SHEVLYAGINA, M.I.

Hormonal therapy of subacute and cronic liver diseases. Terap. arkh. 32 no. 6:38-47 Je '60. (MIRA 14:1)
(LIVER--CIRRHOSIS) (PREGNADIENETRIONE)

BELETSKAYA, I.P.; ARTAMKINA, G.A.; SHEVLYAGINA, Ye.A.; REUTOV, O.A.

Synthesis of some organomercury salts of the type $XC_6H_4CH(HgBr)CO_2C_2H_5$.
Zhur.ob.khim. 34 no.1:321-324 Ja '64. (MIRA 17:3)

SHEVLYAGINA, YE.

17

CA

Preserving properties of essential oils and synthetic odoriferous substances used in cosmetics. E. Shevlyagina and R. Rutkovskaya. *Maslobolno Zhirovoe Delo* 15, No. 4, 31-2(1939).—Comparative tests showed that the addns. of common natural and synthetic aromatic substances to cosmetic creams retard or inhibit the growth of molds. A complete inhibition of molding was effected on the addn. of these aromatic substances to beer wort infected with cultures of *Aspergillus glaucus* and *Penicillium glaucum*. Several tables are given, showing the comparative effectiveness of various essential oils and synthetic aromatics in the suppression of mold growths in emulsified creams and beer wort. Chas. Blanc

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

SHEVLYAGINA, Ye.

PROCESSES AND PROPERTIES INDEX

CA

27

Optimum conditions of drying toilet soap before stamping in the continuous process of production. E. Shevlyagina, I. Brusenskaya and G. Borodina. *Masloboino-Zhirovoe Delo* **15**, No. 6, 18-21(1939). The adhesion of cut soap to metal in the process of stamping can be reduced to a min. by drying the cakes 20 min. at 20° in an air current at the velocity of 5-5.5 m./sec. or by storing 2 hrs. at 25° (cf. Volarovich, *et al.*, *C. A.* **32**, 6826). With greater contents of fat acids in soap the adhesion decreases and the impression of the stamping design improves. Hot drying enhances the adhesion and friction of soap.

C. B.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

VILKINA, Y. V.

Proizvodstvo kosmetiki [Manufacture of cosmetics]. Moskva, Pishchepromizdat, 1952. 64 p.

SO: Monthly List of Russian Accessions, Vol. 6 No. 5, August 1953

SHEVLYAGINA, Ye.V.; GUSHCHINA, Ye.I.; BELOV, V.N.

Relation between the structure of organic compounds and their odor. Report No.7: Lactone of hydroxy-cis-dekalin-2-acetic acid. Trudy VNIISNDV, no.4:44-47 '58. (MIRA 12:5)
(Perfumes, Synthetic) (Acetic acid)

SHEVLYAGINA, Ye.V.; GUSHCHINA, Ye.I.; BELOV, V.N.

Relation between the structure of organic compounds and their odor. Report No.8: Synthesis of the lactone of 2-hydroxy-4-tertiary-butyl-cyclohexyl)-acetic acid. Trudy VNIISNDV no.4:47-50 '58. (MIRA 12:5)
(Perfumes, Synthetic) (Acetic Acid)

SHEVLYAGINA, Ye.V.; BELOV, V.N.

Condensation of 2, 3-diketo-cis-dekalin and bromacetic by the S.Reformatskii method. Trudy VNIISNDV no.4:58-60 '58. (MIRA 12:5)

(Naphthaleneacetic acid)

SHEVLYAGINA, Ye.V.; VOYTSEKHOVSKAYA, A.L.; PASHININA, Ye.I.

Stabilization of stone-fruit oils during storage. Trudy VNIISNDV no.4:119-125 '58. (MIRA 12:5)
(Oils and fats--Storage)
(Antioxidants)

VOLKOVA, T.N.; SHEVLYAGINA, Ye.V.

Studying the effect of the composition of a mixture of high molecular weight alcohols, obtained by different technological procedures, on the quality of the emulsifying agent for cosmetic emulsions. Trudy VNIISNDV no.4:197-199 '58. (MIRA 12:5)

(Emulsifying agents) (Alcohols) (Cosmetics)

VOLKOVA, T.N.; SHEVLYAGINA, Ye.V., kand.khim.nauk

Determining the particle distribution of the constituents of face powders. Masl.-zhir.prom. 25 no.10:29-33 '59. (MIRA 13:2)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut sinteticheskikh i natural'nykh dushistykh veshchestv.
(Cosmetics)

VOL'FENZON, I.I., inzh.; SHEVLYAGINA, Ye.V., kand.khim.nauk; SHUR, S.I., kand.khim.nauk

Studying physicochemical properties of cosmetic creams. Masl.-zhir.prom. 25 no.12:21-25 '59. (MIRA 13:4)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut sinteticheskikh i natural'nykh dushistykh veshchestv (for Vol'fenzon, Shevlyagina).
2. TSentral'naya nauchno-issledovatel'skaya laboratoriya zhirovoy promyshlennosti Mosgorsovnarkhoza (for Shur).

(Cosmetics)

VOLKOVA, T.N.; SHEVLYAGINA, Ye.V.; YAKOVLEVA, G.S.; DUCHINSKAYA, Yu.I.

Preparation of KO emulsifier and emulsifying waxes for cosmetic articles. Trudy VNIISNDV no.5:122-124 '61. (MIRA 14:10)
(Cosmetics) (Emulsifying agents)

VOLKOVA, T.N.; SHEVLYAGINA, Ye.V.

Preparation of a pentaerythrite and oleic acid ester (pentol) as a new emulsifier for cosmetic creams. Trudy VNIISNDV no.5: 120-122 '61. (MIRA 14:10)
(Cosmetics) (Pentaerythritol) (Oleic acid)

VOYTSEKHOVSKAYA, A.L.; SHEVLYAGINA, Ye.V.; GUSHCHINA, Ye.I.

Preparation of linoleic and linolenic acid esters (vitamin F). Report No.1. Preparation of vitamin F. Trudy VNIISNDV no.5: 124-128 '61. (MIRA 14:10)

(Linoleic acid) (Linolenic acid) (Cosmetics)

VOYTSEKHOVSKAYA, A.L.; SHEVLYAGINA, Ye.V.

Preparation of linoleic and linolenic acid esters (vitamin F). Report No.2. Stabilization of vitamin F. Trudy VNIISNDV no.5: 128-134 '61. (MIRA 14:10)
(Linoleic acid) (Linolenic acid) (Cosmetics)

VOYTSEKHOVSKAYA, A.L.; SHEVLYAGINA, Ye.V.; GUSHCHINA, Ye.I.

Preparation of cetiolan, a new kind of cosmetic material. (MIRA 14:10)
Trudy VNIISNDV no.5:134-135 '61.
(Cosmetics) (Acids, Fatty)

DRABKINA, Ye.I.; VOL'FENZON, I.I.; SHEVLYAGINA, Ye.V.

Amino acids in the cosmetic industry. Trudy VNIISNDV no.5: 135-137 '61. (MIRA 14:10)

(Amino acids) (Cosmetics)

VOLKOVA, T.N.; SHEVLYAGINA, Ye.V.

Fine grinding of powder and its components. Report No.1: Grinding in a vibration mill. Trudy VNIISNDV no.5:137-150 '61. (MIRA 14:10)

(Grinding machines) (Cosmetics)

VOLKOVA, T.N.; SHEVLYAGINA, Ye.V.

Fine grinding of powder and its components. Report No.2: Grinding in a jet mill. Trudy VNIISNDV no.5:151-160 '61. (MIRA 14:10)

(Grinding machines) (Cosmetics)

PASHININA, Ye.I.; SHEVLYAGINA, Ye.V.; RUTKOVSKAYA, R.A.

Efficient methods for preparing emulsifying creams. Report No.1: Meleshin's device for cooling emulsifying creams of the water-oil type. Trudy VNIISNDV no.5:161-165 '61. (MIRA 14:10)
(Cosmetics) (Emulsifying agents)

VOL'FENZON, I.I.; SHUR, S.I.; SHEVLYAGINA, Ye.V.

Effect of certain factors on the structural strength of emulsifying creams. Trudy VNIISNDV no.5:165-170 '61. (MIRA 14:10)
(Cosmetics) (Emulsifying agents)

VOLKOVA, T.N.; SHEVLYAGINA, Ye.V.; YANKOVSKAYA, S.A.; SHAPIRO, Ye.S.; KLIMANOVA, N.A.

Study of the process of esterification in the production of "pentol." Trudy VNIISNDV no.6:167-169 '63. (MIRA 17:4)

PASHININA, Ye.I.; SHEVLYAGINA, Ye.V.; RUTKOVSKAYA, R.A.

