FODCHUK, V.I.

Existence and properties of an integral manifold for a system
of nonlinear differential equations with retarded argument and
variable coefficients. Pribl. metod. resh. diff. urav. no.1:
129-140 '63   (MIRA 18:2)

FOLGNIK, V. I.   (Kiev)

"Zur exakten Begrundung des Prinzips der Mittelbildung fur Differentialgleichungen mit nacheilendem Argument."

report submitted for 3rd Conf on Nonlinear Oscillations, E. Berlin, 25-30 May 64.

ACCESSION NR: AP4026838   S/0041/64/016/002/0273/0279

AUTHOR: Fodchuk, V. I.

TITLE: Continuous dependence of solutions of differential equations with a delaying argument on a parameter

SOURCE: Ukrainskiy matematicheskiy zhurnal, v. 16, no. 2, 1964, 273-279

TOPIC TAGS: delaying argument, parameter dependence, ordinary differential equation, initial condition, initial function, Lebesgue integration, limit point, differential-difference equation

ABSTRACT: M. A. Krasnosel'skiy and S. G. Kreyn have proved a theorem on continuous dependence of solutions of ordinary differential equations on a parameter. This theorem has been generalized by others to a wider class of equations, and analogous theorem has also been proven for differential-difference equations. The author treats the problem of generalizing this latter theorem to a wider class of equations. He studies the differential equation with delaying argument

$$\frac{dx(t)}{dt} = f[t, x(t), x(t - \Delta), \lambda] \qquad (1)$$

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ACCESSION NR: AP4026838

subject to the initial conditions

$$x(t, \lambda) = \varphi(t, \lambda) \text{ for } t \in [-\Delta, 0].$$ (2)

where $x = (x_1, x_2, \ldots, x_n) \in E^n$, $f = (f_1, f_2, \ldots, f_m) \in E^m$, $\varphi(t, \lambda)$ is some initial function, $\varphi(t, \lambda) \in E^n$.
A solution is sought to the right of the initial point $t_0 = 0$ under certain conditions. The author finds conditions under which the solution on $[0, T]$ is continuous as a function of λ. He treats the special case

$$\frac{dx(t)}{dt} = \varepsilon X[t, x, (t), x(t - \Delta(\varepsilon))].$$ (3)

Orig. art. has: 21 formulas.

ASSOCIATION: none

SUBMITTED: 04May62   DATE ACQ: 16Apr64   ENCL: 00

SUB CODE: MM   NO REF SOV: 004   OTHER: 001

Card 2/2

FODCHUK, V.I.

Some sufficient conditions for the uniqueness of the solution to the fundamental initial problem for differential equations with delayed argument. Dop. AN URSR no.6:710-714 '65.

(MIRA 18:7)

1. Institut matematiki AN UkrSSR.

FODCHUK, V.I.

Derivation of stationary solutions to quasi-linear equations
with delayed argument. Dop. AN URSR no.10:1271-1275 '62.
(MIRA 18:4)

1. Institut matematiki AN UkrSSR.

L 9214-66   EWT(d)   IJP(c)

ACC NR: AR6000127   SOURCE CODE: UR/0058/65/000/008/H004/H004

SOURCE: Ref. zh. Fizika, Abs. 8Zh30

AUTHOR: Fodchuk, V. I.

ORG: none

TITLE: Concerning the construction of stationary solutions for quasilinear equations with retarded argument

CITED SOURCE: Sb. dokl. Tashkentsk. politekhn. in-t, no. 6, 1964, 60-71

TOPIC TAGS: nonlinear differential equation, periodic solution, approximate solution

TRANSLATION: The author considers the quasilinear equation with retarded argument

$$\ddot{x}(t) + \omega^2 x(t) = \varepsilon f[x(t), \dot{x}(t), x(t-\Delta), \dot{x}(t-\Delta)]. \quad (1),$$

where ω, ε, and Δ are constants, ε is a small parameter, and $\Delta > 0$. The solution of (1) is sought in the form

$$x(t) = z(\bar{\omega}t + \varphi), \quad z(\psi) = \sum_{n=0}^{\infty} \varepsilon^n z_n(\psi), \quad \bar{\omega} = \sum_{n=0}^{\infty} \varepsilon^n \alpha_n,$$

where $z_n(\psi)$ is a periodic function with period 2π. To determine the functions $z_n(\psi)$, the author obtains linear equations without deviations of the argument. It is pointed out that the equations

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L 9214-66

ACC NR: AR6000127

$$\ddot{x}(t) + 2p\dot{x}(t) + 2q\dot{X}(t-\Delta) + \omega_0^2 x(t) =$$
$$= \epsilon / [x(t), \dot{x}(t), x(t-\Delta), \dot{x}(t-\Delta)],$$

in which p and q are small compared with ω_0^2, can be reduced to the form (1). L. El'sgol'ts.

SUB CODE: 12

Card 2/2

L 00381-66   EWT(d)   IJP(c)

ACCESSION NR: AP5021813

UR/004:/65/017/004/0094/010₂

AUTHOR: Fodchuk, V. I. (Kiev)

TITLE: Study of integral manifolds for systems of nonlinear differential equations with delaying argument

SOURCE: Ukrainskiy matematicheskiy zhurnal, v. 17, no. 4, 1965, 94-102

TOPIC TAGS: small parameter, differential equation

ABSTRACT: The author treats system

$$\frac{dx}{dt} = Ax(t) + Bx(t-\Delta) + X(t,\ g(t),\ g(t-\Delta),\ x(t),\ x(t-\Delta),$$

$$y(t),\ y(t-\Delta),\ \varepsilon),$$

$$\frac{dy}{dt} = \varepsilon Cy(t) + \varepsilon Dy(t-\Delta) + \varepsilon Y(t,\ g(t),\ g(t-\Delta),\ x(t),\ x(t-\Delta),$$

$$y(t),\ y(t-\Delta),\ \varepsilon),$$

$$\frac{dg}{dt} = \omega(\varepsilon) + G(t,\ g(t),\ x(t),\ y(t))$$

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L 00381-66
ACCESSION NR: AP5021813

6

where ε is a small parameter, $\omega(\varepsilon)$ is a constant vector, $0 < \varepsilon \leq \varepsilon$, x, y, g are vectors of dimension n, and n respectively. In his first theorem the author shows under certain conditions that for each $\varepsilon < \varepsilon_1$ system (1) has an integral manifold of type

$$x = f(t, g, \varepsilon), \quad y = \varphi(t, g, \varepsilon), \tag{2}$$

in which $f(t,g,\varepsilon)$, $\varphi(t,g,\varepsilon)$ as functions of t and g are defined and continuous for $t \in R$, $g \in \Omega$, periodic in g with period T and satisfying

$$|f(t, g, \varepsilon)| < D(\varepsilon), \quad |\varphi(t, g, \varepsilon)| < D(\varepsilon$$

$$|f(t, g', \varepsilon) - f(t, g', \varepsilon)| < \gamma(\varepsilon)|g' - g| \tag{3}$$

$$|\varphi(t, g', \varepsilon) - \varphi(t, g', \varepsilon)| < \gamma(\varepsilon)|g' - g'|,$$

where

$$D(\varepsilon) \to 0, \quad \gamma(\varepsilon) \to 0 \text{ as } \varepsilon \to 0.$$

In subsequent theorems he gives continuity, differentiability, and boundedness properties of f and φ in terms of such properties of the given functions in (1). "The author was made aware of the mentioned deficiency of work /9/ by L. E. El'sgol'ts and A. M. Zverkin, for which the author thanks them most heartily." Orig. art. has: 39 formulas.

Card 2/3

L 00381-66

ACCESSION NR: AP5021813

ASSOCIATION: none

SUBMITTED: 28Dec64   ENCL: 00   SUB CODE: MA

NO REF SOV: 007   OTHER: 002

Card 3/3

L 25999-66   EWT(d)/EWT(1)/EWP(c)   IJP(c)

ACC NR: AP6015024   SOURCE CODE: UR/0041/66/018/003/0065/0084

AUTHOR: Mitropol'skiy, Yu. A. (Kiev); Fodchuk, V. I. (Kiev)

ORIG: none

TITLE: Asymptotic methods of nonlinear mechanics as applied to nonlinear differential equations with a delayed argument

SOURCE: Ukrainskiy matematicheskiy zhurnal, v. 18, no. 3, 1966, 65-84

TOPIC TAGS: oscillation theory, nonlinear oscillation , nonlinear mechanics, asymptotic method, averaging method, delay system

ABSTRACT: Oscillatory processes in systems with after-effect which are ordinarily described by differential equations with a delayed argument are studied on the basis of the asymptotic methods of nonlinear mechanics and an averaging method. The basic results obtained in developing methods for constructing asymptotic expansions for various types of quasi-linear differential equations with delayed argument and the basic results in substantiating developed methods are reviewed. An original contribution of the article is a study of an oscillatory system with distributed parameters and with time delay described by a quasi-linear partial differential equation with a delayed argument of the form.

