PAKSHEVR, A.B.

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The xanthation of carbohydrates and cellulose. P. M. Cherkasskaya, A. B. Pakshver, and ~~V. A. Kargin~~. *Zhur. Priklad. Khim.* ~~26, 211-[illegible]~~; cf. *C.A.* 47, 5228c.—The xanthation of sucrose (I) and an alk.-sol., degraded hydrate cellulose (D. P. 82) (II) from viscose rayon in a homogeneous medium and of alkali cellulose (33.8% cellulose, 15.0% NaOH, and 51.2% H_2O) (III) in a heterogeneous medium was studied. Xanthation was carried out in sealed tubes, and the products analyzed potentiometrically (*C.A.* 31, 1201^9) and iodometrically. The formation of I xanthate in moles/hr. is defined by $k_1(CS_2)^2$ up to a degree of esterification (IV) of 12%, and of II xanthate by $k_2(CS_2)^2$ up to a IV of 15%. The xanthation of III up to 16% IV is considered as a pseudomonomol. reaction, $k_3 = 2.3/t \log 1/(1 - x)$ where x = moles $CS_2/C_6H_{10}O_5$ in the III xanthate, and t = time in hrs. In the xanthation of 0.575 moles I, the moles of bound CS_2 for a ratio of I:CS_2:NaOH (V) of 1:1:8 and at 40° were 0.31, 0.32, 0.22, and 0.15 for 1, 3, 6, and 9 hrs.; for a 1:4:4 V and at 20° the values were 0.51, 0.71, 0.92, 0.53, 0.36, and 0.33 for 18, 24, 48, 96, 120, and 168 hrs.; at 40°, 0.40, 0.75, 0.90, and 0.58 for 1, 3, 6, and 9 hrs.; for a 1:12:12 V and at 20°, 0.40, 0.64, 0.9, 1.03, 1.2, and 0.89 for 24, 48, 96, 120, 168, and 360 hrs., and at 40°, 0.22, 0.45, 0.93, 1.24, and 0.52 for 1, 3, 6, 9, and 18 hrs. In the xanthation of 0.575 mole I (V = 1:1:2), the moles of I xanthate, Na_2S, Na_2CS_3, CS_2, and NaOH at 20° were 0.09, 0.003, 0.0015, 0.482, and 1.067 for 3 hrs., 0.150, 0.006, 0.0030, 0.422, and 0.937 for 6 hrs., 0.210, 0.009, 0.0045, 0.304, and 0.919 for 9 hrs., 0.245, 0.012, 0.006, 0.323, and 0.871 for 12 hrs., and 0.208, 0.018, 0.009, 0.285, and 0.701 for 18 hrs.; at 30°, 0.085, 0.0025, 0.0005, 0.498, and 1.070 for 0.5 hr., 0.15, 0.0051, 0.0019, 0.431, and 1.003 for 1 hr., 0.24, 0.0104, 0.0021, 0.330, and 0.892 for 2 hrs., 0.275, 0.0158, 0.0033, 0.290, and 0.838 for 3 hrs., and 0.302, 0.0270, 0.0059, 0.200, and 0.700 for 5 hrs.; and at 40°, 0.185, 0.006, 0.0007, 0.440, and 1.115 for 0.25 hr., 0.230, 0.012, 0.0012, 0.347, and 0.980 for 0.50 hr., 0.325, 0.024, 0.0028, 0.244, and 0.747 for 1 hr., 0.350, 0.050, 0.0148, 0.183, and 0.899 for 2 hrs., and 0.320, 0.1975, 0.0218, 0.168, and 0.403 for 4 hrs. In the xanthation of 0.31 mole II, II:CS_2:NaOH = 1:3:18, the moles II xanthate, Na_2S, Na_2CS_3, CS_2, and NaOH at 15° were 0.036, 0.005, 0.001, 0.810, and 2.447 for 1 hr., 0.069, 0.010, 0.002, 0.850, and 2.390 for 2 hrs., 0.099, 0.015, 0.003, 0.806, and 2.347 for 3 hrs., 0.126, 0.020, 0.004, 0.750, and 2.300 for 4 hrs., and 0.150, 0.025, 0.005, 0.761, and 2.206 for 5 hrs.; at 25°, 0.040, 0.006, 0.001, 0.878, and 2.430 for 0.5 hr., 0.080, 0.012, 0.002, 0.869, and 2.360 for 1 hr., 0.115, 0.018, 0.003, 0.785, and 2.295 for 1.5 hrs., 0.143, 0.024, 0.004, 0.750, and 2.237 for 2 hrs., and 0.185, 0.036, 0.006, 0.691, and 2.153 for 3 hrs.; and at 35°, 0.050, 0.005, 0.0013, 0.877, and 2.431 for 0.25 hr., 0.10, 0.010, 0.0025, 0.818, and 2.325 for 0.5 hr., 0.143, 0.015, 0.0038, 0.771, and 2.300 for 0.75 hr., 0.175, 0.020, 0.005, 0.785, and 2.250 for 1 hr., and 0.210, 0.037, 0.010, 0.679,