Use of the Khotuntsev-Pushkin colloid mill in the production of toothpastes. Trudy VNIISNDV no.6:173-179 '63. (MIRA 17:4)

SHEVLYAKOV, A.A., pomoshchnik mastera

For the adoption of high-speed machinery. Tekst.prom. 21 no.11: 61-62 N '61. (MIRA 14:11)

1. Tkatskaya fabrika Tashkentskogo tekstil'nogo kombinata imeni Stalina.

(Looms)

SEL'KOV, Ye. A.; YAKOVLEV, V. S.; SHEVLYAKOV, A. F.

Penicillin therapy of gonorrhea. Vest. vener., Moskva no.5:33-35 Sept-Oct 1951. (CIML 21:1)

1. Senior Scientific Associate Sel'kov, Lt-Col Medical Corps, Yakovlev, Col, Medical Corps; Shevlyakov, Major, Medical Corps.

SHEVLYAKOV, A. S.

USSR/Chemistry of High-Molecular Substances, F

Abst Journal: Referat Zhur - Khimiya, No 1, 1957, 1148

Author: Minsker, K. S., Shevlyakov, A. S., and Razuvayev, G. A.

Institution: None

Title: The Part Played by Oxygen in the Initial Stage of the Polymerization of Vinyl Chloride

Original Periodical: Zh. obshch. khimii, 1956, Vol 26, No 4, 1082-1087

Abstract: During the polymerization of vinyl chloride (I), both pure and in the presence of initiators (benzoyl peroxide (II), azoisobutyl cyanide, acetylbenzoyl peroxide, 2,2-azo-bis-n-isobutylpropyl cyanide, methylamino-bis-diazo-p-anisole, and methylamino-bis-diazobenzene), an induction period is observed, the duration of which depends on the amount of O_2 present, as well as on the nature and concentration of the initiator. In pure I the induction period is considerably longer than in the presence of initiators. During the induction period the formation of peroxides has been established iodometrically. In the

Card 1/2

SHEVLYAKOV, A.S.

27 7 5 4E4j

Removal of mercury from vinyl chloride. A. S. Shevlyakov, V. S. Ellis, and N. M. Chernysheva. U.S.S.R. 105,285, Apr. 25, 1957. In the purification of Hg-contaminated vinyl chloride obtained in hydrochlorination of C_2H_2 at a Hg cathode the gases leaving the app. are passed through a column filled with activated C at 120°. M. Hosch

2 may

Macrokinetic stage of polymerization of vinyl chloride in aqueous emulsions. A. S. Sheviakov. Akad. Nauk ... [illegible] ... vinyl chloride ... [illegible] ... were maintained within ... [illegible] ... generated by the reaction ... and condensed

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001549320008-9"

AUTHORS: Shevlyakov, A.S., Minsker, K.S. 69-58-2 -19/23

TITLE: The Site of Polymerization of Unsaturated Compounds in Systems Containing Protective Colloids (O meste polimerizatsii nepredel'nykh soyedineniy v sistemakh soderzhashchikh zashchitnyye kolloidy)

PERIODICAL: Kolloidnyy zhurnal, 1958, Vol XX, Nr 2, pp 237-241 (USSR)

ABSTRACT: The polymerization of unsaturated compounds is often carried out in aqueous emulsions. The polymers prepared by this method have different degrees of dispersion and different properties depending on the protective colloid used in the process. The site of the polymerization depends on the nature of the monomer and the initiator, and in a lesser degree on the nature of the emulsifier. In this article, the problem of the site of polymerization has been investigated on water soluble monomers which have been dyed by water insoluble and non-inhibiting dyes. In case of polymerization within the monomer, it would be dyed. If polymerization takes place in the solution, the resulting polymer would be colorless. As a dye, "sudan red" was used. The experimental results show that the higher the solubility of the initiator in water, a more undyed polymer is formed. A great part of the polymerization takes place in the solution. If

69-58-2 -19/23

The Site of Polymerization of Unsaturated Compounds in Systems Containing Protective Colloids

an initiator is used which is not soluble in the monomer and soluble in water, the reaction takes place exclusively in water and the produced polymer is colorless. Initiators partitioning between the monomer and the aqueous phase, like azodinitrile diisobutyric acid, bring about the polymerization both in the droplets of the emulsion and in the solution. If the monomer is supplied in the gaseous phase, the velocity of polymerization is considerable. This indicates the part played by the polymerization of monomers in true aqueous solutions.
There is 1 table and 11 references, 8 of which are Soviet, 2 English, and 1 German.

SUBMITTED: February 4, 1957

1. Chemical compounds--Polymerization 2. Polymers--Dispersion 3. Polymers--Properties

Card 2/2

5(1)

AUTHORS: Shevlyakov, A. S., Etlis, V. S., Minsker, K. S., Degtyareva, L. M., Fedoseyeva, G. T., Kucherenko, M. M.

SOV/20-122-6-34/49

TITLE: Preparation of Isotactic Polystyrene (Polucheniye izotakticheskogo polistirola)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol 122, Nr 6, pp 1076-1078 (USSR)

ABSTRACT: Inspite of several papers (Refs 1-3) the preparation method and the parameter of isotactic polystyrene are not described in publications. The present paper tries to determine the conditions of stereospecific styrene polymerization which are suited for technological development. The styrene polymerization was produced with a catalytic system of triethyl aluminium titanium trichloride in the medium of saturated hydrocarbons at 30-120^0 in a nitrogen atmosphere. A dependence of the polymerization velocity and the yield of isotactic fraction of the polymer on the concentration of $Al(C_2H_5)_3$ in the solvent (benzine) was found (Table 1). Figure 1 shows the dependence of the yield of the isotactic fraction (fraction III.), of the per cent content of the

Card 1/3

amorphous fraction in the polymer (1st fraction), of the characteristic viscosity (in cyclohexanone at 20°) and of the density (ρ) on the quantity K. Figure 2 shows the yield of the isotactic and amorphous fraction in the polymer in dependence on temperature. An increase in the entire yield of polystyrene takes place only in consequence of an increase in the yield of the amorphous fraction. When the relation $C_8H_8 : TiCl_3$ was raised from 10 to 15, the content of the amorphous fraction in the polymer increased by 1.5-2.0 times. The yield of the isotactic fraction per $TiCl_3$-unit practically did not change. The results of typical tests are collected in table 2. Obviously the formation of the amorphous product is not connected with surface effects and takes place in a homogeneous solution according to the ion mechanism. The constant yield of an isotactic product, however, must be explained by the constant size of the active surface of the catalyst. Polystyrene can be prepared according to the system described, depending on the conditions of the procedure and the polymerization method either as a completely crystalline substance (98.5-100 %) or with a considerable content of the amorphous fraction. Figure 3 shows typical thermodynamic curves (plotted with Kargin's scales) of an industrial sample, of the polymer prepared according to the catalytic system mentioned above, and of its individual fractions. Figure 4 gives the radiographs of both fractions. Table 3 shows some physico-mechanic and electric properties of the polystyrene under consideration. V. A. Kargin, Member, Academy of Sciences, USSR assisted the author in his work. There are 3 figures, 3 tables, and 3 references.

PRESENTED: June 27, 1958, by V. A. Kargin, Academician

SUBMITTED: June 26, 1958

S/064/60/000/005/003/009
B015/B058

AUTHORS: Shevlyakov, A. S., Etlis, V. S., Minsker, K. S., Degtyareva, L. M., Fedoseyeva, G. T., Kucherenko, M. M.

TITLE: Stereospecific Polymerization of Styrene

PERIODICAL: Khimicheskaya promyshlennost', 1960, No. 5, pp. 10 - 15

TEXT: In the paper under review, details on the stereospecific polymerization of styrene are discussed and experimental results are mentioned in connection with a previous report (Ref. 11) on the production of isotactic polystyrene by means of a catalytic system consisting of triethyl aluminum and $TiCl_3$. The α-form of $TiCl_3$, showing a high stereospecificity, was used in the experiments. It was established that the yield of styrene isomers (of the amorphous and isotactic fractions) depends on the dilution of the reaction mixture (Table 1) and work was conducted with a concentration of from 7 to 10% triethyl aluminum. Reducing the relative amount of triethyl aluminum impairs the stereospecificity and increases the yield of the amorphous product. An increase

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Stereospecific Polymerization of Styrene S/064/60/000/005/003/009
B015/B058

of the molar ratio of triethyl aluminum to $TiCl_3$ above 1 : 1 at a concentration of the former of 7% and an experimental temperature of 90° and 120°C leads to increased formation of amorphous fraction, but it does not change the yield of isotactic fraction (Table 2). Temperature (with variations of from 60° to 150°C) exerted a marked influence on the yield of amorphous fraction, but not on that of the isotactic fraction. The following polymerization conditions are recommended: concentration of triethyl aluminum in the solution: 5.0-7.0%, molar ratio between triethyl aluminum and $TiCl_3$ = 1 : 1, weight ratio between styrene and $TiCl_3$ = 12-20 : 1, reaction temperature 90-150°C, duration of reaction 3-5 hours. The properties of polystyrene obtained in the stereospecific synthesis are finally discussed and the advantages of the crystalline product (Table 3) are pointed out. There are 3 figures, 3 tables, and 20 references: 6 Soviet, 5 US, 2 British, 2 German, 4 Italian, and 1 Japanese.