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L 25999-66

ACC NR: AP6015024

$$\frac{\partial^2 u}{\partial t^2} - a^2 \frac{\partial^2 u}{\partial x^2} = \epsilon F(t, x, u(t, x), u(t-\Delta, x), u'_t(t, x),$$

$$u'_t(t-\Delta, x), u'_x(t, x), u'_x(t-\Delta, x), \epsilon), \qquad (1)$$

where F is a nonlinear periodic function of t with the period $2\bar{u}$ which has a sufficient number of continuous partial derivatives with respect to its arguments; ϵ is a positive small parameter. The solution of this equation is sought in the form

$$u(t, x, \epsilon) = \sum_{n=1}^{\infty} T_n(t, \epsilon) \sin \frac{n\pi}{l} x, \qquad (2)$$

where $T_n(t, \epsilon)$ is to be determined. To determine $T_n(t, \epsilon)$ (n = 1,2,...), an infinite system of ordinary differential equations with delayed argument and initial conditions are derived. An averaging method is applied for their solution and its use is substantiated. Prospects for further development of asymptotic methods of nonlinear mechanics for studying nonlinear oscillatory systems with delay are outlined and the problems of the theory of differential equations with delayed argument which can be solved by such asymptotic methods are indicated. Orig. art. has: 59 formulas. [LK]

SUB CODE: 12/ SUBM DATE: 27Jan66/ ORIG REF: 028/ OTH REF: 004/ ATD PRESS

Card 2/2

L 05385-67   EWT(d)/EWP(v)/EWP(k)/EWP(h)/EWP(1)

ACC NR: AP6024533   SOURCE CODE: UR/0041/66/018/004/0117/0121

AUTHOR: Martynyuk, D. I. (Kiev); Fodchuk, V. I. (Kiev)

ORG: none

TITLE: Asymptotic integration of quasilinear self-regulating systems with delay

SOURCE: Ukrainskiy matematicheskiy zhurnal, v. 18, no. 4, 1966, 117-121

TOPIC TAGS: automatic regulation, asymptotic solution, ordinary differential equation

ABSTRACT: The method of N. N. Bogolyubov (*Sb. tr. in-ta stroitel'noy mekhaniki*, AN
SSSR, Vol. 10, 1949) for constructing asymptotic solutions of quasilinear self-regulat-
ing systems with many degrees of freedom when the characteristic equation of the gene-
rating system has one pair of critical (imaginary) roots is extended to the case of
quasilinear self-regulating systems having many degrees of freedom and also a time de-
lay. The system considered is

$$\frac{dx_s}{dt} = a_{s1}x_1(t) + \ldots + a_{sn}x_n(t) + b_{s1}x_1(t-\Delta) + \ldots + b_{sn}x_n(t-\Delta) +$$

$$+ \mu f_s(x_1(t), x_2(t), \ldots, x_n(t), x_1(t-\Delta), \ldots, x_n(t-\Delta), \mu)$$

$$(s = 1, 2, \ldots, n),$$

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ACC NR: AP6024533

along with the characteristic equation

$$D(\lambda) \equiv |a_{sf} + b_{sf}e^{-\lambda \Delta} - \delta_{sf}\lambda| = 0$$

Orig. art. has: 29 formulas.

SUB CODE: 12/   SUBM DATE: 17Aug65/   ORIG REF: 004/   OTH REF: 001

Card 2/2

ZATOLOKIN, F.D.; FODERMAN, M.N.

Treatment of lupus with resochin. Vrach. delo no.8:116 Ag '60.
(MIRA 13:9)
1. Klinika koshnykh i veroricheskikh bolezney (nav. - prof. A.A.
Kroychik) Stalinskogo meditsinskogo instituta.
(LUPUS)   (QUINOLINE)

FODERMAN, V.M.

."Diseases of the mucous membrane of the oral cavity in skin and
venereal diseases" by B.M.Pashkov. Reviewed by V.M.Foderman.
Zhur. ush., nos. i gorl. bol. 21 no.2:91-93 Mr-Ap '61.

(MIRA 14:6)

(MOUTH—DISEASES)   (MUCOUS MEMBRANE)
(SKIN—DISEASES)   (VENEREAL DISEASES)
(PASHKOV, B.M.)

YAMPOL'SKAYA, Ye. S.: FODIMAN, I. V.

Dyes and Dyeing - Rayon

Dyestuff for acetate rayon and for capronic fiber. Tekst. prom.
12 no. 3, 1952.

Monthly List of Russian Accessions, Library of Congress, April 1952. UNCLASSIFIED

KOGAN, Iosif Mikhaylovich; KOROLEV, A.I., professor, redaktor; IODIMAN, I.V., redaktor; LUR'YE, M.S., tekhnicheskiy redaktor

[The chemistry of dyes] Khimiia krasitelei. Izd. 3-e. Pod red. A.I. Koroleva. Moskva, Gos. nauchno-tekhn. izd-vo khim. lit-ry, 1956. 696 p.   (MLRA 9:12)
        (Dyes and dyeing--Chemistry)

KOROLEV, A.I., prof.; FODIMAN, I.V., kand. tekhn. nauk.

Present state and trends in the development of the chemistry and
manufacture of synthetic dyes. Khim. nauka i prom. 3 no.2:138-145
'58.   (MIRA 11:6)
                        (Dyes and dyeing)

FODIMAN I. V.

YAMPOL'SKAYA, Ye.S.; FODIMAN, I.V.

Determining the rate of exhaustion of a dyestuff. Tekst.prom. 18
no.4:28-31 Ap '58.   (MIRA 11:4)

            (Dyes and dyeing--Chemistry)

KOROLEV, A.I., otv.red.; VUL'FSON, N.S., zam.otv.red.; BOGDANOV, S.V.,
red.; DOKUNIKHIN, N.S., red.; MASLENNIKOVA, Ye.V., red.; PODIMAN,
I.V., red.; KHOMSKIY, I.G., red.; ZETKIN, V.I., red.; SHPAK, Ye.G.,
tekhn.red.

[Organic intermediate products and dyes; collected articles]
Organicheskie poluprodukty i krasiteli; abornik statei. Moskva,
Gos.nauchno-tekhn.izd-vo khim.lit-ry. No.1. 1959. 238 p.
                                        (MIRA 13:7)
1. Nauchno-issledovatel'skiy institut organicheskikh polupro-
duktov i krasiteley.
            (Dyes and dyeing)   (Aromatic compounds)

KOROLEV, A.I., prof; FODIMAN, I.V., kand.tekhn.nauk

"Main aspects of inventions and the international law covering
them." by M.M. Boguslavskii. Reviewed by A.I. Korolev.
Khim. prom. no. 6:525-526 S '60.   (MIRA 13:11)
    (Inventions)   (Boguslavskii, M.M.)

YAMPOL'SKAYA, Ye.S.; FODIMAN, I.V.

Absorbability of dyes by capron for acetate silk. Org. poluprod.
i kras. no.2:164-167 '61.   (MIRA 14:11)
                              (Nylon) (Rayon)

SHI.M., I.Ya., nauchnyy sotrudnik; PODL..., I.V., nauchnyy sotrudnik;
GULIN..., I.R., nauchnyy sotrudnik

Use of pigments for printing.. Tekst. pro . 21 nc.10:57-
60 0 '61.
(.IRA 14:10)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut organicheskikh
poluproduktov i krasiteley imeni K.Ye. Voroshilova (VNIOPik).
(Textile printing)
(Pigments)

SHTERN, I.Ya.; FODIMAN, I.V.; RAYKHMAN, N.M.

Pigment dyeing of fabrics. Tekst.prom. 22 no.1:62-64 Ja '62.
(MIRA 15:2)

1. Gosudarstvennyy nauchno-issledovatel'skiy institut organicheskikh
poluproduktov i krasiteley.

(Textile fabrics) (Dyes and dyeing)

FODIMAN, I.V.; BYAL'SKIY, A.L.

Manufacture of synthetic dyes in capitalist ccuntries. Khim.
prom. no.2:148-154 F '64.   (MIRA 17:9)

L 5294-66   EWT(m)/EWP(j)/EWG(v)   RM
ACC NR: AP5024998

SOURCE CODE: UR/0286/65/000/016/0061/0062

AUTHORS: Krasovitskiy, B. M.; Pereyaslova, D. G.; Fodiman, I. V.; Tatsiy, G. V.

ORG: none

TITLE: A method for obtaining daylight fluorescent pigments. Class 22, No. 173867
/announced by All-Union Scientific Research Institute of Single Crystals
(Vsesoyuznyy nauchno-issledovatel'skiy institut monokristallov)/

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 16, 1965, 61-62

TOPIC TAGS: pigment, dye, resin, single crystal, n toluolsulfamide, melamine,
formaldehyde

ABSTRACT: This Author Certificate presents a method for obtaining daylight
fluorescent pigments based on a resin of n-toluolsulfamide, melamine, and
formaldehyde, to which a dye is added. To increase the fastness of colors in day-
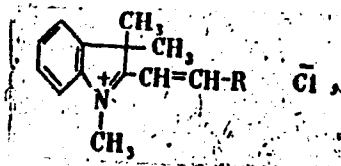light, cation pigments are used as dyes. Their general formula is:

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UDC: 666.291.3:668.819.45

L 5294-66
ACC NR: AP5024998

where R is an aromatic or a heterocyclic radical. A luminophor may be added to the dye.

