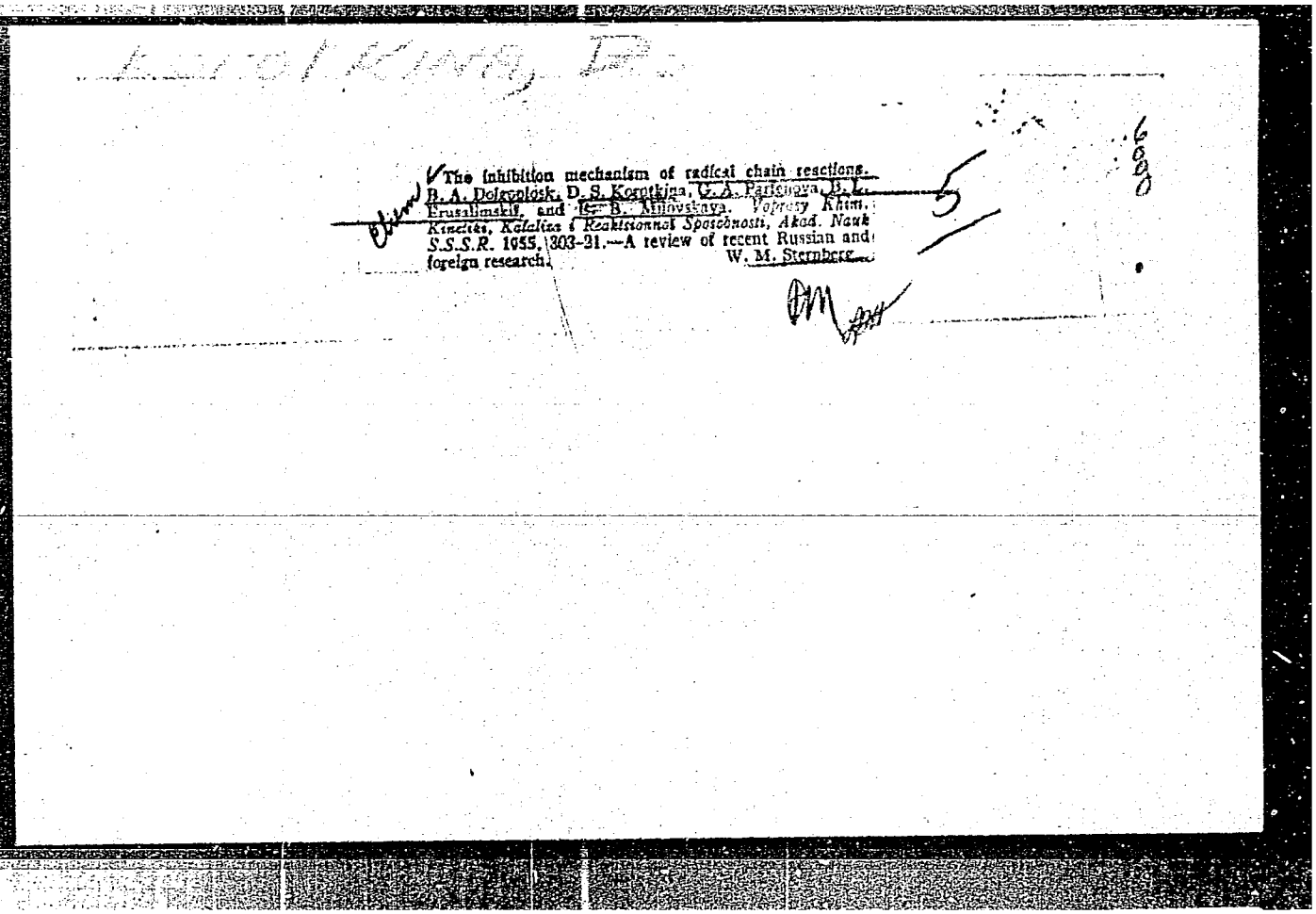
where: A_c is the kinetic energy during landing, A_p is the kinetic energy of the idling engine during the run, A_a is the kinetic energy absorbed by the aerodynamic drag and chute drag; A_{tk} is the kinetic energy absorbed by the braked wheels and the rolling friction of unbraked wheels. Two nomograms are

Card 1/2

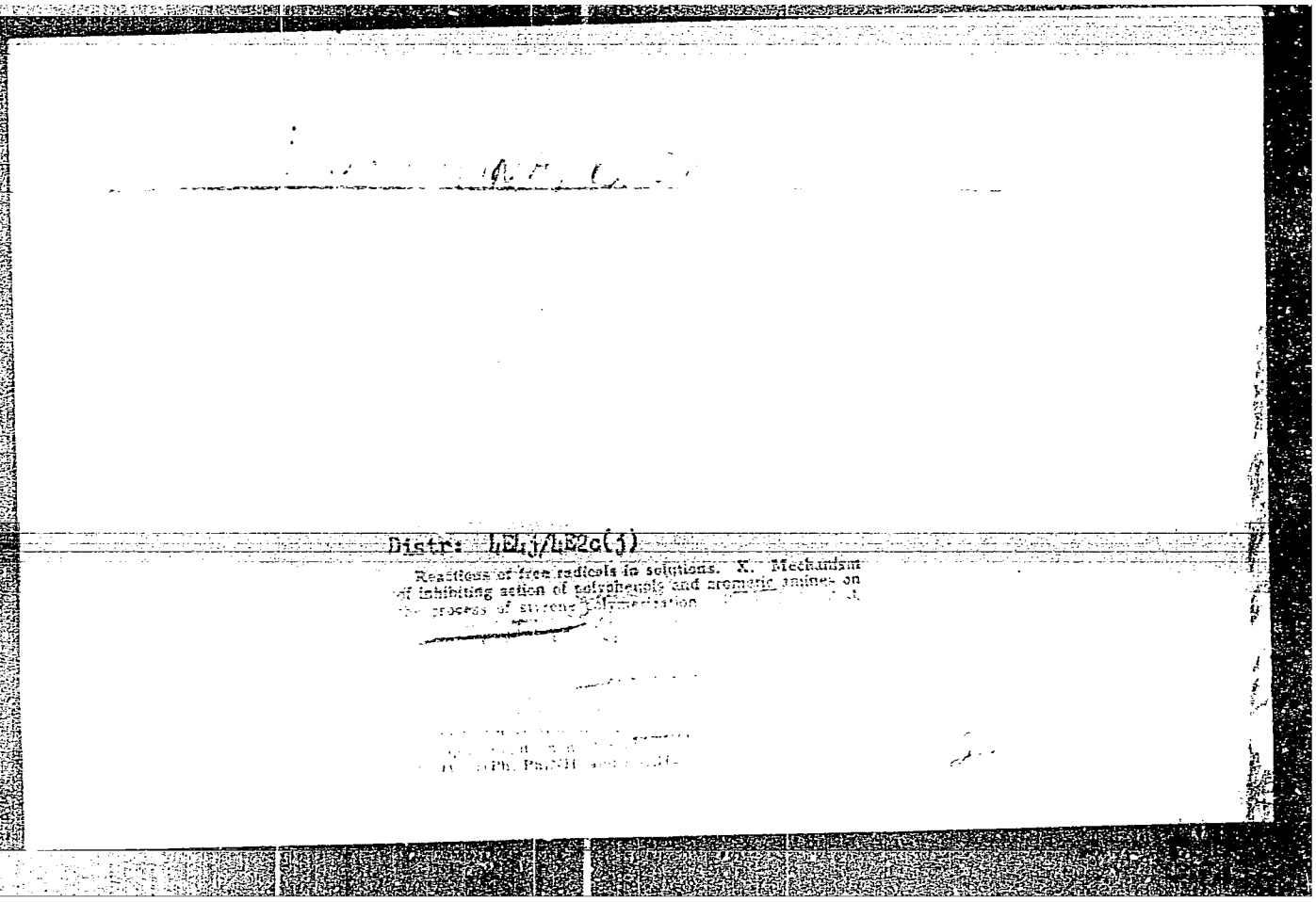
TUTOVA, A.F.; NIKOLAYEVA, L.F.; MEDVEDEV, N.V.; KONOTKINA, S.M.; SOL'YEVSKIY, A.A.; GALKINA, K.P.; NIKOLOVA, K.A.; KURYLEVA, T.Ye., otv. red.; KUTUZOVA, S.I., red.