Card 2/2

SHEVLYAKOV, A. S.; ETLIS, V. S.; MINSKER, K. S.; DEGTYAREVA, L. M.;
FEDOSEYEVA, G. T.; KUCHERENKO, M. M.

Stereospecific polymerization of styrene. Khim.prom. no.5:362-367 Jl-Ag '60. (MIRA 13:9)
(Styrene) (Polymerization)

ACCESSION NR: AP4018167 S/0191/64/000/003/0043/0045

AUTHORS: Shevlyakov, A.S.; Kotlyar, I.B.; Mukhina, I.A.

TITLE: Effect of the concentration of the emulsifier synthine sulfonate on properties of polyvinylchloride latex.

SOURCE: Plasticheskiye massy*, no.3, 1964, 43-45

TOPIC TAGS: polyvinylchloride latex, emulsifier, concentration, synthine sulfonate, latex property, latex stability, particle size, aggregate stability

ABSTRACT: The effect of the concentration of the emulsifier synthine sulfonate on polyvinylchloride latex properties was examined. The synthine sulfonate was prepared by sulfochlorination of saturated C_{12}-C_{18} hydrocarbons. In the 0.1% emulsifier concentration range, which is the critical concentration, there are rapid changes (1) in the saturation of the particle surfaces with emulsifier, (2) in the latex aggregate stability and (3) in the particle size. Minimum saturation of the particle surface and minimum aggregate stability in

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ACCESSION NR: AP4018167

the latex are obtained with 0.5% emulsifier; higher and lower emulsifier concentrations increase these properties. Stable latexes with relatively coarse particles can be obtained with low synthine sulfonate emulsifier concentrations. Orig. art. has: 2 figures and 1 table.

ASSOCIATION: None

SUBMITTED: 00 DATE ACQ: 27Mar64 ENCL: 00

SUB CODE: MA, PH NR REF SOV: 003 OTHER: 008

Card 2/2

KORNEV, K.A., glav. red.; SHEVLYAKOV, A.S., red.; CHERVYATSOVA, L.L., red.; SMETANKINA, N.P., red.; YEGOROV, Yu.P., red.; ROMANKEVICH, M.Ya., red.; KUZNETSOVA, V.P., red.; PAZENKO, Z.N., red.; KACHAN, A.A., red.; VOYTSEKHOVSKIY, R.V., red.; GREKOV, A.P., red.; DUMANSKIY, I.A., red.; AVDAKOVA, I.L., red.; VYSOTSKIY, Z.Z., red.; GUMENYUK, V.S., red.; MEL'NIK, A.F., red.

[Synthesis and physical chemistry of polymers; articles on the results of scientific research] Sintez i fiziko-khimiia polimerov; sbornik statei po rezul'tatam nauchno-issledovatel'skikh rabot. Kiev, Naukova dumka, 1964. 171 p. (MIRA 17:11)

1. Akademiya nauk URSR, Kiev. Institut khimii vysokomolekulyarnykh soyedineniy. 2. Institut fizicheskoy khimii im. L.V. Pisarzhevskogo AN USSR (for Vysotskiy). 3. Institut khimii vysokomolekulyarnykh soyedineniy AN USSR (for Romankevich, Chervyatsova, Voytsekhovskiy).

L 1157-66 EWT(m)/EPF(c)/EWP(j)/T RM

ACCESSION NR: AP5022008

UR/0286/65/000/014/0078/0078
678.74 : 66.097

AUTHOR: Razuvayev, G. A.; Shevlyakov, A. S.; Yanovskiy, D. M.; Kofman, L. P.; Stupen', L. V.; Pavlov, S. M.

TITLE: A method for polymerizing vinyl compounds. Class 39, No. 172994

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 14, 1965, 78

TOPIC TAGS: emulsion polymerization, vinyl plastic, polymerization initiator, polymer

ABSTRACT: This Author's Certificate introduces a method for polymerizing vinyl compounds. Polymerization time is reduced and polymer yield is increased by using alkyl or aryl esters of percarbonic acid as the initiator for block or emulsion polymerization.

ASSOCIATION: none

SUBMITTED: 12Jan57 ENCL: 00 SUB CODE: OC, MT

NO REF SOV: 000 OTHER: 000

Card 1/1

L 4602-66 EWT(m)/EWP(j) IJP(c) RM

ACC NR: AP6021343 (A) SOURCE CODE: UR/0318/66/000/002/0025/0027

AUTHOR: Shevlyakov, V. A.; Tseytlin, I. M.; Ryabova, A. L.

ORG: Omsk Petroleum Refinery (Omskiy neftepererabatyvayushchiy zavod); Omsk Tire Factory (Omskiy shinnyy zavod)

TITLE: Use of petrolatum for protection of rubbers from atmospheric aging

SOURCE: Neftepererabotka i neftekhimiya, no. 2, 1966, 25-27

TOPIC TAGS: petroleum product, antioxidant additive, rubber chemical

ABSTRACT: Tests were performed to determine the protective properties of petrolatum obtained from a deparaffination unit. The data showed that petrolatum from Tuymazy Devonian petroleum increases the resistance of rubber to atmospheric aging, surpassing paraffin and Superlavox in protective properties and equalling Antilux in tests in vulcanizates prepared without using chemical antiozonants. Tests of protective waxes together with chemical antizononants in tread rubbers based on butadiene-styrene rubber showed that in this case as well, the protective properties of petrolatum are higher than those of imported antiaging agents. The petrolatum studied can be successfully used as a physical antiaging agent in the production of tires and mechanical rubber goods. At the present time, this petrolatum is used under the name of "Antiaging agent OM-1" in the tire industry, mechanical rubber goods industry, rubber foot-

Card 1/2 UDC: 665.637.73-4:678.06

L 46020-66

ACC NR: AP6021343

wear, etc. Orig. art. has: 6 tables.

SUB CODE: 11/ SUBM DATE: none/ ORIG REF: 004

Card 2/2 JC

L 20800-66 EWP(j)/EWT(m)/ETC(m)-6/T IJP(c) RM/WW

ACC NR: AP6005952 (A) SOURCE CODE: UR/0191/66/000/002/0040/0043

AUTHORS: Shevlyakov, A. S.; Bryk, M. T.

ORG: none

TITLE: Molecular composition and properties of fractions of suspended and block polyvinyl chloride

SOURCE: Plasticheskiye massy, no. 2, 1966, 40-43

TOPIC TAGS: polyvinyl chloride, polymer, polymer physical chemistry, thermal decomposition, molecular weight, polymer structure

ABSTRACT: Suspended and block polyvinyl chlorides, which differ considerably in molecular weight, are studied. The work was done to determine the effect of technological factors of polymerization of vinyl chloride on molecular composition, supermolecular structures, and physical state of PVC powder. The molecular weight of the starting specimens and of each fraction was determined viscosimetrically. The characteristic viscosity was determined for 0.2, 0.3, 0.4, and 0.5% solutions of PVC in cyclohexanone at 25±0.05C (see Fig. 1). The molecular weight was calculated by Z. Menčik's formula (Coll. czech. chem. comm., 21, 517,

Card 1/3 UDC: 678.743.22.01:53

L 20800-66

ACC NR: AP6005952

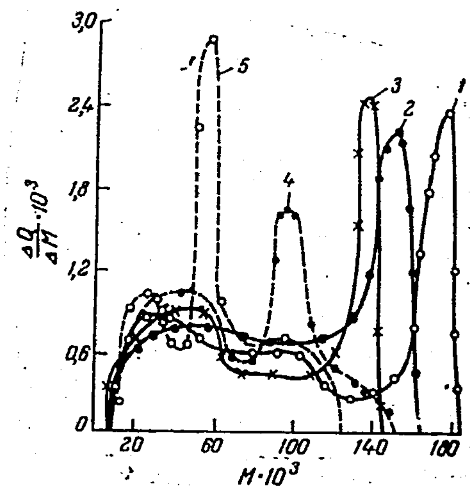


Fig. 1. Differential curves of molecular-weight distribution of various polyvinyl chlorides:
1 - PF-op 324/1; 2 - PF-op 2/7;
3 - imported polyvinyl chloride;
4 - block polyvinyl chloride;
5 - polyvinyl chloride$_{Mg}$.

1956). The decomposition temperature of the specimens and of their fractions was determined (see Fig. 2). The rate of absorption of plasticizers is determined. An experimental dependence of powder density upon molecular weight is found. The strength of films of the polyvinyl chloride is found to be 2.2—3.0 kg/mm^2.