SUB CODE: MT, GC/   SUBM DATE: 07Sep64/   ORIG REF: 000/   OTH REF: 000

Card 2/2

MAYBORODA, V.I.; SOLOV'YEVA, G.I.; EGLIT, L.V.; FODIMAN, I.V.; SHILOVA, G.I.;
ZARINA, E.Ya.; CHAMOVA, L.P.; FILICHEVA, T.B.

Highly dispersed pigments for stock dyeing of viscose fibers. Khim.
volok. no.3:60-62 '65.

(MIRA 18:7)

1. Vsesoyuznyy nauchno-issledovatel'skiy iskusstvennogo volokna (for
Mayboroda, Solov'yeva, Eglit). 2. Nauchno-issledovatel'skiy institut
organicheskikh poluproduktov i krasiteley (for Fodiman, Shilova).
3. Klinskiy kombinat iskusstvennogo i sinteticheskogo volokna (for Zarina,
Chamova, Filicheva).

FODIMAN, L.V.

CA

22

The simultaneous use of mordant dyes with diazo dyes.
L. V. Fodiman. *Khlopchato-Bumazhnaya Prom.* 1939,
No. 7, 15-8; *Khim. Referat. Zhur.* 1940, No. 1, 111-12.—
Mordant dyes added to the naphtholated material simul-
taneously with the diazo compds. are fixed by steaming the
fabric for 30 min. at 100-5° after neutralizing the acidity
of the diazo compds. with AcONa.   W. R. Henn

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

FODIMAN, L.V.

Thickener for printing dyes, finishing compositions, and sizes. Patent
U.S.S.R. 77,923, Dec.31, 1949.
(CA 47 no.19:10239 '53)

ISLENT'YEV, Petr Alekseyevich; FODIMAN, L.V., redaktor; ZAYTSEV, M.I., retsenzent; KOPELEVICH, Ya.I., redaktor; MEDVEDEV, E.Ya., tekh-nicheskiy redaktor

[Methods of calculating the demand for dyes and chemical materials by individual cotton mills] Metodika podscheta potrebnosti v krasiteliakh i khimicheskikh materialakh dlia otdelochnukh khlopchato-bymazhnykh fabrik. Pod red. L.V.Fodimana. Moskva, Gos. nauchno-tekhn. izd-vo Ministerstva promyshlennykh tovarov shirokogo potre-bleniia SSSR, 1954. 79 p.

      (Dyes and dyeing--Cotton)

(MLRA 8:6)

ISLENT'YEV, Petr Alekseyevich; FODIMAN, L.V., spets. red.;
    VERBITSKAYA, Ye.M., red.; KNAKNIN, M.T., tekhn. red.

[Thickening agents and adhesives made of specially prepared
macromolecular compounds]Zagushchaiushchie i kleiushchie ma-
terialy iz spetsial'no podgotovlennykh vysokomolekuliarnykh
soedinenii. Moskva, Izd-vo nauchno-tekhn. lit-ry RSFSR,
1960.   58 p.   (MIRA 16:3)
    (Thickening agents) (Adhesives) (Macromolecular compounds)

TRET'YAKOVA, Nina Yakovlevna. Prinimal uchastiye PODIMAN, L.V.
MODESTOVA, T.A., dotsent, kand.tekhn.nauk, retsenzent;
RUSAKOV, S.I., dotsent, kand.tekhn.nauk, nauchnyy red.;
GABOVA, D.M., red.; KNAKNIN, M.T., tekhn.red.

[Guide for textiles used in clothing manufacture (textile fibers;
mechanical and chemical data on fibrous materials)] Materialovede-
nie shveinogo proizvodstva. (Tekstil'nye volokna; kratkaia mekhani-
cheskaia i khimicheskaia tekhnologiia voloknistykh materialov).
Moskva, Izd-vo nauchno-tekhn.lit-ry RSFSR, 1960. 231 p.

(Textile fibers)   (Clothing industry)   (MIRA 13:11)

BARABANOV, L.G.; KONOPLEVA, A.I.; FODIMAN, L.V., kolorist; SHMELEVA, L.S.;
    CHEBIKINA, V.A., dessinator

Practices for improving the assortment and quality of production.
Tekst. prom. 21 no. 4:55-67 Ap '61.   (MIRA 14:7)

1. Direktor kombinata "Trekhgornaya Manufaktura" (for Barabanov).
2. Zaveduyushchaya otdelochnym proizvodstvom kombinata "Trekhgornaya
Manufaktura" (for Konopleva). 3. Nachal'nik laboratorii kombinata
"Trekhgornaya Manufaktura" (for Shmeleva).
                    (Textile fabrics)

GOLOMB, Leonid Mikhaylovich; YEMEL'YANOV, A.G., retsenzent;
FODIMAN, L.V., retsenzent; VERBITSKAYA, Ye.M., red.

[Physicochemical fundamentals of the final operations in
dyeing with vat dyes] Fiziko-khimicheskie osnovy zakliu-
chitel'nykh operatsii krasheniia kubovymi krasiteliami.
Moskva, Legkaia industriia, 1964. 153 p.   (MIRA 17:9)

L 25739-65   EPF(c)/EWP(j)/EWT(m)   Pc-4/Pr-4   RM
ACCESSION NR: AP3001567
                                      S/0069/63/025/003/0291/0298

AUTHOR: Geller, T. I.; Sandomirskiy, D. M.; Ustinova, Z. M.; Fodiman, N. M.;
Dogadkin, B. A.

TITLE: Certain features of the vulcanization of rubber in latex form

SOURCE: Kolloidnyy zhurnal, v. 25, no. 3, 1963, 291-298

TOPIC TAGS: rubber vulcanization, latex, rubber research, rubber mixture

ABSTRACT: Since the addition of sulfur to rubber in latex may occur as a result
of the collision of rubber globules, dispersed sulfur particles, and zinc oxide,
all the factors which increase the number of such collisions or their efficiency
should accelerate the vulcanization of rubber in the latex. This article shows
the results of investigation of the effect of concentrating vulcanizing agents,
the rate of stirring, temperature, the properties of globule protective layers and
the order of addition of ingredients. The work was conducted with natural latex
concentrate produced by centrifuging and stabilized with ammonia. The content of
solid was 60.2%, pH=10.45 and the surface tension was 45.1 dynes/cm. ZnO and S
were introduced into the latex in the form of aqueous suspensions. Vulcanization
was carried out in a closed flask in a 70° C water bath. It was found that with

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ACCESSION NR: AP3001567

an increase in the concentration of sulfur and ZnO in the latex mixture the rate
of vulcanization increases. An increase in the concentration of water soluble
accelerator (sodium diethyldithiocarbamate) has practically no effect on the rate
of vulcanization. At a certain value, more intense stirring of the latex mixture
leads to acceleration of vulcanization. An increase in temperature increases the
vulcanization rate. Vulcanization is accelerated with a decrease in the thickness
of the globule protective layer. Zinc oxide reacts with serum components in the
latex mixture, forming rubber soluble substances which in turn accelerate the
addition of sulfur. The addition proceeds faster in latex than in a dry film of
the same composition. The formation of space lattice occurs at early stages of
vulcanization. It is concluded that all factors which enhance the number of col-
lisions of particles in the latex mixture and the efficiency of their collisions
as well as aid the transfer of vulcanizing agents into rubber soluble substances
accelerate vulcanization. Orig. art. has: 7 figures.

ASSOCIATION: Moskovskiy institut tonkoy khimicheskoy tekhnologii im. M. V.
Lomonosova (Moscow Institute of Fine Chemical Technology)

SUBMITTED: 30Dec62   ENCL: 00

NO REF SOV: 004   OTHER: 002   SUB CODE: MT, GC
Card 2/2

USTINOVA, Z.M.; FODIMAN, N.M.; PANICH, R.M.; VOYUTSKIY, S.S.

Ways of obtaining concentrated vulcanized latex. Kauch. i rez. 23
no.9:5-7 S '64.
(MIRA 17:11)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii im. M.V.
Lomonosova.

KAMENSKIY, A.N.; FODIMAN, N.M.

Electron microscope study of soot structure in polymer - soot
mixtures. Zav. lab. 30 no.7:827-829 '64.   (MIRA 18:3)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni
Lomonosova.

KAMENSKIY, A.N.; FODIMAN, N.M.; VOYUTSKIY, S.S.

Electron microscope study of mutual diffusion in polymer
systems. Dokl. AN SSSR 159 no.6:1364-1366 D '64   (MIRA 18:1)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii im. M.V.
Lomonosova. Predstavleno akademikom V.A. Karginym.

L 51395-65   EWT(m)/EPF(c)/EWP(v)/EPR/EWP(j)/T   Pc-4/Pr-4/Ps-4   RPL   Wd/RM
ACCESSION NR: AP5011251   UR/0191/65/007/004/0696/0700

AUTHORS: Kamenskiy, A. N.; Podiman, N. M.; Voyutskiy, S. S.