[Transactions and materials of scientific congresses and conferences published abroad in 1962; an index] Trudy i materialy nauchnykh kongressov i soveshchanii, opublikovannye za rubezhom v 1962 godu; ukazatel'. Vypusk 3. Leningrad, 1964. 133 p. (MIRA 17:9)

1. Akademiya nauk SSSR. Biblioteka.



The inhibition mechanism of radical chain reactions. B. A. Dolgoplosk, D. S. Korotkina, G. A. Tinyakova, B. L. Erusalimskii, and Ie. B. Milovskaya. *Voprosy Khim. Kinetiki, Kataliza i Reaktsionnoi Sposobnosti, Akad. Nauk S.S.S.R.* 1955, 303-21.—A review of recent Russian and foreign research. W. M. Sternberg



Distr: 4E4j/4E2c(j)

Reactions of free radicals in solutions. X. Mechanism of inhibiting action of polyphenols and aromatic amines on the process of styrene polymerization

KOROTKINA, D. SH.

DOLGOPLOSK, B.A.; KOROTKINA, D.Sh.

Reactions of free radicals in solutions. Part 11: Quinone inhibiting action on the process of thermal polymerization of styrol. Zhur. ob. khim. 27 no.9:2546-2553 S '57. (MIRA 11:3)
(Quinone) (Styrol) (Polymerization)

AUTHORS: Apukhtina, N. P. and Korotkina, D. Sh. SOV/65-58-6-8/13

TITLE: The Characteristics of the Surface-Active Properties of Sodium Salts of Petroleum Sulphonic Acids. (Kharakteristika poverkhnostno-aktivnykh svoystv natriyevykh soley neftyanykh sul'fokislot).

PERIODICAL: Khimiya i Tekhnologiya Topliv i Masel, 1958, Nr.6. pp. 41 - 45. (USSR).

ABSTRACT: The sodium salts of the above acids are widely used as emulsifiers, detergents, and wetting agents. The surface-active tension of salts of sulphonic acids was investigated; results of tests on the investigated fractions are given in a table. The surface-active tension of aqueous solutions of the emulsifying agent were determined on the Dyu-Nui apparatus at 20° - 22°C with the aid of a lamp potentiometer LP-5 with a glass electrode (Fig.1). The sulphur salts of petroleum contact acids have a lower critical concentration of micelle formation than the sulphur salts of gas-oil contact acids. The pH of the solution of the emulsifier influences, to a certain extent, the surface-active tension. A small increase can be observed on adding alkali (Fig.2). The potassium salts of sulphonic acids, diluted in water, also show surface-

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The Characteristics of the Surface-Active Properties of Sodium Salts of Petroleum Sulphonic Acids.

active properties (Fig.3). The surface-active properties of the solutions decrease considerably in the presence of hydrocarbons (Fig.4). Further tests were carried out on the variation of the pH in relation to the concentration of the solution of the emulsifier (Fig.5). The variation of the pH of solutions of colloidal electrolytes dependent on the concentration as well as the change in the physical properties, point to a complex structural change which is linked with an alteration in the dimension and form of the micelles (Ref.6). Investigations by N. Sata (Ref.7) are discussed. Solutions of high-molecular fractions show a higher degree of surface-activity than solutions of low-molecular fractions. The authors also conclude that a marked change of the pH occurs when electrolytes are added. Intermittent changes of the pH, depending on the concentration of the colloidal electrolytes are connected with the critical concentration of the micelle formation. There are 5 Figures and 1 Table and 9 References: 4 Soviet, 1 German, 3 English and 1 Japanese.

ASSOCIATION: VNII SK

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11.2217

AUTHORS: Korotkina, D. Sh., Riskina, R. P.

TITLE: Vulcanization of acrylic rubber

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 3, no. 12, 1961, 1833-1838

TEXT: The vulcanization mechanism of the copolymer of butylacrylate with acrylonitrile (88 : 12% by weight) was studied in the presence of sulfur and polyamines. To investigate the reaction of the acrylic copolymer with polyamines, a 6% solution of the copolymer in ethyl benzene was heated for a long time with polyamines at 150°C. It was observed that 40 - 50% of polyamines enter the vulcanization network. When vulcanization was conducted by polyamines and sulfur (weight ratio 4 : 1), again approximately the same amount of polyamines was left in the vulcanizate. To observe the formation of cross links by polyamines, the number of cross-link nodes was determined by swelling the vulcanizates in anhydrous acetone. It was found that cross linking increased with increasing addition of polyamines. Hence, it can be assumed that polyamines react directly with the polymer chain, and