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B.m Cherkasskaya 2/2

and 2.143 for 2 hrs. In the xanthation of III (III:CS_2:NaOH = 1.0:1.0:1.8), the moles $CS_2/C_6H_{10}O_5$ were, for 30 and 40°, 0.058 and 0.144 for 0.25 hr., 0.115 and 0.283 for 0.5 hr., 0.168 and 0.383 for 0.75 hr., and for 20 and 30° 0.091 and 0.22 for 1 hr., 0.182 and 0.39 for 2 hrs., 0.287 and 0.51 for 3.0 hrs., and 0.460 and — for 5 hrs. In the xanthation of I (V = 1:1:2), $k_1 \times 10^3$ = 12.3, 62.8, and 281.0 for 20, 30, and 40°, $k_{Na_2S}10^3$ = 0.114, 0.49, and 2.03 for 20, 30, and 40°, and $k_{Na_2CS_3}10^3$ = 0.076, 0.16, and 0.44 at 20, 30, and 40°; in the xanthation of II (II:CS_2:NaOH = 1:3:8), k_110^3 = 4.2, 11.0, and 27.1 for 15, 25, and 35°, $k_{Na_2S}10^3$ = 0.78, 1.82, and 3.22 for 15, 25, and 35°, and $k_{Na_2CS_3}10^3$ = 0.26, 0.52, and 1.10 for 15, 25, and 35°; in the xanthation of III (III:CS_2:NaOH = 1:1:1.8), k_110^3 = 11.0, 24.5, and 64.3 for 20, 30, and 40°, and in the reaction of CS_2 with NaOH (1:2), $k_{Na_2S}10^3$ = 0.175, 0.52, and 1.65 for 20, 30, and 40°, and $k_{Na_2CS_3}$ 10^3 = 0.094, 0.162, and 0.305 for 20, 30, and 40°. John Lake Keays

PAKSHVER, A.B.

USSR,

Research on the structure of high-molecular compounds. I. Modification of the length of the polyamide fibers in aqueous phenol media. E. K. Mankash and A. B. Pakshver. *J. Appl. Chem. U.S.S.R.* 26, 795-8(1953)([redacted]). II. Coefficient of internal diffusion in aqueous phenol media. *Ibid.* 799-02.—See *C.A.* 48, 14217*b*. III. Dyeing of polyamide fiber by acid dyes. *Ibid.* 800-003.—See *C.A.* 47, 12830*h*. IV. Absorption of naphthylaminesulfonic acids by polyamide silk. G. A. Myagkova, A. B. Pakshver, and S. S. Frolov. *Ibid.* 913-18.—See *C.A.* 47, 12520*c*. V. Effect of the pH of the medium on dyeing of polyamide fiber. E. K. Mankash and A. B. Pakshver. *Ibid.* 1141-5.—See *C.A.* 48, 3031*i*.

H. L. H.

PAKSHVER, A.B.

Structure of macromolecular compounds. I. Modification of the length of polyamide fibers in aqueous phenol media. B. K. Mankash and A. B. Pakshver (Chem.-Tech. Inst., Ivanovo). *Zhur. Priklad.* [illegible] (1953).—Segments of drawn and undrawn polyamide filaments, 20 cm. in length, were immersed in aq. PhOH solns. at 20° and swelling and length changes were measured. The deviation of the mol. configuration of the drawn filament from the max. coiling in the swollen undrawn filament is represented by $S = L_s - l_s$, where L_s is the percentage change in length based on the original length of the undrawn filament and l_s the percentage change in length based on the original length of the drawn filament. $x = k\sqrt{t} = kl/L_s$, where x is thickness of layer penetrated in time t and k depends on concn. and coeff. of diffusion. Data for swelling in 2% PhOH are presented graphically as l/l_s vs. $\sqrt{t}$; values of k and % of drawing of filaments are, resp., 0.17, 200; 0.51, 87; 0.62, 32; —, undrawn. When filaments are heated for 5 hrs. or 2 hrs. at 160° or not heated before immersion the values of k are, resp., 0.38, 0.52, 0.65. For undrawn filaments in 2, 3, or 4% PhOH the values of l_s, S, and k are, resp., +10.5, 0, 0.83; +16.5, 0, 1.20; +16.5, 0, 1.65; for filaments drawn 260%, −12.5, 29, 0.16; −17.0, 33.5, 0.73; −30.5, 53, 1.35. Similar data are given for filaments drawn 32, 87, and 182%. Values of k are given for undrawn filaments heated at 120, 150, and 160° for 0, 0.5, 1.0, 2.0, and 5.0 hrs. before immersion: k, 0.64 (unheated); 0.30 (5 hrs. at 160°). **II. Coefficient of internal diffusion in aqueous phenol media.** *Ibid.* 835-9.—Since drawing or heating the filament before immersion lowers k it is concluded that these procedures increase the d. of the filament. Values for the coeffs. of diffusion ($D \times 10^{10}$ sq. cm./sec.) of PhOH into undrawn, "unextd." filaments in 2, 3, or 4% aq. PhOH are, resp., 97.0, 203.0, 380.0; into filaments drawn "260%" and "extd.," 1.03, 20.8, 73.3; into filaments drawn 32, 87, 183, and 260%, 21.8, 19.2, 6.98, 4.12. For drawn fibers not "extd.," coeffs. of diffusion after heating in oil, before immersion in PhOH solns., for 0.33, 1.0, and 2.0 hrs. at 120° were, resp., 42.3, 37.5, 28.2; 0.5, 1.0, 2.0, and 5.0 hrs. at 180°, 17.2, 11.8, 11.8, 14.3; 0.5, 2.5, and 5.0 hrs. at 160°, 17.2, 12.6, 9.5. Values are also given for diffusion coeffs. as function of temp. of aq. PhOH solns. J. P. Danehy

PAKSHVER, A.B.
Chemistry - Physical

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1261* Coefficient of Internal Diffusion in a Water-Phenol Medium. (Russian.) E. K. Mankash and A. B. Pakshver. Zhurnal Prikladnoi Khimii, v. 26, no. 8, Aug. 1953, p. [illegible].