Card 2/3

L 20800-66

ACC NR: AP6005952

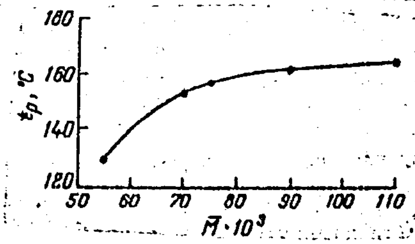


Fig. 2. Decomposition temperature of PVC specimens purified by reprecipitation versus average molecular weight.

Orig. art. has: 3 tables and 6 graphs.

SUB CODE: 07/ SUBM DATE: none/ ORIG REF: 004/ OTH REF: 003

Card 3/3

L 44367-66 EWT(m)/EWP(j)/T IJP(c) RM

ACC NR: AP6023057 (A) SOURCE CODE: UR/0191/66/000/004/0005/0007

AUTHOR: Shevlyakov, A. S.; Bryk, M. T.

ORG: none

36
B

TITLE: Properties of various brands of polyvinyl chloride and their fractions

SOURCE: Plasticheskiye massy, no. 4, 1966, 5-7

TOPIC TAGS: polyvinyl chloride, solid mechanical property, plastic strength, plastic coating

ABSTRACT: Physical properties and workability of suspended and powdered samples of L-4, L-7, and imported II polyvinyl chlorides were investigated. The dependences of decomposition temperature, film contraction, density, and mechanical strength upon molecular weight (10.10^3-180.10^3) of various polyvinyl chloride brands was graphed and tabulated. In all respects, the L-4 PVC proved superior to the imported II brand PVC. For the L-4 brand, the rate of swelling of films made of fractions varying in molecular weight (15,000-163,000) and the dependence of swelling upon molecular weight are graphed. It was found that up to molecular weight equal to 30,000 the glass point increases with the molecular weight. Orig. art. has: 7 figures, 1 table.

SUB CODE: 11/ SUBM DATE: none/ ORIG REF: 005/ OTH REF: 005

UDC: 678.743.22.01 : 53.01 : 539.3

Card 1/1

L 40777-66 EWT(j)/EWT(m)/T IJP(c) RM

ACC NR: AP6027272 (A) SOURCE CODE: UR/0191/66/000/008/0009/0011

AUTHOR: Bryk, M. T.; Shevlyakov, A. S.; Puchkovskaya, G. A.

ORG: none

26
B

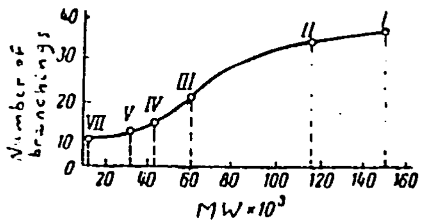
TITLE: Effect of the branching of polyvinyl chloride on its properties

SOURCE: Plasticheskiye massy, no. 8, 1966, 9-11

TOPIC TAGS: polyvinyl chloride, polymer structure

ABSTRACT: The change in the degree of branching of polyvinyl chloride (PVC) fractions obtained by fractional precipitation and its influence on the physicochemical and mechanical properties of the polymer were studied. The degree of branching of PVC samples reduced to polyolefins was determined by IR spectroscopy. Measurements of the optical density of the reduced PVC samples showed an increase in the concentration of methyl groups in PVC from the last fraction to the first (see Fig. 1).

Fig. 1. Change in the number of branchings per 1000 carbon atoms in PVC fractions. Roman numerals designate fraction numbers.



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UDC: 678.743.22.01:543.422.4

L 46999-66

ACC NR: AP6027272

A sharp increase in the concentration of these groups is observed in the region of the third fraction. The IR spectra of molten n-$C_{32}H_{66}$ are very similar to those of reduced PVC, indicating the presence in reduced PVC of a considerable number of molecules of skew isomers and the presence of a substantial amount of amorphous phase. The IR spectra obtained, which show a change in the structure of PVC with an increase in its molecular weight, permit a reliable interpretation of the dependence of the physicochemical and mechanical properties of the polymer on its molecular weight. The IR spectroscopic data show that the branching and irregularity of the structure of PVC fractions increase sharply in the region of the middle fractions. The increased branching of the macromolecules causes their loose packing in the formation of films from solution with a gradually increasing concentration; this lowers the density and strength of the polymer samples as the molecular weight is further increased. When a stress is applied, the macromolecules will break first at the site of the secondary or tertiary carbon atom, i. e., at the branching site. Deviations of thermomechanical properties can also be explained by the change in the structure of macromolecules in the PVC fractions. Orig. art. has: 5 figures.

SUB CODE: 11/ SUBM DATE: none/ ORIG REF: 006/ OTH REF: 006

Card 2/2

SILAYEV, A.F., kand.tekhn.nauk; IGNAT'YEV, N.A., inzh.; Prinimali uchastiye: ZAYTSEV, Yu.N.; SHEVLYAKOV, G.I.; IGNAT'YEV, V.A.; NOVICHKOV, P.V.

Advantage of heat treating welded heavy press frames. Svar. proizv. no.8:40-43 Ag '61. (MIRA 14:8)
(Power presses--Welding)
(Metals--Heat treatment)

BAZYKIN, Viktor Vasil'yevich; SHEVLYAKOV, Ivan Fedorovich; FAYNBOYM, I.B., red.; ATROSHCHENKO, L.Ye., tekhn.red.

[Artificial earth satellites; explanations to a set of posters] Iskusstvennye sputniki zemli; poiasneniia k serii plakatov. Moskva, Izd-vo "Znanie," 1959. 30 p. (MIRA 13:8)
(Artificial satellites)

SHEVLYAKOV, I.F.; KONOVALOVA, Z., red.; ZUBKOVA, G., tekhn.red.

[Was there a beginning and will there be an end of the world] Bylo li nachalo i budet li konets mira. Moskva, Izd-vo TsK VLKSM "Molodaia gvardiia," 1950. 25 p. (MIRA 15:5)
(Cosmogony)

SHEVLYAKOV, I.M., inzh.

Small-size drilling machine unit. Mashinostroenie no.2:35-36 Mr-Ap '62. (MIRA 15:4)

(Drilling and boring machinery)

SHEVLYAKOV, I.M., inzh.

Modernizing the table drive of a horizontal milling machine.
Mashinostroenie no.3:28-29 My-Je '62. (MIRA 15:7)
(Milling machines)

SHEVLYAKOV, I.M., inzh.

Small automatic groove milling and screw-thread rolling machines. Mashinostroenie no.4:6-13 Jl-Ag '62. (MIRA 15:9)
(Machine tools)

SHEVLYAKOV, I. M., inzh.

Drilling machine unit. Mashinostroenie no.5:21-24 S-O '62.
(MIRA 16:1)

(Drilling and boring machinery)

SHEVLYAKOV, I. M.

The TL-848 drilling machine unit. Biul.tekh.-ekon.inform.Gos. nauch.-issl.inst.nauch. i tekh.inform. no.10:42-44 '62.
(MIRA 15:10)

(Drilling and boring machinery)

SHEVLYAKOV, I.M., inzh.

Semiautomatic eight-position milling and finishing machine. Mashinostroenie no.1:70-73 Ja-F '64. (MIRA 17:7)

SHEVLYAKOV, I.M., inzh.

Small drilling machine units. Mashinostroenie no. 2:24-26 Mr-Ap '64. (MIRA 17:5)

SHEVLYAKOV, I.M.

Introducing machine for drilling holes and setting pins in assembling. Biul.tekh.-ekon.inform.Gos.nauch.-issl.inst. nauch.i tekh.inform. 18 no.11:36-37 N '65. (MIRA 18:12)

SHEVLYAKOV, L. V. Capt.

"O KOZHNOM DEYSTVII GORYUCHEGO MARKI T-1" ("The Effect on the Skin of T-1 Type Fuel)" published in Voyenno-meditsinskiy zhurnal No. 5, May 1955 pp 83-84.

Concerns dermatitis in the case of various aviation specialists having contact with T-1 type fuel (a jet fuel).

SHEVLYAKOV, L.V., kapitan med. sluzhby.