TITLE: Electron microscope investigation of mutual diffusion in polymeric systems

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 7, no. 4, 1965, 696-700, and insert facing p. 689

TOPIC TAGS: polymer, electron microscopy, microtome, polyvinylchloride, polymethylmethacrylate, diffusion welding, adhesive bonding

ABSTRACT: The authors made use of electron microscopy for more precise determination of mutual diffusion in polymeric systems. Two systems were investigated: polymethylmethacrylate-polyvinylchloride and polybutylmethacrylate-polyvinylchloride. The constituents were held in contact for a time sufficient to permit interdiffusion at temperatures of 160-170C and 210-220C. Sections were then cut by means of an ultramicrotome at right angles to the plane of contact. Results show that interpenetration is greater with higher temperature and that the interpenetration of polybutylmethacrylate-polyvinylchloride is less than that of polymethylmethacrylate-polyvinylacrylate. This is due to the low polarity of polybutylmethacrylate and to butyl side chains in the molecule of this compound, retarding diffusion. The electron microscope makes it possible to observe

Card 1/2

L 51395-65
ACCESSION NR: AP5011251

interpenetration of macromolecules to a rather great depth, or the order of hundreds and thousands of angstroms. It is concluded that diffusion is an important factor in the production of adhesive bonding. Orig. art. has: 2 figures (but only 1 sent with the article).

ASSOCIATION: Moskovskiy institut tonkoy khimicheskoy tekhnologii im. M. V. Lomonosova (Moscow Institute of Fine Chemical Engineering)

SUBMITTED: 30Jun64   ENCL: 00   SUB CODE: OC, EC

NO REF SOV: 006   OTHER: 001

Card 2/2

GRITSKOVA, I.A.; USTINOVA, Z.M.; FODIMAN, N.M.

Polymerization of styrene in the presence of nonionogenic
emulsifiers. Part 2: Dependence of the particle size of
polystyrene latexes on the conditions of polymerization
and nature of nonionic emulsifiers. Koll.zhur. 27 no.3:338-
340 My-Je '65.   (MIRA 18:12)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni
Lomonosova. Submitted Sept. 13, 1963.

USTINOVA, Z.M.; FODIMAN, N.M.; GELLER, T.I.; SANDOMIRSKIY, D.M.; DOGADKIN, B.A.

Some particular features of the vulcanization of rubbers as latexes.
Part 2: Part played by zinc oxide and by protective substances. Koll.
zhur. 27 no.5:773-779 S-O '65.   (MIRA 18:10)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni
Lomonosova.

L O4953-67   EWT(m)/EWP(v)/EWP(j)   IJP(c)   WW/RM

ACC NR: AP6023398   SOURCE CODE: UR/0374/66/000/003/0446/04.2

AUTHOR: Voyutskiy, S. S.; Kamenskiy, A. N.; Fodiman, N. M.

ORG: Moscow Institute of Fine Chemical Technology im. M. V. Lomonosov (Moskovskiy institut tonkoy khimicheskoy tekhnologii)

TITLE: Direct evidence of self- and interdiffusion in the formation of an adhesive bond between polymers

SOURCE: Mekhanika polimerov, no. 3, 1966, 446-452

TOPIC TAGS: adhesive bonding, physical diffusion, polyvinyl chloride, polymethyl methacrylate, polybutyl methacrylate

ABSTRACT: The paper discusses direct evidence of diffusion of one polymer into another, obtained by the method of tagged atoms and by means of microscopy in ordinary and UV light. It is shown that the diffusion rate in these cases is sufficiently high to explain the formation of autohesive or adhesive bonds by the interweaving of the macromolecules. Electron microscopy followed by microphotometry of the pictures obtained showed the presence of interdiffusion in the systems polymethyl methacrylate (PMM) – polyvinyl chloride (PVC) and polybutyl methacrylate (PBM) – PVC at 160-220 °C. It is shown that a temperature increase in the range studied promotes the interpenetration of the polymers. The latter is less in PBM – PVC than in PMM – PVC. This is apparently due to the lesser compatibility of PVC and PBM because of the lower polarity of

Card 1/2   UDC: 678:01.53

L 04953-67

ACC NR: AP6023398   3

the latter and the presence of bulky pendants in the molecules of PBM. The appearance
of a dark band at the interface between the two polymers was observed in many cases.
This is attributed to a compaction of the substance in this region, probably due to
the orientation of the diffusing molecules. The rate of diffusion of SKS-85 butadi-
ene-styrene rubber into polystyrene was calculated from the dependence of the width
of the dark band on the contact time. The values obtained were high enough to explain
the formation of the adhesive bond by the diffusion of SKS-85 into polystyrene. Orig.
art. has: 4 figures and 1 table.

SUB CODE: 11/ SUBM DATE: 30Sep65/ ORIG REF: 008/ OTH REF: 003
          07/

Card 2/2

L 02368-67   EWT(m)/EWP(v)/EWP(j)/T   IJP(c)   WW/RM

ACC NR: AP6032179   SOURCE CODE: UR/0069/66/028/005/0772/0773

AUTHOR: Dogadkin, B. A.;;Panich, R. M.; Fodiman, N. M.

ORG: none

TITLE: Sixtieth anniversary of S. S. Voyntskiy

SOURCE: Kolloidnyy zhurnal, v. 28, no. 5, 1966, 772-773

TOPIC TAGS: latex, polymer compatibility, plasticization, leather substitute, polymer adhesion, polymer cohesion, chemical personnel, colloid chemistry, macro molecular chemistry

ABSTRACT: Professor, Doctor of Chemical Sciences, S. S. Voyntskiy is a prominent expert in the fields of colloidal chemistry and of the physics and chemistry of high-molecular weight compounds. His studies include the following topics: physics and chemistry of latexes; compatibility and plasticization of polymers; leather substitutes, special cardboards, and paper; and nonwoven filtering materials. His studies on the cohesion and adhesion of polymers resulted in the development of the diffusion theory of adhesion. Voyntskiy is associated with the following institutions: Moscow Institute of Fine Chemical Technology im. M. V. Lomonosov; Institute of Light Industry; and the Scientific Research Institute of Leather Substitutes.   [BO]

SUB CODE: 07, 11/ SUBM DATE: none

Card 1/1   vmb.

USSR

Mechanism of separation of the disperse phase of emulsions during filtration. S. S. Voyutskii, K. A. Kal'yanova, R. M. Panich, and N. M. Podiman (M. V. Lomonosov Inst. Fine Chem. Technol., Moscow). Doklady Akad. Nauk S.S.S.R. 91, 1155-8(1953).—In the filtration of emulsions through fibrous materials, the emulsion separates only if some crit. filtration velocity is not exceeded. Below this velocity, the completeness of sepn. depends on the total surface of the fiber rather than on the size of the capillaries. To elucidate the mechanism of the sepn., emulsifier-less water-in-oil emulsions (0.2% H₂O) were brought in contact with a series of fibers of equal total surface areas, but different hydrophility (I). The rate of destruction of the emulsion increased with I. In filtration, a similar relation held. The coagulation of the H₂O globules, by their adsorption on the fibers, was possibly preceded by adsorption of the stabilizers present in the emulsion. The rate of self-cleaning of the fibers, by shedding the coagulated H₂O, increased with increasing hydrophobicity (II) of the fibers, as indicated by comparison of the amts. of water displaced from moist fibers by oil. For best sepn. of water-in-oil emulsions, the fiber filters should possess I high enough to coagulate the H₂O phase, and II high enough to permit a self-cleaning of the filter fiber, so that the filter does not clog.   A. D.

62
3

5(4)

AUTHORS: Voyutskiy, S.S., Fodiman, N.M.,   SOV/153-58-2-27/30
                Panich, R.M.

TITLE: On the Filtration of Emulsions
                (O fil'tratsii emul'siy)

ABSTRACT: In the beginning the authors discuss the difference between the
                filtration of suspensions (Refs 1-6) and emulsions. Although the
                process mentioned in the title would be suited for large-scale
                industrial purposes the most important facts of the process have
                hitherto not been investigated. Concepts concerning the filtration
                of suspensions must not be applied to emulsions:-suspensions are
                aggregatively and kinetically unstable and contain a solid disperse
                phase, emulsions however, contain deformable drops of the liquid
                disperse phase which are capable of coalescence; they always con-
                tain a stabilizer. In the course of the last years the authors
                carried out special investigations to determine the characteristic
                features of the filtration of emulsions which are briefly sum-
                marized in reference 7. In the present paper the results are pre-
Card 1/4   sented somewhat more in detail and new data which are of interest