Elongation of a polyamide fiber strengthens the intermolecular reaction between the amide bonds of adjacent molecules and hinders internal diffusion deep in the fiber. Tables, graphs. 3 ref.

8 [illegible]

MANKASH, Ye.K.; PAKSHVER, A.B.

Dyeing of polyamide fibers with acid dyes. Zhur.prikl.khim. 26 no.9:976-981 S '53. (MLRA 6:10)

1. Ivanovskiy khimiko-tekhnologicheskiy institut. (Dyes and dyeing--Nylon)

MYAGKOVA, G.A.; PAKSHVER, A.B.; FROLOV, S.S.

Absorption of naphthylamine sulfonic acids by nylon fiber. Zhur.prikl.khim. 26 no.9:991-995 S '53. (MLRA 6:10)

1. Ivanovskiy khimiko-tekhnologicheskiy institut.
(Nylon) (Naphthylamine sulfonic acids)

PAKSHVER, A. B.

Research on structure of high-molecular compounds. V. Effect of the pH of the medium on dyeing of polyamide fiber. E. K. Mankash and A. B. Pakshver (Chem. Technol. Inst., Ivanovsk). Zhur. Priklad. Khim. 26, 1200-4(1953); cf. C.A. 47, 12820e.--The diffusion coeff. and the apparent activation energy involved in dyeing of polyamide fiber with acid dye Cyanol Extra and in treatment of the fiber with BzOH are of the same order of magnitude as obtained by other authors for dyeing of wool and protein materials. The diffusion coeff. in dyeing is affected by pH, temp., and structure of the fiber. At pH 2, owing to hydrolytic reactions, equil. is not attained in dyeing and the amt. of absorbed dye constantly increases. As the pH of the bath rises to 4 from 2, the amt. of dye taken up at any time increases (curves shown). As this takes place, the diffusion coeff. increases slightly; lowering of temp. sharply reduces the diffusion coeff. The amt. of absorbed dye is smaller for stretched polyamide fiber than for unstretched (unoriented) specimens, the difference being about 0.1%. The activation energy of dyeing ranges from 15,600 cal./mole at pH 2 for unstretched fiber to 19,700 at pH 4; for stretched fiber it ranges similarly from 18,800 to 14,000. At pH 7 both fibers give a value of 19,800 cal./mole.

G. M. Kosolapoff

Pakshver, A.B.

Shrinkage of viscose staple. A. B. Pakshver and S. S. Frolov (Chem.-Technol. Inst., Ivanovo). [illegible] Prom. 14, No. 7, 41-4(1954).—Factors and conditions affecting shrinkage of fabrics made from viscose staple are discussed. Percentage shrinkage is calcd. Elisabeth Barabash

PAKSHVER, A.B

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USSR.

Diffusion of various substances through hydrocellulose films. A. B. Pakshver and I. V. Bykova. *Colloid J.* (U.S.S.R.) 16, 366-70(1954)(Engl. translation).—See *C.A.* 49, 2831d.
H. L. H.

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PAKSHVER, A. B. USSR.

Diffusion of various substances through hydrocellulose
films. A. B. Pakshver and L. V. Bykova (Inst. Chem.
Technol., Ivanovo). Kolloid. Zhur. 16, 381-6(1954);
cf. C.A. 48, 13217e.—The diffusion coeff. D sq. cm./sec.
of a substance in aq. soln. through a cellophane (I) film
increased in time because I gradually swelled. E.g., D
of NaOH was 10^{-6} through initially dry, and 10^{-5} through
swollen, I. Even in the steady state, a I film originally
dried under tension gave lower D values (e.g., 2.0×10^{-6}
for 3.3% NaOH at 25°) than an undried film ($D = 2.3 \times$
10^{-6}). The former film increased its thickness in 3.3%
NaOH 1.25 times, and the latter 1.48 times. Similar re-
sults were obtained for the diffusion of methylene blue and
glycerol. Stirring the soln. in contact with I accelerated the
diffusion when D was between 10^{-6} and 10^{-7} but was in-
effective at smaller D. D increased with temp., e.g.,
from 0.2×10^{-6} to 0.3×10^{-6} for methylene blue and
from 0.35×10^{-6} to 0.49×10^{-6} for glycerol when temp. rose
from 20° to 30°. I. I. Bikerman

MANKASH, Ye.K.; PAKSHVER, A.B.

Diffusion of phenol in polyamide films and fibers. Koll.zhur. 16 no.6:451-454 N-D '54. (MLRA 7:12)

1. Inanovskiy khimiko-tekhnologicheskiy institut.
(Phenols) (Amides) (Diffusion)

PAKSHVER, A. B.

4

USSR.

Structure of high-molecular substances. VI. The rate of sorption of phenols by polyamide fibers. A. B. Pakshver and E. K. Mankash. J. Appl. Chem. U.S.S.R. [illegible] (195[illegible]) (Engl. translation).—See C.A. 48, 7906f.

H. L. H.

PAKSHVER, A. B.