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Vulcanization of acrylic rubber

enter the vulcanizate. Though sulfur alone does not react with the acrylic copolymer, it accelerates vulcanization in the presence of polyamines. Experiments with S^{35} showed that in vulcanization by sulfur and polyamines, sulfur exists in the vulcanizate either in bound or in free state. The latter may be leached out by boiling with a Na_2SO_3 solution. Since the content of total sulfur (21.7%) and bound sulfur (17.41%) remains constant after a certain period, the formation of a stable structure of vulcanization may be assumed. The amount of total sulfur and bound sulfur in the vulcanizate increases with increasing amount of polyamines (Fig. 3). The optimum weight ratio of polyamines to sulfur, applicable in practice, is 4 : 1. Higher amounts of polyamines lead to an increased number of cross links and, thus, to a deterioration in the elastic properties of the vulcanizate. The acrylic copolymer did not react with a reaction product of sulfur and polyamines. The authors also investigated other systems for the vulcanization of the acrylic copolymer. Radioactively labeled sulfur and different reducing agents (diethyl amine; ethylene diamine; hexamethylene diamine; ethanol amine; phenyl hydrazine, hydrazo benzene; hydroquinone; benzoin) in amounts of 1 mole per 1 g-atom of sulfur were

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Vulcanization of acrylic rubber

used as vulcanizing agents. The course of the vulcanization [illegible] was determined on the basis of the amount of residual sulfur in the vulcanizate. Sufficiently large amounts of bound sulfur only remain in the vulcanizate in the case of vulcanization by hexamethylene diamine, hydroquinone and benzoin, (16.5, 17.6, and 7.9%, respectively). In the presence of iron naphthenate (0.5 moles per 1 g-atom of sulfur), the total amount of sulfur increases in the vulcanizate (66.1%), obviously as a result of a more complete reaction of sulfur with polyamines. The amount of bound sulfur (24.6%) is not much affected by the presence of iron naphthenate. There are 3 figures, 6 tables, and 11 references: 1 Soviet and 10 non-Soviet. The four most recent references to English-language publications read as follows: W. J. Müller, R. A. Clark, Industr. and Engng. Chem., 48, 982, 1956; S. Moore, W. H. Stein, J. Biol. Chem., 212, 893, 1955; J. E. Hansen, W. E. Palm, Rubber Age, 75, 670, 1954; S. Moore, W. H. Stein, J. Biol. Chem., 211, 907, 1954.

ASSOCIATION: Nauchno-issledovatel'skiy institut sinteticheskogo kauchuka (Scientific Research Institute of Synthetic Rubber)

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Vulcanization of acrylic rubber

SUBMITTED: January 14, 1961

Fig. 3. Variation of total amount of sulfur (α) and bound sulfur (β) dependent on the weight ratio S: polyamines.
Legend: Ordinate: sulfur content in the vulcanizate, %; abscissa: time, ...
(1) 1:1.25; (2) 1:2; (3) 1:4; (4) 1:6.

Card 4/4

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A051/A126

15.9209
11.2219

AUTHORS: Korotkina, D.Sh.; Vinogradova, V.V.; Karelina, G.G.

TITLE: Copolymerization of unsaturated phosphor-organic compounds

PERIODICAL: Kauchuk i rezina, no. 4, 1962, 1 - 3

TEXT: The effect of the phosphorous atom on polymer properties was investigated and a comparison was made of the sodium-butadiene and acryl rubber properties with those of similar polymers containing phosphorous in the side chain. The ethers of allyl-, butadiene-, isoprene-styrene-phosphene acids were used as the phosphorous-containing monomers in the experiments. The ФЭК- М (FEK-M) photocolorimeter was used to determine the phosphorous content in the initial products and polymers. The introduction of the phosphorous atom into the polymer chain of the sodium-butadiene rubber was found, in most cases, to improve considerably the physico-mechanical properties of the vulcanizates at low temperatures, as compared to the sodium-butadiene rubber produced by the emulsion method. The properties of the acryl polymer were considerably improved at low temperatures upon introducing 1% of phosphorous into the polymer. The following conclusions could be drawn: the ethers of the unsaturated phosphene acids copolymer-

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15.9120

AUTHORS: Korotkina, D. Sh., Riskina, R. P.

TITLE: The problem of the vulcanization mechanism of acryl rubber

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 4, no. 1, 1962, 3-8

TEXT: The reaction mechanism of vulcanization of acryl copolymers by polyamines and sulfur was clarified by experiment. It was found that 1) sulfur alone does not cause vulcanization of the copolymer of butyl acrylate with acrylonitrile in an N_2 atmosphere at 150°C. Vulcanization can, however, be conducted with polyamines alone or with polyamines + sulfur, S accelerating the reaction. 2) The radioactivity of films of acrylonitrile + ethyl acrylate labeled with C^{14} in the ester group did not change after vulcanization with polyamines and S (4 hrs at 150°C). Consequently, no alcohol formation, i. e., no Claisen condensation takes place. The vulcanizate was insoluble in organic solvents. 3) No amide bonds were detected by infrared spectroscopy in the final product of the reaction of butyl isobutyrate with polyamines (10 hrs at 150°C). 4) Polybutyl acrylate, which cannot be vulcanized with polyamines alone, forms a regular vulcanization network on addi-

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The problem of the vulcanization...

tion of acrylonitrile. The number of cross links rises with increasing content of acrylonitrile ($2.98 \cdot 10^{19}$ cross links at 30% acrylonitrile). 5) The viscosity of solutions of rubber from the copolymer of butyl acrylate + acrylonitrile does not change if vulcanization with polyamines is carried out in an NO atmosphere instead of in N_2. This indicates that the reaction between nitrile groups and polyamines has a molecular nature. 6) A 5% solution of the copolymer could be vulcanized after adding 2% polyamine and 0.5% S. Gel formation occurred in an N_2 atmosphere but not in NO. Consequently, radical processes occur in the presence of S. 7) The rising content of acrylonitrile in the copolymer with butyl acrylate does not influence the amount of bound sulfur (approximately 20% of initial S). The copolymer is a genuine insoluble vulcanizate, whereas polybutyl acrylate does not form a network at equal sulfur content and remains soluble. 8) Polyacrylonitrile or polybutyl methacrylate vulcanized with S contains less bound sulfur (5 - 6% and 8.6%, respectively), and polyisobutylene only 5.5%. Conclusions: a) Vulcanization of the copolymer of butyl acrylate and acrylonitrile with polyamines takes place by addition of polyamines to the nitrile group; b) a complex radical process with the participation of $HS^{\cdot}$ radicals takes place in the presence of S and leads to the formation of sulfide and polysulfide

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S/190/62/004/001/002/020
B101/B110

AUTHORS: Korotkina, D. Sh., Riskina, R. P.