On the Filtration of Emulsions   SOV/153-58-2-27/30

for the elaboration of the filtration theory of emulsions are
mentioned. The authors used cotton fabric, three-layered "kirza",
asbestos cloth, several fabrics of rayon and caprone, unwoven
fiber: cotton (unprocessed as well as cotton made hydrophobic by
tanning or "velanization"), α-cellulose, viscose fibers, caprone
staple fiber, wool fiber, chrome tanned collagen fiber, glass wool
in their experiments. The results are given on table 1. An emul-
sion of second order was used, which forms by emulsifying water in
petroleum of the T-1 type. Organic acids and resins (50 mg per
10 ml in petroleum) were used as emulsifier. A specially designed
device was used (Figure). The experiments showed that the same
conditions prevailing filters from average hydrophilous fibers
have the best filtration power. Filtration of emulsions through woven
and unwoven fiber material showed a number of considerable differ-
ences from the filtration of the suspensions: 1) The emulsions do
not form a filtrating layer from the particles of the disperse
phase on the filter. The globulae of the emulsion remain at the
depth of the filter on the surface of the elementary fibers. Due
to this fact the capillaries are filled by the disperse phase and
filtration is stopped. If the emulsion is aggregatively not too
Card 2/4   stable the sticking globulae coalesce and the disperse phase

On the Filtration of Emulsions   SOV/153-58-2-27/30

                drops down from the filter. This holds for all types of emulsions.
2) The completeness of the filtration of the disperse phase of
the medium does not depend on the size of the capillaries but
it is almost entirely due to the amount of the filtrating material
per one surface unit of the filter. The density and the thickness
of the filter are practically not important at all if a suffi-
cient quantity of filtrating material is present per unit of the
outer surface of the filter. Apparently filtration of the emul-
sion is not due to the separation of the disperse phase but to
the absorption phenomena and the sticking of the globulae to the
fine fibers. If the critical rate of the process is surpassed
the whole emulsion passes the filter. 4) After a long filtration
the filter is "poisoned". Filtration is slowed down while the
fibers are covered with a resinous substance, which probably
comes from the shells of the globulae. These shells consist of
the emulsifier. There are 4 figures, 3 tables, and 17 references,
12 of which are Soviet.

ASSOCIATION: Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni M.V.
            Lomonosova (Moscow Institute for Fine Chemical Technology imeni
Card 3/4   M.V. Lomonosov)

SOV/138-59-2-5/24

AUTHORS: Panich, R. M., Fodiman, N. M. and Voyutskiy, S.S.

TITLE: Evaluation of the Degree of Vulcanization of Latex
          Coatings According to Their Swelling Capacity
          (Otsenka stepeni vulkanizatsii lateksnykh plenok
          po ikh sposobnosti k nabukhaniyu)

ABSTRACT: So far, the degree of vulcanization of latex coatings
          has been determined according to their physico-mechanical
          properties. These can be influenced by the degree of
          coalescing of the globules in the coating (Ref 1) and a
          method was devised for defining the swelling of the
          coatings in suitable solvents. Results obtained, when
          using this method for the evaluation of the degree of
          vulcanization of coatings made from vulcanised latex,
          are given. The macrostructure of these coatings
          influences strongly the physico-mechanical properties
          and, therefore, inhibits the coalescing of the
          vulcanised globules. The gravimetric method described
          by D. E. Andersen (Ref 2) was used and the degree of
          swelling (Q) calculated in weight percent. The time
Card 1/3 required for attaining maximum swelling under the

SOV/138-59-2-5/24

Evaluation of the Degree of Vulcanization of Latex Coatings
According to Their Swelling Capacity

described conditions was determined by investigating
the kinetics of swelling of latex coatings. These were
prepared from natural latexes, vulcanised when using
different ultra-accelerators. In all cases maximum
swelling (Q_{max}) was observed after six hours. The
average molecular weight (M_c) of cuttings between
adjacent units of the molecular grate of the vulcanisate
was calculated according to the Flory-Rehner equation.
These calculations showed that the macrostructure of the
coatings has a definite influence on the swelling which
is reflected in the calculated results of M_c. Tests
were also carried out with latex coatings, vulcanised
when using varying amounts of ultra-accelerators.
Sodium diethyl dithiocarbamate and dimethylamine
dimethyl thiocarbamate (K-45) were used. The latex was
vulcanised for one hour at 70°C. Results are given in
Table 1. Further experiments were carried out on latexes
which had been vulcanised for varying lengths of time.
Card 2/3   In this case 1% of the ultra-accelerator was used (Table 2).

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Evaluation of the Degree of Vulcanization of Latex Coatings
According to Their Swelling Capacity

In a third series of tests the latex was vulcanised
at different temperatures (Table 3). At vulcanization
temperatures above 80°C the tensile strength of the
coatings decreases sharply. This is due to the fact
that at high vulcanization temperatures a very high
space structure in the rubber globules is formed;
this decreases the coalescing capacity of the globules
and also the strength of the latex coatings.
There are 3 tables and 3 references, 1 of which is
Soviet, 2 English.

ASSOCIATION: Moskovskiy institut tonkoy khimicheskoy
tekhnologii im. Lomonosova (Moscow Institute for Fine
Chemical Technology imeni Lomonosov)

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5.3831
24.3900

68890
S/051/60/008/02/017/036
E201/E391

AUTHORS: Slonim, I.Ya, Fodiman, N.M. and Ustinova, Z.M.

TITLE: Determination of Particle Size from Scattering of Light
             II. Determination of Dimensions of Polychloroprene Latex
             Using Optical and Electron Microscopic Methods

PERIODICAL: Optika i spektroskopiya, 1960, Vol 8, Nr 2,
             pp 243 - 246 (USSR)

ABSTRACT: In Part I (Ref 1) Slonin deduced formulae for calculation
             of particle radii from the results of light scattering
             in a monodisperse system (all particles are of the same
             size). If these formulae are plotted to a polydisperse
             system (particles of different sizes) a certain effective
             mean value of the radius (a) is obtained; it represents
             a mono-disperse system scattering the light in the same
             way as the polydisperse system under investigation. Two
             forms of the mean radius are employed: a mean-number
             radius a_n and a mean-weight radius a_w :

$$a_n = \left(\frac{\Sigma \nu_i a_i^3}{\Sigma \nu_i}\right)^{1/3} \qquad (1)$$

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Determination of Particle Size from Scattering of Light II.
Determination of Dimensions of Polychloroprene Latex Using Optical
and Electron Microscopic Methods

and

$$a_w = \left(\frac{\Sigma \nu_i a_i^6}{\Sigma \nu_i a_i^3} \right)^{1/3}$$

(2)

where ν_i is a number of particles with a radius a_i.
For particles whose dimensions are small compared with the
wavelength of scattered light, the Rayleigh equation holds
and measurements of scattering of light yield the value
a_w. If the particle dimensions exceed 0.1λ the mean
particle radius, found from measurements of the optical
density (turbidity), is given by:

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Determination of Particle Size from Scattering of Light II.
Determination of Dimensions of Polychloroprene Latex Using Optical
and Electron Microscopic Methods

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$$a_\varphi = \left(\frac{\sum_i \nu_i a_i^{n_\varphi + 3}}{\sum_i \nu_i a_i^3} \right)^{\frac{1}{n_\varphi}} . \qquad (10)$$

The mean particle radius found from the intensity of
scattering of light at an angle of 45° is:

$$a_I = \left(\frac{\sum_i \nu_i a_i^{n_\psi + 3}}{\sum_i \nu_i a_i^3} \right)^{\frac{1}{n_\psi}} . \qquad (11)$$

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Determination of Particle Size from Scattering of Light II.
Determination of Dimensions of Polychloroprene Latex Using Optical
and Electron Microscopic Methods

For small particles $n_\varphi = n_\psi = 3$ and Eqs (10) and (11)
become identical with Eq (2) $(a_\chi = a_I = a_w)$. For large
particles n_φ and n_ψ are both less than 3. To
calculate them we can use the expressions:

$$n_\varphi = \frac{\Delta[\lg \varphi(z)]}{\Delta \lg z} \qquad (12)$$

and

$$n_\psi = \frac{\Delta[\lg \psi(z)]}{\Delta \lg z} . \qquad (13)$$

The values of n_φ and n_ψ decrease with increase of
z $(z = 8\pi a/\lambda)$: for example, when $z = 2$, $n_\varphi = 2.81$

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Determination of Particle Size from Scattering of Light II.
Determination of Dimensions of Polychloroprene Latex Using Optical
and Electron Microscopic Methods

and $n_\psi = 2.95$ and when $z = 8$, $n_\varphi = 1.33$ and $n_\psi = 2.04$.
Throughout the range $z = 2-8$, $n_\psi > n_\varphi$. The formulae
quoted above were used to measure the dimensions of
globules of polychoroprene latex. To measure scattering
of light the latex (with dry residue of 43.5%) was diluted
and a 1% solution of ammonia was added to avoid coagulation.
Optical density was measured for dilutions from 1:3333
to 1:10000 using a photoelectrocalorimeter-nephelometer
FEK-N-54 with 5 cm long cells, employing light of four
wavelengths. To determine the intensity of light scattered
at an angle of 45° a nephelometer NFM was used on solutions
diluted in the ratios from 1:5000 to 1:40000. Electron
micrographs of the latex were obtained with an electro-
static Zeiss microscope D-2, with a magnification of 8000.
Dimensions of the globules in the electron micrographs
were measured with a special microscope, MIR-12. The results

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Determination of Particle Size from Scattering of Light II.
Determination of Dimensions of Polychloroprene Latex Using Optical
and Electron Microscopic Methods

are summarized in Figure 2, where the four arrows
represent the mean radii a_n and a_w obtained with an
electron microscope, and the values a_γ and a_I found
optically. In agreement with theory, $a_n < a_\gamma < a_I < a_w$.
The results show that determination of the particle size
of latex from light scattering, using formulae deduced for
particles with optical properties differing only slightly
from those of the surrounding medium, gives results which
agree satisfactorily with electron microscopic measure-
ments. There are 2 figures, 1 table and 5 references,
2 of which are Soviet, 1 French and 2 translations.