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Structure of high-molecular substances. VI. The rate of sorption of phenols by polyamide fibers. A. B. Pakshver and R. K. Mankash. Zhur. Priklad. Khim. 27, 183-6 (1954); cf. ibid. 26, 806(1953); C.A. 48, 3031i.—Polyamide fibers absorb PhOH and its derivs. (resorcinol, salicylic acid, tannin) as well as $CO(NH_2)_2$ and caprolactam by formation of hydrogen bonds. Thus for PhOH sorption the H of PhOH is attracted to the O of the CO group of the fiber, while the PhO is attracted to the NH link. The equil. amt. of sorption depends linearly on concn. of PhOH. Sorption by unstretched fiber is higher than that by a stretched fiber. The rate of sorption is detd. by the diffusion rate into the fiber and the diffusion coeffs. in descending order are: PhOH, resorcinol, salicylic acid, $CO(NH_2)_2$, tannin, and caprolactam. The coeffs. of diffusion increase with increase of concn. of the diffusing substances to a greater degree in unstretched fibers than in stretched ones. During the sorption the length of the fiber begins to change not immediately but after an induction period, although sorption of PhOH does begin immediately; the rate of sorption is greater than the rate of change of the fiber dimensions. G. M. Kosolapoff

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Pakshver, A. B.

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✓Structure of high-molecular substances. VII. Reaction of cellulose hydrate fibers with cuprammonium reagent. B. D. Tukhlov, S. S. Frolov, and A. B. Pakshver. *J. Appl. Chem. U.S.S.R.* 27, 847-53(1954)(~~Engl. transla~~tion).—See *C.A.* 49, 12310g. B. M. R.

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PAKSHVER A.B.

TUKHLOV, B.D.; FROLOV, S.S.; PAKSHVER, A.B.

Interaction of hydrocellulose fibers with cuprammonium reagents.
Zhur.prikl.khim. 27 no.8:907-914 Ag '54. (MLRA 7:9)

1. Laboratoriya iskusstvennogo volokna Ivanovskogo khimiko-tekhnologicheskogo instituta.
(Cellulose) (Copper compounds)

PAKSHVER,A.B., professor, doktor tekhnicheskikh nauk; FROLOV,S.S., kandidat tekhnicheskikh nauk, dotsent; SKOROKHODOVA,Z.A., laborant

Effect of load on the shrinkage of wet staple fiber fabric. Tekst. prom.15 no.10:45-46 O'55. (MLRA 8:12)
(Textile fabrics)

PAKSHVER, A.B

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USSR

Effect of moisture on shrinking of staple fabrics. A. B. Pakshver, S. S. Frolov, and Ya. Khudabrin (Chem.-Technol. Inst., Ivanovo). *Tekstil. Prom.* 15, No. 3, 33-4(1955).—A discussion. ②

Elisabeth Barabash

PAKSHVER, A.B.

USSR .

√Structure of high-molecular compounds. IX. Mechanism of interaction between polyamide fiber and phenol. V. D. Tatyushkin, A. B. Pakshver, and S. S. Frolov. Kolloid. Zhur. 17, [illegible](1955); cf. C.A. 48, 7906f.—Stretched capron filaments (11 μ in diam.) were immersed in aq. solns. of phenols, and from the rate of sorption the diffusion coeff. D (10^{-9} sq. cm./sec.) of phenol in the filament was calcd. It was, e.g., for 1% PhOH 0.78 and 3.00, 1% resorcinol (I) 0.32 and 1.27, 1.07% salicylic acid (II) 0.32 and 1.38, and 1% tannin 0.020 and 0.34 at 20° and 40°, resp. The amt. sorbed at equil. by one lactam radical (113 g.) increased almost proportionally to the phenol concn.; it was, e.g. at 20°, 12 and 108 millimoles for 0.011M and 0.108M PhOH, 13 and 66 millimoles for 0.009M and 0.091M I, 19 and 64 millimoles for 0.007M and 0.026M II, and 0.4 and 1.2 millimoles for 0.0006M and 0.0024M tannin. At 0° the sorption was, e.g., 10% greater, and at 40° 20% less than at 20°. PhOH and I are attached to the NH group of caprolactam by a H bond whereas II is attached both to the NH and the terminal NH_2 groups. The great temp. coeff. of D shows that the mol. structure of the fila-

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ment rapidly loosens when the temp. increases. **X. Diffusion of phenol in polyamide films and fibers.** E. K. Mankash and A. B. Pakshver (Inst. Chem. Technol. Ivanovo). *Kolloid. Zhur.* 16, 131-4(1954); cf. *C.A.* 49, 2831*d*.—Capron (III) fibers sorbed, e.g., 17 mg. PhOH/g. III from 0.065% aq. soln., and III films took up, e.g., 21 mg. PhOH from 0.2% soln. After treatment with PhOH the sorption was greater, and after treatment with liquid petrolatum, less than for untreated III. Diffusion coeff. *D* for movement of PhOH into dry III fibers was reduced by heating or stretching the fibers prior to diffusion; e.g., $D \times 10^9$ was 7.9 for unheated III from 0.03% soln. and for heated III from 0.6% soln. The *D* for steady diffusion of PhOH across a III film, 0.005 cm. thick, was 4×10^{-7} to 9×10^{-7} sq. cm./sec.; it was much greater than the *D* for the unsteady state because PhOH weakened the structure of III. (Part IX also in *Colloid J.* (U.S.S.R.) 17, 67-70(1955)(Engl. translation); part X also in *ibid.* 16, 429-32(1954)(Engl. translation).)

J. J. Bikerman

PAKSHVER, A.B.

USSR.