Prevention and treatment of epidermophytosis within the unit. Voen.-med. zhur. no.11:80 N '56. (MIRA 12:1)
(DERMATOMYCOSIS)

SHEVLYAKOV, L.V. (Feodosiya)

Characteristic of some measures for individual prophylaxis of epidermophytosis of the foot. Vest.derm. i ven. 32 no.3:19-21 My-Je '58 (MIRA 11:7)

(RINGWORM, prev. & Control.
foot (Rus))
(FOOT, dis.
ringworm, prev. (Rus))

SHEVLYAKOV, L.V., kand.med.nauk (Feodosiya)

Epidemiological features of epidermophytosis and the sanitary condition of bath houses. Gig.i san. 25 no.8:71-73 Ag '60. (MIRA 13:11)
(RINGWORM) (BATHS)

VELIKORETSKIY, D.A.; LORIYE, K.M.; FINKEL', I.I.; GRIGORCHUK, Yu.F.; BERGER, L.Kh.; UTROBINA, V.V.; KHARCHENKO, V.P.; MESHCHERYKOV, A.V., student V kursa; OBEREMCHENKO, Ya.V., kand.med.nauk; NIKITIN, A.V.; MUKHOYEDOVA, S.N.; KUSMARTSEVA, L.V., assistent; KUZNETSOV, V.A., dotsent; KUKHTINOVA, R.A., assistent; BONDARENKO, Ya.D. (g. Fastov); KURTASOVA, L.V. (g. Fastov); PEVCHIKH, V.V.; CHURAKOVA, A.Ye.; BABICH, M.M.; KUZ'MIN, K.P.; PAVLOV, S.S.; SHEVLYAKOV, L.V., kand. med.nauk; IGNAT'YEVA, O.M.; ZEYGERMAKHER, G.A.; GUTKIN, A.A.; POLYKOVSKIY, T.S.

Resumes. Sov.med. 25 no.11:147-152 N '61. (MIRA 15:5)

1. Iz Instituta grudnoy khirurgii AMN SSSR (for Velikoretskiy, Loriye, Finkel'). 2. Iz bol'nitsy No.3 Gorlovki Stalinskoy oblasti (for Grigorchuk). 3. Iz Tyumenskoy oblastnoy bol'nitsy (for Berger, Utrobina). 4. Iz Karatasskoy rayonnoy bol'nitsy Yuzhno-Kazakhstanskoy oblasti (for Kharchenko). 5. Iz Gospital'noy khirurgicheskoy kliniki I Moskovskogo ordena Lenina meditsinskogo instituta imeni Sechenova (for Meshcheryakov). 6. Iz kliniki propedevticheskoy terapii Stalinskogo meditsinskogo instituta na baze oblastnoy klinicheskoy bol'nitsy imeni Kalinina (for Oberemchenko). 7. Iz kliniki gospital'noy terapii Voronezhskogo meditsinskogo instituta (for Nikitin, Mukhoyedova). 8. Iz kafedry obshchey khirurgii Kishinvcskogo meditsinskogo instituta (for Kusmartseva). (Continued on next card)

VELIKORETSKIY, D.A.---(continued) Card 2.

9. Iz akushersko-ginekologicheskoy kliniki Stalinskogo meditsinskogo instituta na baze bol'nitsy imeni Kalinina (for Kuznetsov, Kukhtinova). 10. Iz gospital'noy terapevticheskoy kliniki Izhevskogo meditsinskogo instituta (for Pevchikh, Churakova). 11. Iz Nosovskoy rayonnoy bol'nitsy Chernigovskoy oblasti (for Babich). 12. Iz Vyborgskoy mezhrayonnoy bol'nitsy (for Pavlov). 13. Iz 1-y gorodskoy bol'nitsy Tyumeni (for Ignat'yeva). 14. Iz 2-y infektsionnoy bol'nitsy g. Zaporozh'ya (for Zeygermakher). 15. Iz infektsionnogo i prozektorskogo otdeleniy Petrozavodskoy gorodskoy bol'nitsy (for Gutkin, Polykovskiy).

(MEDICINE--ABSTRACTS)

SHEVLYAKOV, L.V., kand.med.nauk (g. Polyarnyy)

Mycotic urethritis in men. Vest.derm.i ven. no.1:46-49 '62. (MIRA 15:1)

(URETHRA--DISEASES) (MYCOSIS) (ANTIBIOTICS)

SHEVLYAKOV, L.V., kand. med. nauk; SEDEL'NIKOVA, G.G. (Polyarnyy)

Some characteristics of the course of gonorrheal arthritis. Vest. derm. i ven. 37 no.9:86-87 S '63. (MIRA 17:6)

SHEVLYAKOV, V.A.; GRODZOVSKAYA, R.I.; YAKIMENKO, Ye.V.; UL'YANOVA, L.F.

Density of methanol aqueous solutions at various temperatures. Nefteper. i neftekhim. no.2:30-32 '63. (MIRA 17:1)

1. Omskiy neftepererabatyvayushchiy zavod.

LOZHKIN, L.N.; SHEVLYAKOV, V.P.

Effect of graphite additions on the specific electric resistance of carbon electrodes. Trudy LPI no.223:49-54 '63.

(MIRA 17:11)

SHEVLYAKOV, Yu. A.

Ševlyakov, Yu. A. On the stresses in the stretching of a [illegible]lar ring. Dopovidi Akad. Nauk Ukrain. RSR 1950, [illegible] (Ukrainian. Russian summary)
[illegible] solves the problem of a circular ring extended [illegible] forces whose points of application are [illegible]. He uses the analytic functions of a [illegible] same [illegible] as in the paper reviewed [illegible] example illustrates the [illegible]

I. Leser (Lexington, Ky.).

Source: Mathematical Reviews, Vol 13 No. 8

Smw [illegible]

SHEVLYAKOV, Yu. A.

Ševlyakov, Yu. A. On the stresses in circular rings. Dopovidi Akad. Nauk Ukrain. RSR. 1950, 221-224 (Ukrainian. Russian summary)

The problem of a circular ring compressed by concentrated radial forces was solved by conventional method by G. Bell [Z. Angew. Math. Mech. 10, 52-72 (1930); pp. 52-57] and differently by D. V. Vaĭnberg [Akad. Nauk SSSR. Prikl. Mat. Meh. 13, 151-158 (1949); these Rev. 11, ...]. The author solves it using analytic functions of a complex variable, which he calls the Kolosov-Mushelišvili functions. *T. Leser* (Lexington, Ky.)

Source: Mathematical Reviews, Vol 13 No. 8

SHEVLYAKOV, Yu. A.

Ševlyakov, Yu. A. On the concentration of stress about an opening in a cylindrical shell. Dnepropetrov. Gos. Univ. Nauč. Zap. 41 (1953), 79–91. (Russian)

The author considers the problem of concentration of stresses in a cylindrical shell about openings; the discussion is based on the equations of V. Z. Vlasov [General theory of shells and its applications in technology, Gostehizdat, Moscow-Leningrad, 1949; MR 11, 627]. The function of stresses F and the bending are taken in the form

$$F=F_0+\xi F_1+\cdots,\quad w=w_0+\xi w_1+\cdots,$$

where $q=h/R$ is a small parameter, h is the thickness, and R is the radius of the middle surface. The following equations are obtained:

$$\nabla^4F_0=0,\quad \nabla^4F_1=-E\frac{\partial^2 w_0}{\partial x^2},\quad \nabla^4F_2=-E\frac{\partial^2 w_1}{\partial x^2},\quad\cdots,$$

$$\nabla^4=w_0 0,\quad \nabla^4 w_1=\frac{1}{Dh}\frac{\partial^2 F_0}{\partial x^2},\quad \nabla^4 w_2=\frac{1}{Dh}\frac{\partial^2 F_1}{\partial x^2},\quad\cdots.$$

Here

$$\nabla^4=\frac{\partial^4}{\partial x^4}+\frac{2}{R^2}\frac{\partial^4}{\partial x^2\partial\varphi^2}+\frac{1}{R^4}\frac{\partial^4}{\partial\varphi^4},\quad D=\frac{Eh^3}{n(1-\mu^2)}.$$

In this way the problem of equilibrium of a cylindrical 1/2

Sevlyakov, Yu. A.

shell reduces to a sequences of plane problems and a sequence of problems of bending of thin plates. The author uses for the functions $F_0, F_1, F_2, \cdots, w_0, w_1, w_2, \cdots$ known expressions in terms of functions of a complete variable. These functions satisfy boundary conditions on the contour of the opening that are identical to those that occur in the plane problem and in the problem of bending of thin plates. No examples are given to illustrate the method.

{However, the reduction of the problem of equilibrium of a cylindrical shell to the problem of equilibrium of a plane plate using "the method of small parameter" inevitably leads to the result that the functions $F_1, F_2, \cdots, w_1, w_2, \cdots$ and the corresponding forces and moments will grow beyond all bounds as we move away from the opening, and it does not appear possible to get rid of the singularities at infinity. One can convince oneself of this by considering even the simplest case, namely the stretching of a cylindrical shell with a circular opening; it is easy to do this on the basis of the formulas and equations derived in the paper. In view of this the question of the availability of the proposed "method of small parameter" for the solution of problems of this kind remains open.}

E. F. Burmistrov (RŽ Meh 1953-54 No. 2240).

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2-4E4

SHEVLYAKOV, Yu.A.; ZIGEL', F.S.