SUBMITTED: April 28, 1959

Card 6/6

15.9210   15.9300

69462
S/069/60/022/02/002/024
D034/D002

AUTHORS: Voyutskiy, S.S., Sandomirskiy, D.M., Fodiman, N.M.,
           Panich, R.M., Ustinova, Z.M.

TITLE: Studies on the Mechanism of Film Formation From Vul-
           canized Latex. 2. The Formation of Films From SKS-30
           ShKhP Butadiene-Styrene Latex

ABSTRACT: The authors report on an investigation into the mech-
           anism of the formation of films from vulcanized and un-
           vulcanized synthetic latex. Object of the study was
           SKS-30 ShKhP butadiene-styrene latex, which contains
           35.5% dry substance. As stabilizer the authors used
           paraffinic acid ammonium salt. They determined the
           effect on the tensile strength of such factors as the
           swelling of the films in water vapors and vaseline oil,

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69462

S/069/60/022/02/002/024
D034/D002

Studies on the Mechanism of Film Formation From Vulcanized Latex.
2. The Formation of Films From SKS-30 ShKhP Butadiene-Styrene
Latex

the test temperature, and the behavior of the films
during mastication. The method of the investigation
was described in a previously published paper / Ref.
1/ . The study has shown that the strength of unvul-
canized synthetic latex films is determined primarily
by Van-der-Waal forces, whereas the strength of films
from vulcanized latex and of films vulcanized in a
dry state is the result of a continuous molecular net-
work typical for vulcanizates. The introduction of case-
in into synthetic latex brings a number of properties
of the films obtained therefrom close to those ob-
served in films from natural latex. There are 2 graphs,
1 table and 2 Soviet references.

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69462

S/069/60/022/02/002/024
D034/D002

Studies on the Mechanism of Film Formation From Vulcanized Latex.
2. The Formation of Films From SKS-30 ShKhP Butadiene-Styrene
Latex   ✗

ASSOCIATION: Moskovskiy institut tonkoy khimicheskoy tekhnologii
               im. M.V. Lomonosova, Laboratoriya elastomerov, (Moscow
               Institute of Fine Chemical Technology imeni M.V.
               Lomonosov, Laboratory of Elastomers)

SUBMITTED: January 27, 1959

Card 3/3

SLONIM, I.Ya.; FODIMAN, N.M.; USTINOVA, Z.M.

Determining the size of a particle from the scattering of light.
Part 2: Optical and electron microscope methods for determining
the sizes of globules of polychloreprene latex. Opt. i spektr.
8 no.2:243-246 F '60.   (MIRA 13:10)
                    (Particle size determination)
                         (Chloroprene)

S/190/62/004/005/003/026
B119/B101

AUTHORS: Gul', V. Ye., Mayzel', N. S., Kamenskiy, A. N., Fodiman, N.M.

TITLE: Electroconducting polymer-base systems. I. Study of the
           structure of current conducting compositions on the basis of
           unhardened resins

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 4, no. 5, 1962, 642-646

TEXT:. The authors studied the structural and mechanical properties, the
microstructure (with a Γ- -2 (D-2) electrostatic electron microscope at
6000-fold electrooptic magnification), and the electrical conductivity of
various phenol formaldehyde resins of the resol type (I) or the $\Im$-40 (E-40)
epoxy resin type (II) filled with acetylene black. Results: Up to 30%
carbon black is contained in the resin in the form of isolated particles;
the specific electrical resistance is almost constant in the range: of
carbon black concentrations (30%. From 30% onward, the carbon black
particles of I (grain size: ~25 Å) are contacting one another continuously.
Thus, the values of the electrical resistance are much lower than in
mixtures containing less carbon black. With II, the grains of carbon black
Card 1/2

Electroconducting, polymer-base ...   S/190/62/004/005/003/026
                                           B119/B101

are much larger so that greater amounts are necessary to improve
conductivity. The difference in behavior of the two types of resin is due
to their chemical nature. P. A. Rebinder and Ya. M. Parnas are thanked
for their advice. There are 7 figures.

ASSOCIATION: Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni
              M. V. Lomonosova (Moscow Institute of Fine Chemical
              Technology imeni M. V. Lomonosov)

SUBMITTED: February 20, 1961

Card 2/2

S/190/62/004/005/004/026
B119/B101

AUTHORS: Gul', V. Ye., Mayzel', N. S., Kamenskiy, A. N., Fodiman, N.M.

TITLE: Electroconducting polymer-base systems. II. Study of the structure of current-conducting compositions on the basis of hardened resins

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 4, no. 5, 1962, 649-654

TEXT: The authors studied the structural and mechanical properties (with a combined device consisting of a Polyani dynamometer and a ПМТ -3 (PMT-3) microhardness tester), the microstructure (with an electron microscope), and the electrical conductivity of various phenol formaldehyde resins of the resol type (I) or the Э -40 (E-40) epoxy resin type (II) during and after hardening. Resins with a specific resistance below 10^5 ohm·cm are considered to be current conducting (according to R. H. Norman, Rubber J., 31, 24, 1956). Results: The specific resistance of the resins decreases rapidly at the beginning of the hardening process (up to the fifth to fifteenth minute; especially evident
Card 1/2

Electroconducting polymer-base ...

S/190/62/004/005/004/026
B119/B101

with a 25% content of carbon black in the resin), then it remains
practically constant. The structural examination shows that the increas-
ing steric cross linkage of the resin during hardening causes volume
contraction and, consequently, filler accumulation on the one hand, and
disintegration and further distribution of carbon-black particles on the
other hand. A continuous carbon black structure forms and improves the
conductivity of hardened resins. Three-dimensional cross linkage of I,
which is greater than that of II, makes all these effects much stronger.
P. A. Rebinder and Ya. M. Parnas are thanked for their advice. There are
5 figures.

ASSOCIATION: Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni
M. V. Lomonosova(Moscow Institute of Fine Chemical
Technology imeni M. V. Lomonosov)

SUBMITTED: February 20, 1961

Card 2/2

S/069/63/025/001/007/008
B101/B186

AUTHORS: Fodiman, N. M., Panich, R. M., Ustinova, Z. M.

TITLE: Study on the mechanism of film formation from
              vulcanized latexes. 3. Effect of time and storage
              on the structure of latex films

PERIODICAL: Kolloidnyy zhurnal, v. 25, no. 1, 1963, 92-96

TEXT: The nature of interglobular bonds affecting the strength of latex
films was studied. Films of CKC-30-ШХП (SKS-30-ShKhP) butadiene
styrene latex (35.5% dry content) and Revertex B (V) films (60% dry content)
produced by centrifuging natural latex were used. Vulcanization was
either conducted in a liquid mixture containing (parts by weight).
100 latex, 2 sulfur, 2 tin oxide, 1 sodium diethyl dithiocarbamate at
70°C, or these latex mixtures were first dried and then cured in dry state
at 125°C. The films were stored in air or nitrogen. The authors deter-
mined the tensile strength of new films, films stored for three or nine
months (unswollen or swollen in vaseline oil) at 20°C, and of unswollen
films at 100°C. Results: The tensile strength of films stored in
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Study on the mechanism of .!.   S/069/63/025/001/007/008
                                                  B101/B186

·nitrogen was equal to that of·films stored in air for the same period.
After three months' storage; tensile strength increased owing to
coalescence of the surface layer of the globules. After nine months,.
tensile strength was lower than that of the initial films. This is·
attributed to the destructive action of oxygen dissolved in the films.
Films that were allowed to swell in vaseline oil and tested at 20°C
displayed low tensile strength, as did unswollen films tested at 100°C.
At 20°C, however, unswollen·dry-cured Revertex films were stronger than
samples cured in the latex. Butadiene styrene latex showed opposite
behavior. At 100°C, dry-cured films of either rubber were stronger than
those cured in the latex. At 20°C, swollen SKS-30-ShKhP film stored for
nine months showed a lower relative loss in tensile strength than did
unswollen material at the same temperature. This was true also for
unswollen films of the same type at 100°C. In the ·case of Revertex films
the loss in tensile strength was hardly affected by swelling or by an·
increase in temperature. Conclusions: The small amount of protective
agent in SKS-30-ShKhP films does not completely isolate the globules from
one another, nor does inhibit the formation of chemical interglobular
bonds. Vulcanization, therefore, continues during storage. In the case
of Revertex films, however, there occurs only a slight additional
Card 2/3

Study on the mechanism of ...   S/069/63/025/001/007/008
                                                 B101/B186

vulcanization during storage.   There are 3 tables.