Kinetics of the sorption of hydrochloric acid by polyamide fibers. V. A. Myagkov and A. B. Pakshver (Inst. Chem. Technol., Ivanovo). *Kolloid. Zhur.* 17, 120-3(1955); cf. C.A. 47, 12820b.—The amt. of HCl sorbed by polycaprolactam fibers (0.0022 cm. thick for unstretched filaments (I) and 0.0011 cm. for stretched ones (II)) was detd. after several time intervals, and the coeff. of diffusion *D* of HCl into the fibers was calcd. At 20°, $D \times 10^{12}$ sq. cm./sec. was, e.g., 14 for I and 0.01*N* HCl and 0.05 and 2.2 for II and 0.001*N* and 0.1*N* HCl, resp. The *D* was greater for I than for II and greater the higher the concn. of HCl because stretching increased orientation and acid weakened the intramol. bonds in the filaments. In 0.01*N* HCl, *D* in II was 0.10 and 0.47 at 10 and 30°, resp. Also in *Colloid J.* 17, 109-11(1955)(Engl. translation). J. J. Bikerman

PAKSHVER, A.B.

USSR/Chemical Technology - Chemical Products and Their Application. Synthetic Fibers I-24

Abs Jour : Referat Zhur - Khimiya, No 4, 1957, 13722

Author : Pakshver A.B.

Inst : Ivanovo Chemico-Technological Institute

Title : Rate of Interaction of Cellulose Hydrate Fibers and Films with Solutions of Caustic Alkalies

Orig Pub : Tr. Inanovsk. khim.-tekhnol. in-ta, 1956, No 5, 131-138

Abstract : The interaction is determined by the rate of diffusion of the reagent into the fiber. Under non-stationary reaction conditions, [illegible] are usual in finishing of cellulose hydrate fibers, the reaction is determined by the coefficient of internal diffusion D_1 of non-stationary process. Under stationary conditions of diffusion of the reagents through the film, in addition to diffusion rate of some significance becomes the reaction velocity constant K. Value of diffusion coefficient D_2 of a

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[illegible]

USSR /Chemical Technology. Chemical Products and Their Application I-19

Dyeing and chemical treatment of textiles

Abs Jour: Referat Zhur - Khimiya, No 9, 1957, 32213

Author : Pakshver A.B.

Title : Treatment with Resins of Fabrics made from Staple Fibers

Orig Pub: Tekstil'naya prom-st', 1956, No 6, 47-48

Abstract: Urea-formaldehyde and melamine-formaldehyde resins prevent the shrinkage of fabrics. Their disadvantage is the gradual removal of the resin and restoration of the shrinking capacity of the fabric during laundering. In order to pro-

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and Their Application

Dyeing and chemical treatment of textiles

Abs Jour: Referat Zhur - Khimiya, No 9, 1957, 32213

duce a fabric that would not shrink it is necessary to subject it to finishing operations and drying in a free state without any stretching. With increase of the temperature of treatment the stability of the resin finish to laundering increases. At temperatures above 140° a complete fixation of the resin is attained in less than 5 minutes. At 135°- 140° -- within 15 minutes or longer. Melamine resin is more resistant to laundering than the urea resin. Preparations of the AMD type require a higher temperature of treatment than melemine resin without additives.

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and Their Application

Dyeing and chemical treatment of textiles

Abs Jour: Referat Zhur - Khimiya, No 9, 1957, 32213

It is possible that this is due to the presence, in the AMD resin, of a plasticizer -- hydroxymethyl-stearylamide. During the process of thermal treatment with the resin the mechanical properties of the fabric are impaired (the number of folding that the fabric withstands, while being heated, decreases). Treatment of fabric with AMD increases sharply its resistance to folding, apparently due to the presence of a plasticizer. Hence, regardless of the treatment of the fabric with resin, it is advantageous to plasticize the fabric. There is a rectilinear correlation between the resin content of the

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and Their Application

I-19

Dyeing and chemical treatment of textiles

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fabric and its resistance to shrinking during laundering. Therefore the resins which are less soluble in water or are better retained by the fabric during laundering, prevent the shrinkage of the fabric for a longer period.

Card 4/4

PAKSHVER, A. B.

Math

The viscosity of polyamide melts. 15 T. N. Kokhemskaya and A. B. Pakshver (All-Union Sci. Research Inst. Synthetic Fibers, Mytishchi). Kolloid. Zhur. 16, 188-92(1950).—At a const. mol. wt. M, the viscosity η of molten N,N'-hexamethyleneadipamide polymer (I) was greater than η of ϵ-caprolactam polymer (II). Both η values decreased when the temp. rose from 235 to 285°; at low M, η was $Ae^{E/RT}$, A and E being const. Below 265° for II and 275° for I, $\eta = A + cM^{1/3}$, A and c being const. Low-mol. components lowered η of II.

I. I. Bikerman

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Pakshver, A.B.

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Increase of hydrophilic nature by hydroxyethylation of nylon fibers. B. V. Petukhov and A. B. Pakshver (Inst. Chem. Tech., Ivanovo). *Kolloid. Zhur.* 18, [illegible]—Treating stretched nylon fibers with ethylene oxide causes uptake of C_2H_4O groups, an orange-red coloration, and change of properties. E.g., the sorption x/m of H_2O vapor at relative humidities above 40% was decreased by treatment at 17° for 120 hrs., not altered by heating at 100° for 20 hrs., and increased by treatment for 20 hrs. at 126°. After 20 hrs. at 117°, the uptake of C_2H_4O lowered the N content of nylon from 12.08 to 11.18%. Small addns. of MeOH to C_2H_4O depressed x/m, but a mixt. of MeOH 1, C_2H_4O 2 mols. reacted with nylon more rapidly than did C_2H_4O alone (e.g., N content was 10.25% after 10 hrs. at 117°) and gave colorless fibers. These fibers were sol. in warm MeOH, their m.p. was about 15° below that of nylon, the breaking stress was by 10–40% lower, the total elongation unchanged, and the modulus of elasticity for small extensions about one-third that of nylon. They were more easily dyed, and the diffusion coeff. of H_2O vapor in them was greater (8 against 4×10^{-10} sq. cm./sec.) than before treatment.