TITLE: Aging of acryl rubber

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 4, no. 1, 1962, 9 - 12

TEXT: The structural changes occurring in the aging of acryl rubber were studied by determining the number of cross links and the content of total sulfur. Acryl rubber, (0.5% S, 0.5 - 3% polyamines), vulcanized at 143°C, was heated at 200°C for five days. It was found that (1) heating in an N_2 atmosphere did not change the number of cross links; (2) the number of cross links rose when acryl rubber was heated in air. The increase of the number of cross links was greater at a high content of polyamines: at 1% polyamine the number of cross links was $0.33 \cdot 10^{19}$ before, and $6.30 \cdot 10^{19}$ after heating; at 3% polyamine it was $4.15 \cdot 10^{19}$ before, and $32.30 \cdot 10^{19}$ after heating. Polyamines accelerate catalytically the oxidation process. (3) The total content of S is hardly changed by heating, and the content of bound S decreases. It is assumed that polysulfide bonds are converted into

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Aging of acryl rubber

more stable di- or monosulfide bonds. An addition of 0.5 g-mole of iron naphthenate per g-atom of S reduces the content of total sulfur. (4) The number of cross links decreases with rising sulfur content and constant content (2%) of polyamines: at 0.5% S, it is $0.25 \cdot 10^{19}$ before, and $2.62 \cdot 10^{19}$ after heating; at 2.0% S, it is $0.40 \cdot 10^{19}$ before, and $1.78 \cdot 10^{19}$ after heating. Sulfur therefore acts as a vulcanizer and prevents oxidative aging processes. (5) Vulcanizates labeled with C^{14} in the ester group showed a decrease in activity by 5% after 20 days' heating at 175°C. This value surpasses the experimental error (1%). The loss of activity is attributed either to the formation of active alcohol due to Claisen condensation or to the formation of amide bonds. Non-vulcanized copolymer loses its activity more quickly than a vulcanized one. Consequently, the vulcanization network complicates the condensation process. A. S. Kuz'minskiy and A. L. Klebanskiy are mentioned. There are 2 figures, 3 tables, and 7 references: 6 Soviet and 1 non-Soviet. The reference to the English-language publication reads as follows: P. J. Flory, J. Rehner, J. Chem. Phys., 11, 512, 1943.

KOROTKINA, D.Sh.; RISKINA, R.P.

Vulcanization of acrylic rubber. Vysokom.soed. 3 no.12:1833-1838 D '61. (MIRA 15:3)

1. Nauchno-issledovatel'skiy institut sinteticheskogo kauchuka. (Rubber, Synthetic) (Vulcanization)

KOROTKINA, D.Sh.; VINOGRADOVA, V.V.; KARELINA, G.G.

Copolymerization of unsaturated organophosphorus compounds.
Kauch.i rez. 21 no.4:1-3 Ap '62. (MIRA 15:4)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut sinteticheskogo kauchuka.
(Phosphorus organic compounds) (Polymerization)

DAKHYNOV, N.N.; KOROTKINA, I.I.

Synthesis of gamma-dimethylamino-propyl-chloride. Med.prom. 11 no.4:26-28 Ap '57. (MLRA 10:6)

1. Moskovskiy khimiko-farmatsevticheskiy zavod "Akrikhin".
(PROPANE)

DYKHANOV, N.N., KOROTKINA, I.I.

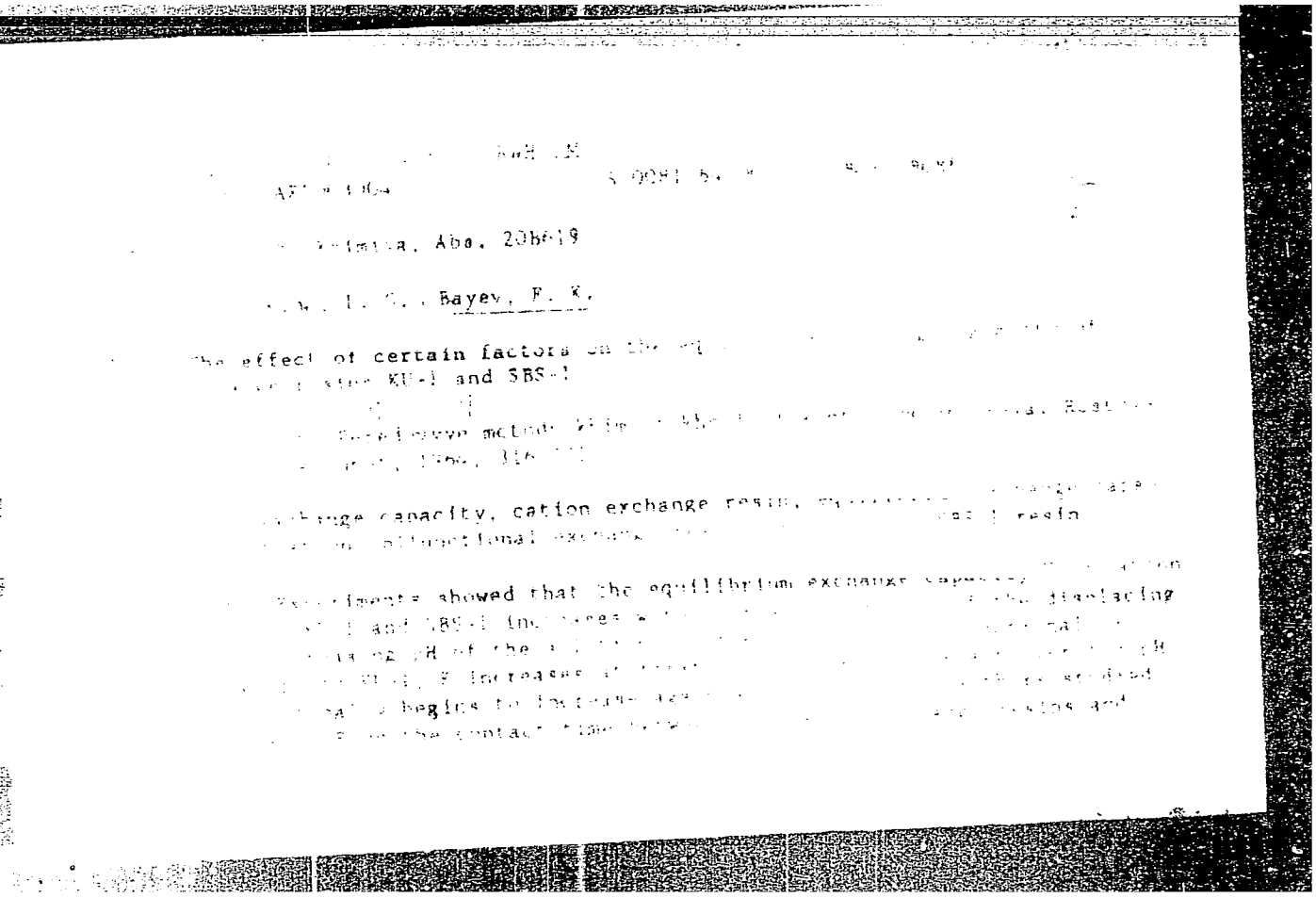
Synthesis of gamma-dimethylaminopropylchloride. Med.prom. 12 no.10:40 O '58 (MIRA 11:11)

1. Moskovskiy khimiko-farmatsevticheskiy zavod "Akrikhin."
(PROPANE)

DYKHANOV, N.N.; KOROTKINA, I.I.