ASSOCIATION: Moskovskiy institut tonkoy khimicheskoy tekhnologii im.
                      M. V. Lomonosova (Moscow Institute of Fine Chemical
                      Technology imeni M. V. Lomonosov)

SUBMITTED: September 23, 1961

Card 3/3

S/138/63/000/002/002/007
A051/A126

AUTHORS: Ustinova, Z.M., Fodiman, N.M., Panich, R.M., Voyutskiy, S.S.

TITLE: Development of the composition and rational conditions for natural latex vulcanization

PERIODICAL: Kauchuk i rezina, no. 2, 1963, 4 - 8

TEXT: General results in the development of the composition and rational means for vulcanizing natural latex, which has not been subjected to concentration, are outlined. The following ultra-accelerators produced in the Soviet Union were tested as accelerators: sodium diethyldithiocarbamate (S.DEDTC), K-45 (dimethyldithiocarbamate diethylamine), sodium triethanolamine salt of captax (S.TEA of captax), ДМАСК (DMASK) (dimethylamine salt of captax), zinc dimethyldithiocarbamate (Z.DMDTC) and zinc diethyldithiocarbamate. Certain imported ultra-accelerators were tested for comparison. Best results were obtained with: S.DEDTC, Z.DEDTC, K-45, vulcacite 774, vulcacite P (R) and vulcacite R of N extract. An increase in the S.DEDTC content in the latex first increases the tear resistance of the latex film; after optimum quantity is reached

Card 1/2

Development of the composition and rational ....

(1 w.p. to 100 w.p. rubber), the tear resistance drops. The relative and residual elongation of the film is comparatively little influenced by the ultra-accelerator dosage. Maximumtensility of the unheated film during the mix vulcanization over a period of 30 min is noted at 70°C vulcanization temperature. At 60 min vulcanization periods, the highest tensile strength was noted at lower vulcanization temperatures (60°C). On the basis of experimental data obtained the following optimum composition for vulcanizing natural latex, using S.DEDTC as the ultra-accelerator is recommended: rubber (as the latex) - 100, sulfur - 2, S.DEDTC - 1, zinc oxide - 1, stabilizer - 0.5; when vulcanizing for 30 min at 70°C, or for 60 min at 60°C. The resulting indices of the vulcanized latex are close in value to those of vultex and revultex. The storage of latexes over a period of two months has little effect on the tensile properties of films, but considerably increases the viscosity of the latexes, indicating that the vulcanized latexes intended for lengthy storage periods should be produced without containing an excess of the vulcanizing group. There are 4 figures and 1 table.

ASSOCIATION: Moskovskiy institut tonkoy khimicheskoy tekhnologii im. M.V. Lomonosova (Moscow Institute of Fine Chemical Technology im. M.V. Lomonosov)

Card 2/2

GELLER, T.I.; SANDOMIRSKIY, D.M.; USTINOVA, Z.M.; FODIMAN, N.M.;
DOGADKIN, B.A.

Some special features of rubber vulcanization in the form of
late.. Koll.zhur. 25 no.3:291-298 My-Je '63.   (MIRA 17:10)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni
M.V. Lomonosova.

ACCESSION NR: AP4045695   S/0138/64/000/009/0005/0007

AUTHOR: Ustinova, Z. M.; Fodiman, N. M.; Panich, R. M.; Voyutskiy, S. S.

TITLE: Methods for the preparation of concentrated vulcanized latex

SOURCE: Kauchuk i rezina, no. 9, 1964, 5-7

TOPIC TAGS: latex, rubber, creaming, vulcanized latex, tragacanth, methylcarboxycellulose, concentrated latex, natural rubber, zinc oxide, latex coagulation, zinc diethyldithiocarbamate

ABSTRACT: The concentration of vulcanized and unvulcanized natural latex by the methods of creaming and centrifuging was studied on a latex containing 34.3% rubber, stabilized with ammonia, and having a pH of 9.3. The experimental results of the creaming of natural unvulcanized latex, containing different amounts of tragacanth and methylcarboxycellulose at temperatures of 16, 35 and 50C, showed that the rate of creaming increases with the concentration of the creaming substance to a certain extent, and then begins to decrease. The optimum concentration for tragacanth is 0.5% (based on the aqueous phase of the latex) and that for methylcarboxycellulose is 0.3%. An increase in temperature promotes creaming slightly at all concentrations. To evaluate the effectiveness of the process and the loss in rubber during creaming, the rubber and solids contents were determined
Card 1/3

ACCESSION NR: AP4045695

In the serum and creams. According to tabulated data, the rubber loss is about 5%, and the nonrubber content of the serum increases. The rubber content of creams obtained by creaming amounts to 60.6%. The kinetic curves of the concentration of vulcanized latex at room temperature in the presence of different amounts of creaming agents show that the concentration of vulcanized latex proceeds more slowly than that of unvulcanized latex. Three methods are described for obtaining vulcanized latex concentrates. The physico-mechanical properties of films made from vulcanized latex concentrates, obtained by different methods, were determined before and after thermal aging at 70C for 24 and 120 hours. The films had a tensile strength of 250 kg/cm^2, relative elongation of 80%, residual elongation of 10% and a good resistance to thermal aging. The concentration of latex by centrifuging was studied on a de Laval type centrifuge with 600-650 ml of mixture. It was found that the stability of unvulcanized latex is not destroyed by centrifuging, but that vulcanized latex undergoes coagulation due to the presence of zinc oxide. Experiments were then carried out with latex without zinc oxide; vulcanized latex from which the excess zinc oxide has been removed was found to be stable and no coagulation appeared. Since zinc oxide has this unfavorable effect on the concentration of latex by centrifuging, zinc diethyldithiocarbamate was added to the latex instead of sodium diethyldithiocarbamate. Zinc diethyldithiocarbamate does not labilize the latex and permits vulcanized

Card   2/3

ACCESSION NR: AP4045695

latex to be concentrated without the preliminary removal of powdery ingredients.
It was found that latex containing 55% dry matter can be concentrated advantage-
ously with tragacanth and methylcarboxycellulose in amounts of 0.5% based on the
aqueous latex phase. For concentration by centrifuging, the vulcanized latexes
require different technical conditions according to the formulas used. Orig. art.
has: 3 figures and 1 table.

ASSOCIATION: Moskovskiy Institut tonkoy khimicheskoy tekhnologii im. M. V.
Lomonosova (Moscow Institute of Fine Chemical Technology)

SUBMITTED: 00   .ENCL: 00   SUB CODE: MT

NO REF SOV: 001   .OTHER: 001

Card 3/3

ACCESSION NR: AP4041767   S/0032/64/030/007/0827/0829

AUTHORS: Kamenskiy, A. N.; Fodiman, N. M.

TITLE: Electronmicroscopic investigation of carbon black structures in the mixtures of a polymer with carbon black

SOURCE: Zavodskaya laboratoriya, v. 30, no. 7, 1964, 827-829

TOPIC TAGS: polymer, carbon black, ELMI D2 electron microscope, LKB 3314 ultra-microtome, polyisobutylene carbon black mixture, carbon black structure, polyiso-butylene P 118, ultrathin section, acetylene carbon black, electron microphoto-graph, carbon black, replica method, pseudoreplica method

ABSTRACT: The investigation involved mixtures of polyisobutylene P-118 with 5-50% (by weight) of acetylene carbon black. It was desired to determine the relation between the distribution of carbon black particles and the method of sample prep-aration. The "replica method" consisted of applying (under vacuum) carbon dust to a fresh surface of polyisobutylene, and of removing the dust with gelatin or collodion. Another version of this method consisted of coating the surface with a 50-micron layer of aluminum, removing this layer, dusting it on the contact side with carbon black, and dissolving the aluminum in 10% HCl. In the "pseudoreplica

Card 1/3

ACCESSION NR: AP4041767

method", the polyisobutylene surface was moistened with a drop of benzene which caused a slight swelling of the outer layer. Carbon black dust set on films of gelatin, collodion, or copper foil was then applied to the swollen surface for a few seconds. The swollen layer with the imbedded carbon black particles was removed from the polyethylene and was dissolved, and the carbon black particles were transferred to objective grids. The authors also prepared ultrathin sections (1000-1500Å thick) from carbon-black-coated samples embedded in polymethylmethacry-late. All the mixtures were examined under an ELMI-D2 electron microscope at a magnification of 6000-12 000. It was found that at a 5% concentration the carbon black was distributed in the form of single particles or small aggregates, and that the size of the aggregates in the replicas and pseudoreplicas increased with the growth of carbon black concentration. At a 30% concentration the aggregates ex-ceeded in size their interspaces, which fact may indicate the formation of a space lattice. This view is supported by a sharp drop of sample resistivity when the concentration of carbon black rises from 15% to 30%. Examination of the thin sections did not reveal much change in the character of the carbon black patterns with an increase in its concentration. This the authors attribute to the short-comings of this method which places only a few carbon black chains in the plane of the section. Orig. art. has: 3 ultramicroscope photographs.