I. J. Bikerman

Pakshver, A.B.

Resin treatment of staple fabrics. A. B. Pakshver. Tekstil. Prom. 15, No. 6, 47-8(1955).—The relative merits of urea-HCHO and melamine-HCHO resins for shrink-proofing of staple fabric are discussed. A straight-line relation exists between the resin content of the fabric and its shrink-resistance (C.A. 50, 8212i). B. Barabash

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PAKSHVER, A. B.

USSR/Chemical Technology. Chemical Products and Their Application -- Synthetic fibers, I-24

Abst Journal: Referat Zhur - Khimiya, No 2, 1957, 6325

Author: Pakshver, A. B.

Institution: None

Title: Collaboration Between Science and Technology in the Field of Synthetic Fiber Manufacture

Original Publication: Tekstil'n. prom-st', 1956, v 16, No 7, 15-18

Abstract: Brief summary of papers presented at the conference of representatives of USSR and countries of people's democracy, held at Moscow in April 1956.

Card 1/1

Pakshver, A.B.

3

Alteration of chemical heterogeneity of cellulose xanthate during ripening of viscose. A. T. Serkov, A. B. Pakshver, and R. M. Mogilevskii. *Zhur. Obshchei Khim.* 26, 1979-81(1956).—Cellulose xanthate prepd. by conventional drum procedure or by the wet method possesses considerable heterogeneity immediately after soln., in respect to degree of esterification by the xanthate group, detd. by fractionation by pptn. with $CH_2ClCONEt_2$. With ripening, the heterogeneity vanishes, as a result of transesterification in the xanthate soln. G. M. Kosolapoff

Matls

PAKSHVER, A.B.

3

Structure of high-molecular compounds. XIII. Reactions of acids with polyamide fibers. V. A. Myagkov and A. B. Pakshver. *J. Appl. Chem. U.S.S.R.* 29, 839-40(1956)(English translation).—See *C.A.* 50, 16113*f*. B. M. R.

2

USSR/Chemical Technology. Chemical Products and Their Application -- Synthetic fibers, I-24

Abst Journal: Referat Zhur - Khimiya, No 2, 1957, 6346

Author: Myagkov, V. A., Pakshver, A. B.

Institution: None

Title: Interaction of Acids with Polyamide Fiber

Original Publication: Zh. prikl. khimii, 1956, 29, No 5, 774-783

Abstract: On treatment of polyamide fiber with solutions of strong acids, with a low concentration of the acid the latter undergoes salt-like combination with the terminal amino groups. In neutral solutions of acid dyes the same amino groups combine with anions of the dyestuffs. Sorption of anions of electrolytes by terminal amino groups takes place stoichiometrically. Interaction of electrolytes with amino groups of the polyamide takes place not according to the equation of Gilbert and Rideal but according to an ion-exchange mechanism. Equilibrium constants of the reactions of terminal amino groups

Card 1/2

PAKSHVER, A.B.

USSR/Physical Chemistry. Surface Phenomena. Adsorption. Chromatography. Ion Exchange. B-13

Abs Jour : Ref Zhur - Khimiya, No 7, 1957, 22546.

Author : V. A. Myagkov, A. B. Pakshver.
Inst : Not given
Title : The Interaction of Bases with Polyamide fibers.

Orig Pub : Zhur. prikl. khimii, 1956, 29, No 8, 1229-1235 (russ).

Abstract : Strong bases interact with polyamide (I) carboxyl end groups (EG) producing salt-like compounds. By treating I with weak solutions of basic dyes, EG is linked by dye cations only. Obtained data do not confirm Ryedil-Gilbert's absorption theory and indicate that interaction of bases with EG of I proceeds according to an ionic exchange mechanism. Carboxyl EG react independently regardless of end aminogroups. Basic sorption process is well described by equations of ion exchange reactions and is determined by ion concentrations i.e., by I dissociation constants. Equilibrium constants increase with the growth of base cation from $1.0 \cdot 10^6$ for KOH sorption by caprone to 10^7 for triethyl benzylammonium hydroxide sorption and to $1.8 \cdot 10^{12}$ for methylene blue cation sorption.

Card 1/1

PAKSHVER, A.B.

USSR/Physical Chemistry. Surface Phenomena. Adsorption Chromatography. Ion Exchange. B-13

Abs Jour : Ref Zhur - Khimiya, No 7, 1957, 22545.

Author : B. V. Petukhov, A. B. Pakshver.
Inst : Not given
Title : Steam sorption by caprone fiber.

Orig Pub : Zh. prikl. khimii, 1956 29, No 8, 1236-1242 (russ).

Abstract : Oriented caprone fibers, treated without tension by an aqueous phenol solution reduce steam sorption (S) at low values of relative humidity s and increase S at high s. Treatment of fiber under tension has no influence on the value and rate of S. Thermal treatment reduces S of steam; this reduction is stronger if the fiber is heated under tension, than when heated without one. The process of compression of molecular structure by heating caprone fiber proceeds very fast and ends in 30 seconds. Steam S does not depend on macromolecule orientation, but depends on the quantity of intermolecular bonds. At the relative humidity $\leqslant 25\%$, the diffusion coefficient does not depend on steam elasticity at given temperature. Deformation index of the caprone fiber increases sharply with the heating of the fiber by overheated steam under tension.