Synthesis of a-diethylaminopropiophenone hydrochloride.
Med. prom. 15 no.6:22-23 Je '61. (MIRA 15:3)

1. Khimiko-farmatsevticheskiy zavod "Akrikhin".
(PROPIOPHENONE)



Bayev, F. K.

effect of certain factors

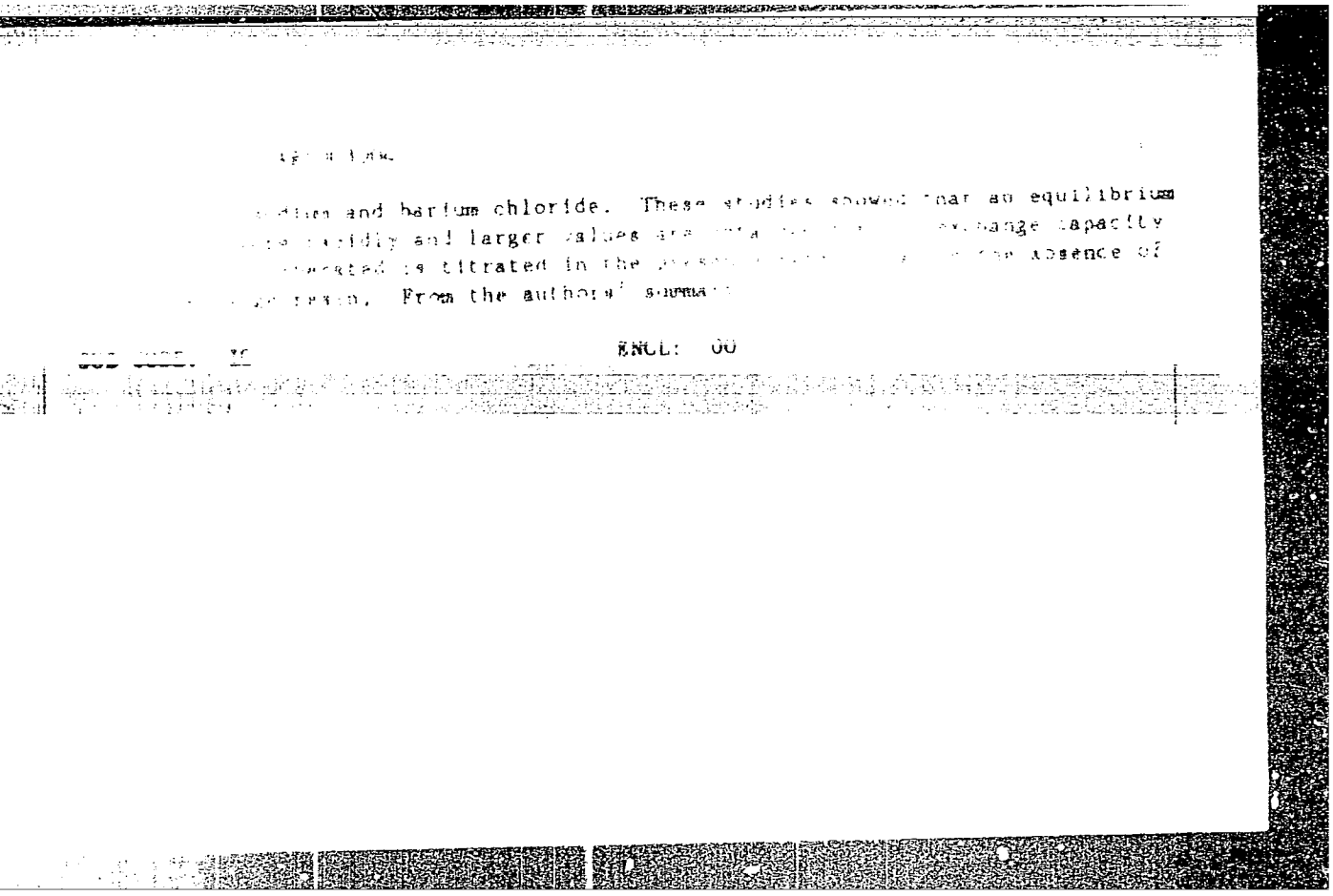
and SBS-1

exchange capacity, cation exchange resin,

resin

showed that the equilibrium exchange

and SBS-1



...ation and barium chloride. These studies showed that an equilibrium ... rapidly and larger values are ... exchange capacity ... titrated in the ... the absence of ... From the author's summa...

ENCL: 00

KOROTKINA, L.G.; BAYEV, F.K.

Determination of the exchange capacity of sulfonated cationites using acetates. Zhur. anal khim. 19 no.6:664-667 '64.
(MIRA 18:3)

1. Rostovskiy-na-Donu gosudarstvennyy universitet.

KOROTKINA, M.R.

Some analysis of Maxwell-Boltzmann's kinetic equation, and the possible formulation of the problem, taking rebounds from the boundaries into account. Vest.Mosk.un.Ser.1: Mat., mekh. 16 no.4:58-70 Jl-Ag '61. (MIRA 14:8)

1. Kafedra teorii uprugosti Moskovskogo universiteta.
(Integrodifferential equations) (Mechanics, Analytic)

29404
S/055/61/000/006/006/006
D251/D305

24.4100

AUTHOR: Korotkina, M.R.