Torsion of a hollow cylinder with an aperture on the lateral surface.
Dop. AN URSR no.1:41-44 '54. (MLRA 8:4)

1. Dnipropetrovs'kiy derzhavniy universitet. Predstavleno deystvitel'nym chlenom AN USSR G.N.Savinym.
(Elasticity)

SHEVLYAKOV, Yu. A.

SHEVLYAKOV, Yu. A. -- "Some Problems in the Statistics of Inclined Membranes and Sheets." Acad Sci Ukrainian SSR. Inst of Structural Mechanics. Kiev, 1955. (Dissertation for the Degree of Doctor in Technical Sciences)

SOURCE Knizhnaya Letopis', No 6 1956

SHEVLYAKOV, YU. A.

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Ševlyakov, Yu. A. Stress concentration in a cylindrical shell with a circular cut-out on the lateral surface. [illegible] 1955, [illegible]

[illegible] shell which at one [illegible] by a rigid ring and has a circular [illegible] The shell is subjected to a [illegible] on the inner surface [illegible] by a tightly driven [illegible] The author writes down ready formulas for stresses [illegible] which were derived by the method of [illegible] by A. I. Lur'e [Statics of thin-walled [illegible], GITTL, Moscow-Leningrad, 1947; MR 12, [illegible] formulas valid in general are transformed by [illegible] to satisfy his particular boundary conditions.

T. Leser (Aberdeen, Md.).

VMH

SHEVLYAKOV, Yu.A.

Integration of equations of equilibrium applied to slanting spherical shells. Dop. AN URSR no.3:235-237 '55. (MIRA 8:11)

1. Dnipropetrovs'kiy dershavniy universitet. Predstaviv diysniy chlen Akademii nauk URSR G.M.Savin
(Elastic plates and shells)

SHEVLYAKOV, Yu. A.

Conditions of single value transferences of slanting spherical envelopes. Dop. AN URSR no.5: 448-450 '55. (MLRA 9:3)

1. Dnipropetrovs'kiy derzhavniy universitet. Predstaviv diysniy chlen AN URSR G.M. Savin.
(Elastic plates and shells)

SHEVLYAKOV, Yu.A. (Dnepropetrovsk)

Stresses in spherical bottoms weakened by circular holes. Inzh.sbor. 24:226-230 '56. (MLRA 10:5)

(Elastic plates and shells)

SOV/124-58-10-11409

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 10, p 103 (USSR)

AUTHORS: Shevlyakov, Yu.A., Tunin, V.V.

TITLE: Twisting of Beams of Cross Section in the Shape of a Sector of a Circle (Krucheniye sterzhney sektorial'nogo secheniya)

PERIODICAL: Nauchn. zap. Dnepropetr. un-t, 1956, Vol 45, pp 139-143

ABSTRACT: The problem of twisting in beams of circular-sector cross-section is solved by the method of conformal representation. Cases are examined of sections in the shape of a quarter circle, a semicircle, and a circle with radial crack. Equations are derived for the determination of maximum stresses and stiffness on twisting. The stiffness values found for these cases differ only insignificantly from the stiffness values derived by A.N. Dinnik [Prilozheniye funktsiy Besselya k zadacham teorii uprugosti (Application of Bessel Functions to Problems in Elasticity, Novocherkassk, 1913] for these same cases by another method. The article makes no reference to a paper of N.Kh. Arutyunyan (Prikl. matem. i mekh.), 1947, Vol 11, Nr 5) in which a solution is found for this case by a special system of curvilinear coordinates, and where an equation for the stiffness

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SOV/124-58-10-11409

Twisting of Beams of Cross-section in the Shape of a Sector of a Circle

of a sector of a circle is presented.

B.L. Abramyan

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SOV/124-58-7-7900

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 7, p 87 (USSR)

AUTHOR: Shevlyakov, Yu.A.

TITLE: Investigating the Flexure of Slightly Curved Plates (Issledovaniye izgiba slaboizognutykh plastin)

PERIODICAL: Nauchn. zap. Dnepropetr. un-t, 1956, Vol 45, pp 145-159

ABSTRACT: The problem of the flexure of slightly curved plates reduces to solving successively the boundary problems for a biharmonic equation. To this end, all the desired values (the deflection w with respect to the normal, the stress function F, etc.) are expanded into series with respect to a small parameter which is a function of the thickness of the curved plate and of the curvature of its surface. Cases are examined of clamped and unsupported plates. A numerical example is given for the case of a circular plate bent to follow a spherical surface and bearing a uniformly distributed load. It is stated that the convergence of the process has been investigated by I.N. Vekua (Soobshch. AN GruzSSR, 1954, Vol 15, Nr 1). 1. Plates--Mechanical properties 2. Plates--Theory M.G. Slobodyanskiy

Card 1/1

SHEVLYAKOV, Yu.A.; MANEVICH, L.I.

Certain cases of the stability of a flat bend. Dop. AN URSR no.6:627-630 '58. (MIRA 11:9)

1. Dnepropetrovskiy universitet. Predstavil akademik AN USSR G.N. Savin [H.M. Savin].
(Elastic rods and wires)

28342 S/124/61/000/006/022/027
A005/A130

24.4200

AUTHORS: Shevlyakov, Yu.A.; Bezpal'ko, L.A.

TITLE: Calculation of a conic shell rigidly fastened at the base

PERIODICAL: Referativnyy zhurnal. Mekhanika, no. 6, 1961, 8, abstract 6 V 45. [Nauchn. zap. Dnepropetr. un-t, 1958 (1959), v. 73, 39 - 54]

TEXT: The authors present an approximate solution of the problem of the stress-strain state of an annular conic shell in the vicinity of its fastened base; the shell is affected by a load normal to its medium surface. The differential equations of equilibrium of the shell are taken in the complex formulation proposed by V.V. Novozhilov (Teoriya tonkikh obolochek. Leningrad, Sudpromgiz, 1951). Introducing an auxiliary function and formulating the external load and the solution sought as Fourier series, the authors first reduce the initial system to a system of three ordinary differential equations. Then they introduce an additional auxiliary function as a formula containing an indeterminate parameter. The authors take the indeterminate parameter to be approximately constant choosing it in such a manner that two equations of the system become independent. Further transformations are made for the case when the external load does not vary

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28342 S/124/61/000/006/022/027
A005/A130

Calculation of a conic shell rigidly....

over the generatrix. On this assumption they integrate the independent differential equations by elementary methods; then the remaining equation and the transformation formulae make it possible to plot the solution of the initial system in the vicinity of fastening. The corresponding displacements are determined from the formulae of coupling between the complex displacements and complex strengths, which are also formulated as Fourier series. Approximate formulae for strengths, moments, displacements and torsion angles are obtained in a general formulation. A formula for the bending moment in fastening the cylindrical shell under an asymmetric load is obtained as a boundary case; it differs from the exact solution by a numerical coefficient (0.37 instead of 0.5).

V. Zalesov

[Abstracter's note: Complete translation.]

Card 2/2

SHEVLYAKOV, Yu.A.; TUL'CHINSKIY, B.G. [Tul'chyns'kyi, B.H.]

"Course of analytic mechanics" by H.N.Savin, N.A.Kylchevskyi, T.V.Putiata. Reviewed by IU.A.Shevliakov, B.H.Tul'chyns'yki. Prykl.mekh. 4 no.3:350-351 '58. (MIRA 13:8)

(Mechanics, Analytic)
(Savin, H.N.)
(Kylchevskyi, N.A.)
(Putiata, T.V.)

SHEVLYAKOV, Yu. A.

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

168. S. D. Leites (Dnepropetrovsk): On space buckling of columns in the elastic-plastic range.

169. V. S. Lenskii (Moscow): Vibro-creep at room temperature.

170. V. S. Lenskii (Moscow): Plasticity of metals under combined loading.

171. A. I. Leonov (Moscow): Some problems of non-stationary flow of an incompressible visco-elastic (Maxwellian) liquid.

172. A. I. Leonov, M. D. Rusinov (Moscow): Some problems of quasi-steady flow of an incompressible visco-elastic (Maxwellian) liquid.

173. M. Ia. Leonov (Lvov): The generalization of the torsion theory of thin-walled bars.

174. M. Ia. Leonov, V. V. Panasyuk (Lvov): The development of microcracks.

175. Yu. R. Lenik (Tartu): Plastic flow of circular plates under tension and bending of compression and bending.

176. S. G. Lekhnitskii (Leningrad): Torsion of an anisotropic curved bar.

177. A. D. Lisarev (Sverdlovsk): Free vibrations and stability of ordinary and prestressed elastic restrained beams.

178. A Lisowski (Krakow): Displacement of rocks due to excavation of sloping layers.

179. N. V. Litvinov (Kiev): On the application of matrix transformations to the solution of large sets of linear equations of elasticity theory.