Card 1/1

PAKSHVER A.B.

Determination of end groups in polycaprolactam. V. A. Myagkov and A. B. Pakshver. (Chem.-Technol. Inst., Ivanovo). Zhur. Priklad. Khim. 29, 1705-7(1956).—The following detns. are described as giving rapid and fairly accurate estimates of compn. of polycaprolactam; the results check those calcd. from detn. of mol. wt. by viscometry in 40% H_2SO_4. End NH_2 groups are detd. by pptg. the polymer with 96% EtOH from its soln. in PhOH, washing with H_2O, treating with known vol. of 0.025 *N* HCl in 0.5*M* KCl or NaCl, filtering after 10-20 min., and titrating an aliquot of the filtrate with NaOH to det. the amt. of HCl used, i.e., the no. of end-NH_2 groups. If the original sample is unspun caprolactam polymer, the soln. and pptn. is not necessary. The end groups can be also detd. by absorption of methyl orange indicator from its 0.005*M* soln. in 0.15% $NaHCO_3$ soln.; the estn. is done colorimetrically, an artificial diln. scale being used for comparison, the decline of concn. of the indicator being proportional to the content of NH_2 groups. The end carboxyl groups are detd. by treating the repptd. and washed sample with satd. KCl or NaCl contg. a known amt. of 0.025*N* KOH or NaOH (free of carbonates), dilg. to 200 ml., and allowing the mixt. to stand 10-20 min., after which the polymer is sepd. by filtering and titrating an aliquot of the filtrate with HCl. G. M. Kosolapoff

PAKSHVER, A.B., professor.

Present problems of synthetic fibers. Priroda 45 no.9:57-60 S '56.
(Textile fibers, Synthetic) (MLRA 9:10)

Paksh var, A.B

PAKSHVAR, A.B., doktor tekhn.nauk, red.; **KONKIN**, A.A., doktor tekhn.nauk, red.; **KUKIN**, G.N., doktor tekhn.nauk, red.; **GUSEVA**, Ye.M., red.; **MEDVEDEV**, L.Ya., tekhn.red.; **KOGAN**, V.V., tekhn.red.

[Handbook of analytical control in the manufacturing of artificial and synthetic fibers] Spravochnik po analiticheskomu kontroliu v proizvodstve iskusstvennykh i sinteticheskikh volokon. Moskva, Gos. nauchno-tekhn.izd-vo lit-ry po legkoi promyshl., 1957. 565 p. (MIRA 11:2)

(Textile industry--Quality control)

ROGOVIN, Zakhar Aleksandrovich; PAKSHVER, A.B., prof. doktor tekhn.nauk, retsenzent; MEOS, A.I., prof., doktor tekhn.nauk, retsenzent; LIOZNOV, A.G., red.; DMITRIYEVA, N.I., tekhn.red.; KOGAN, V.V., tekhn.red.

[Fundamentals of the chemistry and technology of producing synthetic textile fibers] Osnovy khimii i tekhnologii proizvodstva khimicheskikh volokon. Izd. 2-oe, perer. i dop. Moskva, Gos.nauchno-tekhn. izd-vo lit-ry po legkoi promyshl., 1957. 743 p. (MIRA 11:2)
(Textile fibers, Synthetic)

PAKSHVER, A. [E]

"Changes of intermolecular binding by the stretching and annealing of fibers," a paper presented at the 9th Congress on Chemistry and Physics of High Polymers, 28 Jan - 2 Feb 57, Moscow.

B-3,084,395

PAKSHVER, A B

CHINA/Chemical Technology, Chemical Products and Their Application, Part 4. - Artificial and Synthetic Fibers. H-32

Abs Jour: Referat. Zhurnal Khimiya, No 10, 1958, 34561.

Author : A.B. Pakshver.
Inst : Not given.
Title : Present Problems of Artificial Fibers.

Orig Pub: Gaofen'tsza tunsyun', 1957, 1, No 2, 117-119.

Abstract: Translation. See RZhKhim, 1958, 19976.

Card : 1/1

PAKSHVER, A.B

4E2c

2map

Chem

10796*. (Russian.) Varying the Molecular Structure of High Polymers by the Inclusion Method. Izmenenie molekuliarnoi struktury vysokopolimerov metodom inkliudirovaniia. A. N. Bykov and A. B. Pakshver. *Kolloidnyi Zhurnal*, v. 19, Jan.-Feb. 1957, p. 27-30.

Incorporation of an indifferent substance into the molecular structure of a polymer, preliminarily weakened by a compound causing the swelling of the molecules, may produce a looser structure. Inclusion increases the reactivity, considerably raising the rate of sorption by polyamides of dyes and acids, and by acetyl cellulose and cellulose of dyes.

PAKSHVER, A.B.

✓ 5481. Strengthening of the molecular structure of tyre cord rayon. A. B. Pakshver, [illegible] S. Gerasimova and [illegible] Kolotilkaxa. Koll. Zhur., 1957, 19, No. 1, 104-8. Heating Capron fibres under constant tension increased their modulus of elasticity and decreased the sorption of phenol by, and its diffusion rate in, the fibres. The stress M needed to extend the fibre by [illegible] was greater the higher the heating temperature (up to 170°C.) and the greater the tension (up to 35% of the breaking tension), but had a maximum at a definite heating time; this optimum time was, e.g., 8 sec. at 180°, and 15 sec. at 170°. Plasticising Capron with caprolactam increased M for a time but the plasticised fibres aged too rapidly. Heating stretched viscose filaments at 110°, lowered their sorption of copper from Cu $(NH_3)_4{}^{++}$ solutions, and of $Et_3NCH_2Ph^+$, while treatment of these filaments

PAKSHVER, A.B.; NATAN, E.Ye.; KATUSHKINA, I.F.