TITLE: A possible statement of the problem of motion of a great number of mutually-acting particles under the influence of an arbitrary external field

PERIODICAL: Moscow. Universitet. Vestnik, Seriya I, Matematika, Mekhanika, no. 6, 1961, 59 - 61

TEXT: The author considers a classical mechanical system consisting of a large number of identical mutually-acting particles, the dynamic state of each being completely described by position $\bar{q}$ and impulse $\bar{p}$. As usual, the complete Hamilton function of the system is taken to be the sum of the individual energies of the molecules and the mutual potentials of pairs of molecules,

$$H = \sum_{\substack{1\le l\le N \\ 1\le \alpha\le 3}} \frac{(p_l^{\alpha})^2}{m} + \sum_{(1\le l<j\le N)} \Phi(|\bar{q}_l - \bar{q}_j|), \qquad (1)$$

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where N is the number of particles, and m the mass of each particle. The phase coordinates of the particle (q, p) will be denoted by x. Making use of the results of J.V. Gibbs (Ref. 2: Osnovnyye printsipi statisticheskoy mekhaniki (Basic Principles of Statistical Mechanics) Gostekhizdat, M-L. 1946), the probability distribution function of the dynamic state $f_s(t, x_1, \ldots, x_n)$ is obtained in the form

$$\frac{\partial f_s}{\partial t} + \sum_{\substack{1 \le i \le s \\ 1 \le \alpha \le 3}} \frac{\partial f_s}{\partial q_i^\alpha} p_i^\alpha - V^s \sum_{\substack{1 \le i \le s \\ 1 \le \alpha \le 3}} \int \frac{\partial f_N}{\partial p_i^\alpha} \frac{\partial H}{\partial q_i^\alpha} dx_{s+1} \ldots dx_N = 0. \qquad (3)$$

By taking N sufficiently large and introduc-ing the law of the external field $F(t, q)$, there is obtained

$$\frac{\partial f_s}{\partial t} + \sum_{\substack{1 \le i \le s \\ 1 \le \alpha \le 3}} \frac{\partial f_s}{\partial q_i^\alpha} p_i^\alpha +$$

$$+ \sum_{\substack{1 \le i \le s \\ 1 \le \alpha \le 3}} \frac{\partial f_s}{\partial p_i^\alpha} \left\{ F_\alpha(t, \bar{q}_i) + \frac{1}{vP_1(t, \bar{q}_i)} \int \frac{\partial \Phi(|\bar{q}_i - \bar{\xi}|)}{\partial q_i^\alpha} P_2(t, q_i, \xi) d\xi \right\} = 0.$$

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A possible statement of the ...

where v = V/N, V = the containing volume. Thus, for a sufficiently large number of particles, the dynamic equations are considerably simplified. In conclusion the author thanks A.A. Il'yushin for his help. There are 3 Soviet-bloc references.

ASSOCIATION: Kafedra teorii uprugosti (Department of the Theory of Elasticity)

SUBMITTED: January 24, 1961

Card 3/3

21349
S/040/61/025/006/017/021
D299/D304

24.4100

AUTHOR: Korotkina, M.R. (Moscow)

TITLE: Possible definitions of the concepts stress and strain in a system of interacting particles

PERIODICAL: Prikladnaya matematika i mekhanika, v. 25, no. 6, 1961, 1128 - 1131

TEXT: A many-particle system is considered. It is assumed that the interaction force between two particles can be expressed by a pair-interaction potential. Denoting by F the force acting on each particle in volume V, by $f_\nu(t, x)$ - the surface forces, by $f_\nu(t, x)$ $A_\nu(t, x)$ - the mean stress, (A_ν being the surface density of particles), one obtains the equations of motion in the form

$$\int_V F(t, x) P(t, x)\, dx = \int_\Sigma f_\nu(t, x) A_\nu(t, x)\, ds \qquad (dx = dx_1 dx_2 dx_3) \qquad (1)$$

Transforming the volume integral (1) into a surface integral, one arrives at the following definition for the mean stress at the point x

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Possible definitions of the ...

$$f_v(t, x)\, A_v(t, x) = \int_0^R dh \int_{R_1}^R r^3 \operatorname{grad} Q(r)\, dr \int_0^\theta \sin\theta\, d\theta \times \tag{4}$$
$$\times \int_0^{2\pi} p\,[t, x_1 - hl_1, x_2 - hl_2, x_3 - hl_3; (r, \theta, \varphi)]\, d\varphi$$

where Q denotes the potential. Further, the surface density is defined, thus completing the definition of mean stress. Comparing the above definition (4) with Cauchy's definition of mean stress, only a difference in the variation of one coordinate is noted. In Cauchy's works, the existence of an elastic potential is indicated. The author attempts to obtain the elastic potential by the following argument. Two fictitious particles z_1 and z_2 are considered, as well as fictitious displacements. One obtains for the mean stress at the point x, at the moment t, the equation

$$\sigma_v(t, x) = \sigma_{v_0}(x) + \int \Phi'(r)\, \delta r b^\circ\, p(x, \xi)\, d\xi\, dr_1 + \int \Phi(r)\, p(x, \xi)\, \delta b^\circ\, d\xi\, dr_1 \tag{7}$$

Introducing the finite-strain tensor e_{ij}, one obtains

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Possible definitions of the ...

$$\delta r = r \sum_{i,j=1}^{3} \alpha_i \alpha_j e_{ij}(t, x), \quad e(t, x) = \sum_{i,j=1}^{3} \alpha_i \alpha_j e_{ij}(t, x) \tag{8}$$

$$\delta\alpha_i = \sum_{j=1}^{3} \alpha_j \frac{\partial u_i(t, x)}{\partial x_j} - \alpha_i e(t, x) - e(t, x) \sum_{j=1}^{3} \alpha_j \frac{\partial u_i(t, x)}{\partial x_j} + \frac{r^2}{4} \sum_{j,k=1}^{3} \frac{\partial^2 u_i(t, x)}{\partial x_j \partial x_k} \alpha_j \alpha_k \quad (8)$$

where u_i are the components of the vector of fictitious displacements. With small strains, Eq. (8) become simpler. Finally, an expression is derived which is analogous to that for the elastic potential. This expression is not valid, however, for arbitrary conditions and requires further study. There are 3 figures and 4 references: 2 Soviet-bloc and 2 non-Soviet-bloc (works by Cauchy).

SUBMITTED: June 1, 1961

Card 3/3

KOROTKINA, M.R.

Determining the conditions a force field must satisfy in order to produce a solid. Vest. Mosk. un. Ser. 1: Mat.,mekh. 17 no.4:51-57 Jl-Ag '62. (MIRA 15:7)

1. Kafedra teorii uprugosti Moskovskogo universiteta.
(Matter--Constitution) (Force and energy)

KOROTKINA, M. R.

Dissertation defended at the Institute of Mechanics for the academic degree of Candidate of Physicomathematical Sciences:

"Several Applications of Statistical Mechanics Mehtod in the Theory of Elasticity."

Vestnik Akad Nauk, No. 4, 1963, pp. 119-145

KOROTKINA, M.R.