180. O. I. Lotkin (Tomsk): The selection of optional parameters for structures of equal stability consisting of plates and stringers.

181. P. A. Lukash (Moscow): Large deflections of shallow shells of non-linear elastic materials.

182. Ia. B. Lvin (Voronezh): Methods for the solution of the problems of axisymmetric states of stress in shells of revolution.

183. R. A. Malakhovskii (Omsk): Analysis of an orthotropic circular conical shell under an arbitrary load applied to a ring.

184. S. V. Malashenko (Kiev): On the experimental study of strains in plates and shells.

185. N. I. Malinin (Novosibirsk): Creep strains and ruptures of high polymers.

186. R. L. Malkina (Sverdlovsk): Vibrations of non circular cylindrical shells.

187. A. K. Malmeister (Riga): Some problems of combined loading of quasi-isotropic bodies.

188. K. A. Maltsov (Leningrad): The influence of structural discontinuity in concrete on its strength.

189. S. O. Mamedova (Baku): Investigation of the state of stress in a square prism with coaxial cylindrical hole under internal pressure.

190. G. F. Mandzhavidze (Tbilisi): Solving the plane elastic problem for anisotropic bodies by reduction to the problem of linear coupling with "displacements".

191. L. I. Manevich, Yu. A. Shevlyakov (Dnepropetrovsk): The stability of a cylindrical shell in bending.

192. V. M. Marchenko (Moscow): Stress and strain in naturally twisted bars.

193. V. I. Markhovikov (Taranobka): The problems of conformal transformation and plane elasticity for the exterior of an infinite number of holes.

194. Ia. A. Macheret (Moscow): The design of finite and infinite beams on elastic foundation including time effects and without adopting the hypothesis of Zimmerman and Winkler.

195. A. A. Melikovetskii (Stalino): Vibrations of a curved bar in an elastic medium and on elastic supports.

196. S. R. Mestaian (Erevan): An experimental study of basic creep laws for soils.

197. O. S. Migirenko (Novosibirsk): On statically equivalent loadings.

198. M. Sh. Mikeladze (Tbilisi): Contribution to the theory of plastic shells of uniform strength.

199. R. S. Minasian (Erevan): On the bending of a simply supported parallelogram plate.

200. N. V. Mikhailov (Moscow): Evaluation of the rheological properties of elastic, visco-plastic materials in homogeneous strain-rate under constant shearing stress.

27049

24.4200 1327 1191 2808 2607 S/021/60/000/005/005/015
D210/D304

AUTHORS: Shevlyakov, Yu.A., and Manevych, L.I.

TITLE: The stability of a cylindrical shell under bending

PERIODICAL: Akademiya nauk ukrayins'koyi RSR, Dopovidi, no. 5, 1960, 605-608

TEXT: The article deals with determining the lower critical (buckling) stress of a thin-walled cylindrical shell under pure bending. The problem is solved by approximation using the basic non-linear equations of the theory of elasticity. The critical state is given by

$$\left.\begin{aligned} \varepsilon_x^0 &= \frac{\partial u_0}{\partial x} = \frac{T_x^0}{Eh}, \\ \varepsilon_y^0 &= \frac{\partial v_0}{\partial y} - \frac{w_0}{R} = -\frac{\nu T_x^0}{Eh}, \\ \varepsilon_{xy}^0 &= \frac{\partial v_0}{\partial x} + \frac{\partial u_0}{\partial y} = 0. \end{aligned}\right] \quad (1)$$

where $v_o = 0$ for $x = 0$ and $x = \ell$. The x-axis lies along a generator, the y-axis along the tangent to the excess load, and the z-axis towards the center of curvature. ε_x^o, ε_y^o, ε_z^o

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The stability of a-...

are the deformations of the central plane, u_o, v_o, w_o are the displacements in the x,y,z directions respectively, R and ℓ are respectively the radius and length of the shell, ν is Poisson's coefficient, $\sigma_x^0 = \frac{T_x^0}{h}$ is the normal stress. Also,

$$\sigma_x^0 = \frac{M}{W} = \sigma_0 \cos \frac{Y}{R} \quad (3)$$

where M is the bending moment, W is the support moment $\sigma_o = \frac{M}{\pi R^2 h}$ h is the thickness of the shell. Integration and substitution gives for the displacements

$$u_0 = \frac{\sigma_0}{E}\left(\frac{l}{2} - x\right)\cos\frac{y}{R},$$
$$v_0 = \frac{\sigma_0}{2ER} x(l-x)\sin\frac{y}{R}, \quad (4)$$
$$w_0 = \frac{\sigma_0}{2ER}[x(l-x) - 2\nu R^2]\cos\frac{y}{R}.$$

Investigation of the stability gives (Eqs. 5 and 6 see next card)

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$$\nabla^2\nabla^2\Phi = Eh\left[\left(\frac{\partial^2 w}{\partial x\,\partial y}\right)^2 - \frac{\partial^2 w}{\partial x^2}\cdot\frac{\partial^2 w}{\partial y^2} - \frac{1}{R^2}\frac{\partial^2 w}{\partial x^2}\right], \quad (5)$$

$$D\nabla^2\nabla^2 w = \frac{\partial^2\Phi}{\partial y^2}\cdot\frac{\partial^2 w}{\partial x^2} - 2\frac{\partial^2\Phi}{\partial x\,\partial y}\cdot\frac{\partial^2 w}{\partial x\,\partial y} + \frac{\partial^2\Phi}{\partial x^2}\cdot\frac{\partial^2 w}{\partial y^2} - \frac{1}{R}\frac{\partial^2\Phi}{\partial x^2}, \quad (6)$$

where Φ is the stress function, for the central plane, and $D = \frac{Eh^2}{12(1-\nu^2)}$ is the cylindrical rigidity. w and Φ are written

$$w = w_1 + w_0$$
$$\Phi = \Phi_1 + \Phi_0 \quad (7)$$

where w_1 and Φ_1 are respectively the deflection with respect to the normal and the stress function which characterizes the bulging of the shell, and $\Phi_0 = \sigma_0 R^2 \cos\frac{y}{R}$. If $l > 1.5R$ the boundary conditions may be ignored. The first approximation for w_1 gives in the zone of compression

$$w_1 = fh\left(\cos\frac{\pi x}{\lambda_x}\cos\frac{\pi y}{\lambda_y} + a\cos\frac{2\pi x}{\lambda_x} + b\cos\frac{2\pi y}{\lambda_y}\right)\cos^2\frac{y}{R}. \quad (10)$$

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and in the zone of tension $w_1 = 0$. λ_x and λ_y are longitudinal semi-waves in the x and y directions, f, a, b, are dimensionless parameters. Solving for Φ_1 gives

$$
\begin{aligned}
\frac{1}{E_1}\Phi_1 = & \Big[g_1\cos\frac{\pi y}{\lambda_y} + g_2\cos\left(\frac{\pi}{\lambda_y}+\frac{2}{R}\right)y + g_3\cos\left(\frac{\pi}{\lambda_y}-\frac{2}{R}\right)y + \\
& + g_4\cos\left(\frac{\pi}{\lambda_y}+\frac{4}{R}\right)y + g_5\cos\left(\frac{\pi}{\lambda_y}-\frac{4}{R}\right)y + g_6\cos\frac{3\pi y}{\lambda_y} + \\
& + g_7\cos\left(\frac{3\pi}{\lambda_y}+\frac{2}{R}\right)y + g_8\cos\left(\frac{3\pi}{\lambda_y}-\frac{2}{R}\right)y + \\
& + g_9\cos\left(\frac{3\pi}{\lambda_y}+\frac{4}{R}\right)y + g_{10}\cos\left(\frac{3\pi}{\lambda_y}-\frac{4}{R}\right)y\Big]\cos\frac{\pi x}{\lambda_x} + \\
& + \Big[g_{11}\cos\frac{\pi y}{\lambda_y} + g_{12}\cos\left(\frac{\pi}{\lambda_y}+\frac{2}{R}\right)y + g_{13}\cos\left(\frac{\pi}{\lambda_y}-\frac{2}{R}\right)y + \\
& + g_{14}\cos\left(\frac{\pi}{\lambda_y}+\frac{4}{R}\right)y + g_{15}\cos\left(\frac{\pi}{\lambda_y}-\frac{4}{R}\right)y\Big]\cos\frac{3\pi x}{\lambda_x} + \\
& + \Big[g_{16}\cos\frac{2\pi y}{\lambda_y} + g_{17}\cos 2\left(\frac{\pi}{\lambda_y}+\frac{1}{R}\right)y + g_{18}\cos 2\left(\frac{\pi}{\lambda_y}-\frac{1}{R}\right)y + \\
& + g_{19}\cos 2\left(\frac{\pi}{\lambda_y}+\frac{2}{R}\right)y + g_{20}\cos 2\left(\frac{\pi}{\lambda_y}-\frac{2}{R}\right)y + \\
& + g_{21} + g_{22}\cos\frac{2y}{R} + g_{23}\cos\frac{4y}{R}\Big]\cos\frac{2\pi x}{\lambda_x} + \\
& + \left(g_{24} + g_{25}\cos\frac{2y}{R}\right)\cos\frac{4\pi x}{\lambda_x} + g_{26}\cos\frac{2y}{R} + g_{27}\cos\frac{4y}{R} + \\
& + g_{28}\cos\frac{2\pi y}{\lambda_y} + g_{29}\cos 2\left(\frac{\pi}{\lambda_y}+\frac{1}{R}\right)y + g_{30}\cos 2\left(\frac{\pi}{\lambda_y}-\frac{1}{R}\right)y + \\
& + g_{31}\cos 2\left(\frac{\pi}{\lambda_y}+\frac{2}{R}\right)y + g_{32}\cos 2\left(\frac{\pi}{\lambda_y}-\frac{2}{R}\right)y.
\end{aligned}
\quad (11)
$$