ASSOCIATION: Moscovskiy institut tonkoy khimicheskoy tekhnologii im. M. V.
Card 2/3

ACCESSION NR: AP4041767

Lomonosova(Moscow Institute of Fine Chemical Technology)

SUBMITTED: 00

SUB CODE: GC,OC

NO REF SOV: 007

ENCL: 00

OTHER: 003

Card 3/3

L 21091-65   EWT(m)/EPF(c)/EPR/EWP(v)/T/EWP(j)   Pc-4/Pr-4/Ps-4   RPL/AFWL/AEDC(a)/
ASD(m)-3/SSD(t)   WW/RM
ACCESSION NR: AP5001998   S/0020/64/159/006/1364/1366

AUTHOR: Kamenskiy, A. N.;Fodiman, N. M.; Voyutskiy, S. S.

TITLE: Electron-microscopic investigation of interdiffusion in poly-
meric systems

SOURCE: AN SSSR. Doklady, v. 159, no. 6, 1964, 1364-1366, and insert
facing p. 1364

TOPIC TAGS: polymer, weld, welding, interdiffusion, diffusion,
adhesive bond, adhesive bond strength, hot gas welding

ABSTRACT: Interdiffusion of welded polymers has been studied by
electron microscopy and microphotometry.   The following polymer pairs
were hot-gas welded: poly(methyl methacrylate)—poly(vinyl chloride) [5
(Pair 1); and poly(butyl methacrylate)—poly(vinyl chloride)(Pair 2).
Hot air at 166—170 and 210—220C for Pair 1 and at 210—220C for
Pair 2 was used.   Specimens were cut perpendicular to the seam.
Experimental results for Pairs 1 and 2 showed the possibility of inter-
diffusion to depths of the order of 1000—3000 and 1000 A, respectively.
Card 1/2

L 21091-65

ACCESSION NR: AP5001998

Interdiffusion to such depths was regarded as confirming the role
of diffusion phenomena in the formation of strong adhesive bonds
between polymers. Orig. art. has: 1 figure.

ASSOCIATION: Moskovskiy institut tonkoy khimicheskoy tekhnologii
im. M.V. Lomonosova (Moscow Institute of Fine Chemical Technology)

SUBMITTED: 29Jun64   ENCL: 00   SUB CODE: OC, EC

NO REF SOV: 006   OTHER: 001   ATD PRESS: 3165

Card 2/2

KAMENSKIY, A.N.; FODIMAN, N.M.; VOYUTSKIY, S.S.

Electron microscope study of mutual diffusion in polymer
systems. Vysokom. soed. 7 no.4:696-700 Ap '65.

(MIRA 18:6)

1. Moskovskiy institut khimicheskoy tekhnologii imeni
Lomonosova.

FODIMAN, Ye. V. (Dir. of Laboratory of Physicomechanical Testing of NII
of Automatic Instruments)   Cand. Chem. Sci.

Dissertation: "Investigation of Organosols of Alkafine and Alkaline
Earth Metals, Obtained by the Method of Vapor Condensation." Sci Res
Order of the Labor Red Banner Physicochemical Inst imeni Karpov, 10 Feb 47.

SO: Vechernyaya Moskva, Feb, 1947 (Project #17836)

LEVIN, Ye.S.; FODIMAN, Z.I.

Polarography of organic halogen derivatives. Trudy Komissii Anal.Khim.,
Akad. Nauk S.S.S.R.; Otdel. Khim. Nauk 4, 42-62 '52.
(CA 47 no.22:12045 '53)

FODIMAN, Z. I.
USSR/Chemistry - Reduction

Card 1/1

Author   :   Levin, E. S., and Fodiman, Z. I.

Title   :   Reduction of the Aromatic Halogen Derivatives on a Mercury xxx Drop
                  Electrode.

Periodical   :   Zhur. Fiz. Khim. Vol. 28, Ed. 4, 601-612, Apr 1954

Abstract   :   The article deals with the reduction of aromatic monohaloid derivatives
                  (with exception of C_6H_5Cl) on a mercury cathode, and the gradient
                  deoxidation of polyhalides. The theory of retardation, applied in the
                  above reaction, explains the form of polarization curves and the ki-
                  netic characteristics of reaction. The semiwave potential $\varphi_{\frac{1}{2}}$ in this
                  case, signifies a kinetic rather than thermodynamic quality. Fifteen
                  references; tables; graphs.

Institution   :   K. E. Voroshilov's Scientific Investigational Institute of Semi-
                  Products and Pigments.

Submitted   :   April 6, 1953

FODIMAN, Z.I.; LEVIN, E.S.

Polarographic control in the production of contact anthraquinone.
Zav.lab 26 no.10:1088-1090 '60. (MIRA 13:10)

1. Nauchno-issledovatel'skiy institut organicheskikh poluproduktov
i krasiteley.
(Anthraquinone)   (Polarography)

LEVIN, E.S.; FODIMAN, Z.I.

Polarography of 4-nitrophenyl- and 4-aminophenyl-azo-salicylic acid.
Zav.lab 26 no.10:1090-1093 '60.   (MIRA 13:10)
        (Salicylic acid)   (Polarography)

LEVIN, E.S.; FODIMAN, Z.I.

Polarographic analysis of some organic intermediate products. Org.
poluprod. i kras. no.2:183-200 '61.   (MIRA 14:11)
(Polarography)

LEVIN, E.S.; CHLENOVA, R.S.; FODIMAN, Z.I.

Polarographic analysis of indotoluidine. Org. poluprod. i kras.
no.2:201-208 '61.   (MIRA 14:11)
                    (Indoaniline) (Polarography)

VASIN, L.V., inzh.; AKHUN, B.N., inzh.; IVANCHENKO, N.N., kand. tekhn.
nauk; KOLLEROV, L.K., kand. tekhn.nauk; NIKITINA, N.V., inzh.;
SOKOLOV, S.S., kand. tekhn. nauk; FODIN, A.A., red.; YURKEVICH,
M.P., red. izd-va; PETERSON, M.M., tekhn. red.; SPERANSKAYA, O.V.,
tekhn. red.

[Diesel and gas engines; catalog-handbook] Dizeli i gazovye dvigateli;
katalog-spravochnik. Pod red. A.A.Fadina. Moskva, Mashgiz, 1961.
279 p.   (MIRA 14:12)

1. Leningrad. TSentral'nyy nauchno-issledovatel'skiy dizel'nyy in-
stitut.
                    (Gas and oil engines)

HUNGARY

SZALCCZY, Karoly, Dr, FODO, Vilma, Dr: Keszthely Jaras Hospital, Ophthalmic Ward (Keszthelyi Jarasi Korhaz, Szemosztaly).

"Sinus Cavernosus Thrombophlebitis and Its Treatment."

Abstract: [Authors' Hungarian summary] The authors discuss the symptoms, differential diagnosis and etiology of sinus cavernosus thrombophlebitis and report tha case of two of their patients where treatment was successful. Instead of intrathecal treatment, both patients received large doses of antibiotica, mainly i.v. tetran, for two weeks without ill effects and vitamins. Orbitotomy was performed on one of the patients. 1 Western, 3 Hungarian references.

1/1

PRIKKEL, Andor; FODOR, Anna

Sepsis caused by Proteus mirabilis. Orv hetil 95 no.14:388-389
Ap '54.   (KEAL 3:8)

1.A Fovarosi Uzsoki-utcai Korkas (igazgato: Farkas Karoly dr.) II.
sz. Sebeszeti Osztalyanak (foorvos: Prikkel Andor dr.) es Labora-
toriumanak (foorvos: Kertesz Tivador dr.) kozlemenye.
        (PROTEUS
          *mirabilis infect., septicemia)
        (SEPTICEMIA AND BACTEREMIA
        * *Proteus mirabilis)

BONCZOS, Laszlo, dr.; FODOR, Anna, dr.; GOMBAS, Bela, dr.; KLEBERT, Lajos, dr.

Occupational diseases of persons working with chromium with special
regard to the injuries of the mucous membranes in the upper respira-
tory tract. Munkavedelem 10 no.1/3:36-38 '64.

1. Ganz-MAVAG Factory Dispensary.

SZANTAI, I.; HOLAN, T.; FODOR, I.; COTUL, A.

Some biochemical aspects of methionine metabolism in gastric
and duodenal ulcers. Studii cerc biochimie 7 no.3:417-423 '64.

1. Nuclear Medical Center and Medical Clinic III, Cluj. Sub-
mitted June 15, 1964.

FODOR, Constantin, ing. principal (Bucuresti)

Problems connected with the design of water demineralization
equipment in power plants. Energetica Rum 11 no.2:64-74
F '63.

1. Institutul de studii si proiectari energetice.

FODOR, D., ing.

Possibilities of application of radioactive isotopes in
the mining industry. Rev min 14 no.8:351-357 Ag '63.

FODOR, Danica; NIKOLIC, Kosta.

Microcolorimetric determination of potassium iodate. Acta pharm.
jugosl. 5 no.3:133-136 1955.

1. Institut za Fizicku Hemiju. Institut za Farmaceutsku hemiju.
Farmaceutski Fakultet, Beograd.
    (POTASSIUM,
        iodate, photocolorimetric determ., technic (Ser))