Simplification of a system of kinetic equations. Vest. Mosk. un. Ser. 1: Mat., mekh. 18 no.2:46-52 Mr-Ap '63. (MIRA 16:6)

1. Kafedra teorii uprugosti Moskovskogo universiteta.
(Differential equations) (Statistical mechanics)

L 13003-63 EWT(m)/BDS AFFTC/ASD

ACCESSION NR: AP3001037 S/0055/63/000/003/0050/0056

51

AUTHOR: Korotkina, M. R.

TITLE: A sufficient condition for averaging the force field in the problem of motion of a large number of interacting particles 19

SOURCE: Moscow. Universitet. Vestnik. Seriya I. Matematika, Mekhanika, no. 3, 1963, 50-56

TOPIC TAGS: force field, ergodic property, impenetrability, interaction of particles

ABSTRACT: The author suggests one of the physical states of a large number of interacting particles which makes it possible to apply the method of averaging the force field. This physical state is defined by the condition that the particles must not be mutually penetrable. In particular, in the case of bounded potential pair interaction, the given sufficient condition for interchangeability of the force field with its mean value is always satisfied. Orig. art. has: 18 formulas and 3 figures.

ASSOCIATION: Moskovskiy universitet, kafedra teorii uprugosti (Moscow University, Dept. of Theory of Elasticity)

Card 1/2/

KOROTKINA, M.R.

Models of fluid media and solid bodies derived from a kinetic equation for an averaged field of forces. Vest. Mosk. un. Ser. 1: Mat., mekh. 19 no.3:39-50 My-Je '64. (MIRA 17:6)

1. Kafedra teorii uprugosti Moskovskogo universiteta.

KOROTKINA, M.R.

General investigations of the kinetic equation of an average force field. Vest. Mosk. un. Ser. 1: Mat., mekh. 19 no.5:49-54 S-O '64. (MIRA 17:12)

1. Kafedra teorii uprugosti Moskovskogo universiteta.

L 20977-65 EWT(d) IJP(c)

ACCESSION NR: AP5000444 S/0055/64/000/006/0085/0089

AUTHOR: Korotkina, M. R.

TITLE: Investigation of the general Gibbs equation

SOURCE: Moscow. Universitet. Vestnik. Seriya I. Matematika, mekhanika, 19 No. 6, 1964, 85-89

TOPIC TAGS: Gibbs equation, Boltzmann method, mechanics, macroscopic variable

ABSTRACT: The author uses the Boltzmann method to investigate the general Gibbs equation, usually called the Liouville equation:

$$\frac{\partial f_n}{\partial t} - \sum_{i,\alpha} \frac{\partial f_n}{\partial q_i^\alpha} p_i^\alpha + \sum_{i,\alpha} \frac{\partial f_n}{\partial p_i^\alpha} F_i^\alpha(t, \bar{q}_1, \ldots, \bar{q}_n) = 0, \qquad f_n = f_n(t, \bar{q}_1, \ldots, \bar{q}_n, \bar{p}_1, \ldots, \bar{p}_n),$$

where $i = 1, 2, \ldots, n$, $\alpha = 1, 2, 3$. Equations for transport of n-dimensional macroscopic quantities (density, pressure, stress, heat, etc.) are derived. Orig. art. has: 10 equations.

Card 1/2

KOROTKINA, M.R.

Conditions for the existence of kinetic equations. Part 1: Vlasov's kinetic equation. Vest.Mosk.un.Ser.1: Mat., mekh. 20 no.6:45-52 N-D '65. (MIRA 18:12)

1. Kafedra teorii uprugosti Moskovskogo universiteta. Submitted Dec. 24, 1964.

L 24709-66 EWT(d)/EWP(w)/T-2/ETC(m)-6 IJP(c) WW/EM

ACC NR: AP6010642 SOURCE CODE: UR/0055/65/000/006/0045/0052

AUTHOR: Korotkina, M. R.

ORG: Moscow State University, Department of the Theory of Elasticity (Moskovskiy gosudarstvennyy universitet, Kafedra teorii uprugosti)

TITLE: Conditions for the existence of kinetic equations. 1. Vlasov kinetic equation

SOURCE: Moscow. Universitet. Vestnik. Seriya I. Matematika, mekhanika, no. 6, 1965, 45-52

TOPIC TAGS: kinetic theory, statistic mechanics, existence theorem, kinetic equation

ABSTRACT: An attempt is made to derive the Vlasov equation rigorously from the Liouville equation. The following mechanical system is considered

$$\frac{d\bar{q}_l}{dt} = \bar{p}_l; \quad \frac{d\bar{p}_l}{dt} = \bar{F}_l(t, \bar{q}_1, \ldots, \bar{q}_N) + \bar{\varphi}(t, \bar{q}_l), \quad l = 1, 2, \ldots, N,$$

where F_i is the force due to all other particles acting on particle-i. In the statistical system of Vlasov,

$$\bar{F}_1(t, \bar{q}_1) = \bar{F}^{(\text{в.п.})}(t, \bar{q}_1) = -\lambda \int \operatorname{grad}_{\bar{q}_1} K(|\bar{q}_1 - \bar{q}|)\, \rho(t, \bar{q})\, d\bar{q}.$$

Card 1/2 UDC: 53:51

L 24709-66

ACC NR: AP6010642

An analogous situation holds for the generalized statistical system of Vlasov with the kinetic equation

$$\frac{\partial f_1}{\partial t}+\frac{\partial f_1}{\partial \bar{q}_1}\bar{p}_1+\frac{\partial f_1}{\partial \bar{p}_1}(\bar{\varphi}_1+\bar{F}_2^{(\infty)})=0$$

obtained directly from the BBGKY hierarchy. It is shown that if the potential energy of the above mechanical system is additive and

$$K(|\bar{q}_1-\bar{q}|)=\Phi(|\bar{q}_1-\bar{q}|),$$

the Vlasov equation is either identically satisfied for

$$f_2(t, \bar{x}_1, \bar{x}_2)=\chi(t, |\bar{q}_1-\bar{q}_2|, q_1^\alpha-q_2^\alpha; |\bar{p}_1-\bar{p}_2|, p_1^\alpha-p_2^\alpha);$$

or the unique solution of the Vlasov equation appears as

$$\frac{1}{V}f_1(t, \bar{q}, \bar{p})=\frac{1}{N-1}\sum_{j=1}^{N}\delta(\bar{q}-\bar{q}_j)\,\delta(\bar{p}-\bar{p}_j)$$

and thus cannot be obtained rigorously from the BBGKY hierarchy. Orig. art. has: 24 equations.

SUB CODE: 20/ SUBM DATE: 24Dec64/ ORIG REF: 002/ OTH REF: 002

Card 2/2

EWT(d)/EWT(m)/EWP(w) IJP(c) EM

ACC NR: AP6032172 SOURCE CODE: UR/0055/66/000/005/0066/0074

AUTHOR: Korotkina, M. R.