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where the g_i are found from the boundary conditions in the usual way. The energy equation for a general system is $\ni = \ni_1 + \ni_2 - V$, where $\ni_1$ is the energy of deformation of the central plane, $\ni_2$ is the energy of bending, and V is the potential of external forces. Ignoring small quantities

$$\ni' = \frac{16}{3}\frac{R}{Eh^3\pi l}\cdot\ni = \frac{\xi^2}{\eta^2}\left\{\xi^2\theta^4\left[\frac{(a+b)^2+4a^2b^2}{(1+\theta^2)^2}+\frac{a^2}{(1+9\theta^2)^2}+\right.\right.$$
$$\left.+\frac{b^2}{(9+\theta^2)^2}+\frac{1}{128}+\frac{17}{12\cdot 256}(1+8a^2)^2\right]+\frac{1}{4}\frac{\theta^4}{(1+\theta^2)^2}-$$
$$\left.-\frac{\theta^4}{(1+\theta^2)^2}\xi(a+b)+\frac{1}{128}(\xi-8a)^2\right\}-\frac{8}{3}\sigma_{01}^2+ \quad (12)$$
$$+\frac{1}{48(1-\nu^2)}\xi^2[(1+\theta^2)^2+32(a^2\theta^4+b^2)]-0{,}225\cdot\sigma_{01}\frac{\xi^2\theta^2}{\eta}(1+8a^2).$$

[Abstractor's Note: Symbols not explained]. The energy criterion of equilibrium is Eq. 13 (see next card)

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$$\frac{\partial Э'}{\partial \xi} = \frac{\partial Э'}{\partial \eta} = \frac{\partial Э'}{\partial b} = \frac{\partial Э'}{\partial a} = \frac{\partial Э'}{\partial \nu} = 0. \quad (13)$$

from which can be found the relationship between the load parameter for pure bending and the uniform axial compression in the post-critical stage. Hence, the lower critical (buckling) stress may be found. The load parameter in this case is 0.26, and thus is obtained the approximation formula

$$\sigma'_0 = 0,26 \frac{Eh}{R} \quad (15)$$

with uniform axial compression

$$p'_0 = 0,18 \frac{Eh}{R}). \quad (15A)$$

There are 2 Soviet-bloc references.

ASSOCIATION: Dnipropetrovs'kyy derzhavnyy universytet (State University of Dnepropetrovsk)

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SUBMITTED: June 17, 1959

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35921
S/198/62/008/002/001/011
D299/D301

24.4200

AUTHORS: Shevlyakov, Yu.A., and Pryvarnykov, A.K. (Dnipropetrovs'k)

TITLE: On the design of laminar bases

PERIODICAL: Prykladna mekhanika, v. 8, no. 2, 1962, 113 - 119

TEXT: The stresses are considered in a pile of plates, consisting of layers of constant thickness with different elastic properties. Such problems arise in the design of multi-layer presses. It is assumed that the loads are constant on the surface of each layer. The problem reduces to determining the stress functions U_1, U_2, ..., U_n for each layer, whereby

$$\frac{\partial^4 U_k}{\partial y^4} + 2\frac{\partial^4 U_k}{\partial y^2 \partial x^2} + \frac{\partial^4 U_k}{\partial x^4} = 0. \quad (1)$$

The stresses and displacements are determined by means of complex Fourier transforms. It is assumed that all U_k satisfy Dirichlet's

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condition. One obtains the following relationships between the Fourier transforms of the stresses and displacements and those of the stress function:

$$\bar{\sigma}_{x_k} = \frac{d^2\bar{U}_k}{dy^2}; \quad 2\mu_k\bar{u}_k = \frac{i}{p}\left[(1-\nu_k)\frac{d^2\bar{U}_k}{dy^2} + \nu_k p^2\bar{U}_k\right]; \tag{5}$$

$$\bar{\sigma}_{y_k} = -p^2\bar{U}_k; \quad 2\mu_k\bar{v}_k = \frac{1}{p^2}\left[(1-\nu_k)\frac{d^3\bar{U}_k}{dy^3} - (2-\nu_k)p^2\frac{d\bar{U}_k}{dy}\right];$$

$$\bar{\tau}_{xy} = ip\frac{d\bar{U}_k}{dy}; \quad \mu_k = \frac{E_k}{2(1+\nu_k)}.$$

To solve the problem, it is convenient to introduce the 2 parameters

$$\alpha_1 = -\frac{1}{p^2}\bar{\sigma}_y; \qquad \beta_1 = \frac{E_1\bar{v}_1}{2(1-\nu_1^2)}.$$

Thereupon, the unknown coefficients A_k, B_k, C_k and D_k, required for determining $\bar{U}_k$, can be found by means of recursion formulas involv-

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ing α_k and β_k. Thus, for A_k one obtains

$$A_k = -\frac{(\mathrm{ch}|p|h_k + |p|h_k \,\mathrm{sh}\,|p|h_k)[\beta_k(|p|h_k + \mathrm{sh}\,|p|h_k \,\mathrm{ch}\,|p|h_k) + \alpha_k|p|\,\mathrm{sh}^2|p|h_k]}{|p|\,[\mathrm{sh}\,|p|h_k \,\mathrm{ch}\,|p|h_k + |p|h_k \,\mathrm{ch}\,2|p|h_k]}, \quad (6)$$

similar formulas hold for B_k, C_k and D_k. Further

$$\alpha_{k+1} = \frac{1}{2}\,\frac{2\beta_k(\mathrm{sh}^2 2|p|h_k - 4|p|^2h_k^2) + \alpha_k|p|(4|p|h_k + \mathrm{sh}\,4|p|h_k)}{|p|(\mathrm{sh}\,2|p|h_k + 2|p|h_k\,\mathrm{ch}\,2|p|h_k)},$$

$$\beta_{k+1} = \frac{1}{2}\,\frac{E_{k+1}}{E_k}\,\frac{1-\nu_k^2}{1-\nu_{k+1}^2}\,\frac{\beta_k(4|p|h_k + \mathrm{sh}\,4|p|h_k) + 2\alpha_k|p|\,\mathrm{sh}^2 2|p|h_k}{(\mathrm{sh}\,2|p|h_k + 2|p|h_k\,\mathrm{ch}\,2|p|h_k)}. \quad (8)$$

Formulas (6) and (8) yield the general solution of the problem. The above theoretical considerations are illustrated by the example of a two-layer pile. Thereby, simplified formulas are obtained, involving cosine- or sine Fourier-transforms; (it was assumed that the load is either an even- or an odd function of x). Finally, a formula is obtained for the contact stresses between the layer and the base. There is 1 figure.

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ASSOCIATION: Dnipropetrovs'kyy derzhavnyy universytet (Dnipropetrovs'k State University)

SUBMITTED: July 1, 1961

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44094
S/198/62/008/005/003/009
D234/D308

AUTHORS: Pryvarnykov, A. K. and Shevlyakov, Yu. A.

TITLE: Contact problem for a many-layer base

PERIODICAL: Akademiya nauk Ukrayins'koyi RSR. Instytut mekhaniky. Prykladna mekhanika, v. 8, no. 5, 1962, 508-515

TEXT: The base is assumed to consist of an arbitrary number of layers having different elastic properties, each with constant thickness. It is also assumed that no gaps are formed between the layers during deformation, the deformation is plane, the displacements are equal to zero at infinity, the state of loading is symmetrical with respect to the x axis, the stress functions and their derivatives up to the fourth order satisfy the conditions of existence of Fourier's sine and cosine transformations. Recurrence formulas are given which make it possible to solve the basic problems of the theory of elasticity for bases consisting of any number of layers, if two image functions for one of these layers can be found. The authors consider the case when the lowest layer is placed on a rigid

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