ORG: Department of Elasticity Theory, Moscow State University (Kafedra teorii uprugosti, Moskovskiy gosudarstvennyy universitet)

TITLE: Determining macroscopic quantities on the basis of different kinetic equations. II.

SOURCE: Moscow. Universitet. Vestnik. Seriya I. Matematika, mekhanika, no. 5, 1966, 66-74.

TOPIC TAGS: fluid kinetics, kinetic equation, kinetic energy, statistical mechanics, transport equation

ABSTRACT: This article is a continuation of the author's previous paper concerning the determination of macroscopic quantities of a mechanical system consisting of a great number of interacting particles (Vestnik Moskovskogo Universiteta, Seriya Mathematika, Mekhanika, v. 2, 1966). Expressions are obtained for macroscopic quantities of the system, such as density, stress, heat flow, and internal energy. The corresponding transfer equations for these quantities are derived from Vlasov's generalized kinetic equations and from new kinetic equations by using Fisher's generalized convolution proposed previously by the author. It is shown that the heat flow in the given statistical system is composed of the following terms: kinetic energy transfer, potential energy transfer by one part of the system defined by the

Card 1/2

UDC: 531.1

nst

Card 2/2

ESKIN, V.Ye.; KOROTKINA, O.Z.

Light scattering and viscosity of solutions of poly-β-vinylnaphthalene in benzene. Vysokom.soed. 1 no.11:1580-1585 N '59. (MIRA 13:5)

1. Institut vysokomolekulyarnykh soyedineniy AN SSSR.
(Naphthalene)

ESKIN, V.Ye.; KOROTKINA, O.Z.

Light scattering and viscosity of poly-β-vinylnaphthalene solutions in an ideal solvent. Vysokom. soed. 2 no.2:272-278 F '60.
(MIRA 13:11)

1. Institut vysokomolekulyarnykh soyedineniy AN SSSR.
(Naphthalene)

ESKIN, V.Ye.; KOROTKINA, O.Z.

Light scattering and viscosity of poly-p-carbethoxyphenylmethacrylamide solutions in ethyl acetate. Vysokom.soed. 3 no.12:1805-1807 D '61. (MIRA 15:3)

1. Institut vysokomolekulyarnykh soyedineniy AN SSSR.
(Methacrylic acid)

ESKIN, V.Ye.; KOROTKINA, O.Z.

Light dispersion by the solutions of native, denaturated and destructured deoxyribonucleic acid. Biofizika 10 no.1:26-31 '65. (MIRA 18:5)

1. Institut vysokomolekulyarnykh soyedineniy AN SSSR, Leningrad.

ANUFRIYEVA, Ye.V.; VOLCHEK, B.Z.; ILLARIONOVA, N.G.; KALIKHEVICH, V.N.; KOROTKINA, O.Z.; MITIN, Yu.V.; PTITSYN, O.B.; PURKINA, A.V.; ESKIN, V.Ye.

Synthesis of poly-S-carbobenzoxymethyl-L-cysteine and the study of its structure. Biofizika 10 no.2:346-347 '65. (MIRA 18:7)

1. Institut vysokomolekulyarnykh soyedineniy AN SSSR, Leningrad.

ANUFRIYEVA, Ye.V.; BOLOTINA, I.A.; VOLCHEK, B.Z.; ILLARIONOVA, N.G.; KALIKHEVICH, V.I.; KOROTKINA, O.Z.; MITIN, Yu.V.; PTITSYN, O.B.; PURKINA, A.V.; [illegible], V.Ye.

Study of synthetic polypeptides. Report No.1. Transitions-intramolecular β-strucutre-coil in poly-S-carbobenzoxymethyl-L-cysteine. Biofizika 10 no.6:918-928 '65. (MIRA 19:1)

1. Institut vysokomolekulyarnykh soyedineniy AN SSSR, Leningrad. Submitted April 22, 1965.

L 10988-66 EWT(m)/EWP(1)/T/EWA(c) WW/RM

ACC NR: AP6000006 UR/0080/65/038/011/2533/2537

AUTHOR: Korotkina, O.Z.; Magdinets, V.V.; Savitskaya, M.N.; Eskin, V.Ye.

ORG: Institute for High Molecular Compounds AN SSSR (Institut vysokomolekulyarnykh soedineniy AN SSSR) Scientific Research Institute for Plant Pathology ASKhN UkrSSR (Nauchno-issledovatel'skiy institut fiziologii rasteniy ASKhN UkrSSR)

TITLE: Study of the properties of polyacrylamide by the method of light scattering

SOURCE: Zhurnal prikladnoy khimii, v.38, no.11, 1965, 2533-2537

TOPIC TAGS: nitrogen compound, light scattering, polymerization

ABSTRACT: The object of the work was to establish a relationship between the characteristic viscosity, η, and the molecular weight, M, for high molecular weight polyacrylamide using the method of light scattering for determination of the molecular weight. Polymerization of the acrylamide was carried out in an oxidation-reduction system in an aqueous medium in the presence of 0.5% potassium persulfate, 0.25% sodium hydrosulfate, and 0.14% triethanolamine, and in the presence of atmospheric oxygen. The polymerization temperature was 50° for the first two hours, and then 60° for eight hours. The polymer was obtained as an 8%

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UDC: 541.6 + 543.436

L 10988-66

ACC NR: AP6000006

aqueous solution. After dilution to 1%, the polyacrylamide was precipitated with acetone and dried in vacuum at 50°. The yield was 97%. The product was a white slightly hygroscopic powder readily soluble in water. Fractionation was done by solution in formamide, and 8 fractions were obtained. Measurement of the viscosity and the light scattering of the solutions was done at 20°. To avoid ionization, the measurements were made in a 10% aqueous solution of sodium chloride. Viscosity was measured with an Ostwald viscometer with a flow time of 110 seconds for the solvent. The light scattering was measured on a "Sofika" photoelectric turbidometer and the results were interpreted by the method of double extrapolation. The measurements were carried out in a range of angles from 30 to 150° and at polymer concentrations of 0.20-0.65 and 0.03-0.10% for the low and high molecular fractions, respectively. The results are exhibited in tabular form. A plot, on a log-log scale, shows the dependence of the characteristic viscosity on molecular weight. Results are said to agree closely with previous results obtained by determination of the molecular weight by cementation and diffusion. Orig art. has: 8 formulas, 2 figures, and 2 tables.

SUB CODE: 07/ SUBM DATE: 28 Nov 63/ ORIG REF: 005 OTH REF: 010

Card 2/2

KOROTKINA, R. N.

Occupational Diseases

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