Study of the intermolecular structure of thermoplastic fibers.
Koll. zhur. 19 no.1:109-112 Ja-F '57. (MLRA 10:4)

1. Ivanovskiy khimiko-tekhnologicheskiy institut.
(Textile fibers, Synthetic)

[illegible]

POKROVSKIY, L.I.; PAKSHVER, A.B.

Changing the intermolecular structure of capron fiber by heating [with summary in English]. Koll.zhur. 19 no.4:478-482 Jl-Ag '57.
(MIRA 10:10)

1.Ivanovskiy khimiko-tekhnologicheskiy institut, Vsesoyuznyy zaochnyy institut tekstil'noy i legkoy promyshlennosti.
(Nylon)

PAKSHVER, A.B.

BYKOV, A.N.; IVANOVA, M.I.; PAKSHVER, A.B.

Altering the properties of polyamides by the inclusion method [with summary in English]. Koll.zhur. 19 no.5:542-547 S-O '57. (MIRA 10:10)

1. Ivanovskiy khimiko-tekhnologicheskiy institut.
(Amides)

SERKOV, A.T.; MOGILEVSKIY, Ye.M.; PAKSHVER, A.B.

Formation kinetics of alkali cellulose. Zhur.prikl.khim. 30 no.2:309-310 F '57. (MLRA 10:5)

1.Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo volokna.

(Celluose)

MATISSEN, Petr Petrovich; **KISELEVA**, Nataliya Sergeyevna; **PAKSHVER**, A.B., retsenzent; **YUNITSKIY**, B.P., retsenzent; **VARSHAVSKAYA**, L.S., red. **KHAKHIN**, N.T., tekhn. red.

[Manufacture of rayon staple] Proizvodstvo viskoznogo shtapel'nogo volokna. Izd.2., dop. i perer. Moskva, Gos. nauchno-tekhn. izd-vo lit-ry po legkoi promyshl., 1958. 243 p. (MIRA 11:9)
(Rayon)

KHOPFF, G.[Hopff, Heinrich], MYULLER, A.[Müller, Alfred], VENGER, F.[Wenger, Friedrich],; PAKSHVER, A.B., prof., red.; BEER, A.A.,[translator], GENKINA, Ye.V.[translator], VENDEL'SHTEYN, Ye.G.[translator], ROGOVINA, L.Z.,[translator], SLINKIN, A.A.,[translator],; SHPAK, Ye.G., tekhn. red.

[Polyamides] Poliamidy. Moskva, Gos. nauchno-tekhn. izd-vo khim. lit-ry, 1958. 451 p. [Translated from the German]. (MIRA 11:11)

(Plastics)

(Textile fibers, Synthetic)

(Amides)

SOV/156-58-3-39/52

AUTHORS: Matveyeva, S. P., Geller, B. E., Pakshver, A. B.

TITLE: The Influence of the Properties of the Polyacrylnitrile Fiber on the Conditions for Dying it (Vliyaniye svoystv poliakrilonitril'nogo volokna na usloviya yego krasheniya)

PERIODICAL: Nauchnyye doklady vysshey shkoly, Khimiya i khimicheskaya tekhnologiya, 1958, Nr 3, pp. 553 - 555 (USSR)

ABSTRACT: The dying of synthetic fibers depends on the rate of diffusion of the coloring substance in the interior of the fiber. The diffusion coefficient of the coloring substance in the polyacrylnitrile fiber is very small, which makes it difficult to dye. Newly-produced fiber can be dyed well and evenly with acid and basic coloring substance after washing and before complete drying. After the drying process the fibers lose almost completely their absorptive power for the coloring substances. The experiments carried out showed that a satisfactory dying of the polyacrylnitrile fiber is possible only when the fiber is slightly swollen prior to its complete drying. There are 1 figure and 7 references, 5 of which are Soviet.

Card 1/2

SOV/156-58-2-[illegible]

The Influence of the Properties of the Polyacrylnitrile Fiber on the Conditions for Dying it

ASSOCIATION: Kafedra khimicheskoy tekhnologii voloknistykh materialov Vsesoyuznogo zaochnogo instituta tekstil'noy i legkoy promyshlennosti (Chair for the Chemical Technology of Fiber Materials at the All-Union Institute for the Study by Correspondence of Textile and Light Industry)

SUBMITTED: February 27, 1958

Card 2/2

SOV/153-58-5-18/28

5(1, 3)

AUTHORS: Rybkulova, N. M., Geller, B. E., Pakshver, A. B.

TITLE: Investigation of the Mechanism of Darkening and of the Decoloring Methods of Spinning Solutions and of the "Nitron" Fiber (Issledovaniye mekhanizma potemneniya i metodov obestsvechivaniya pryadil'nykh rastvorov i volokna "nitron")

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i khimicheskaya tekhnologiya, 1958, Nr 5, pp 107-113 (USSR)

ABSTRACT: Synthetic chemical fibers should have a uniform color. In the production of polyacrylonitrile fibers, especially of the "Nitron" fiber 15-16% spinning solutions of polyacrylonitrile (PAN) in dimethyl formamide (DMF) can have colors from light yellow to dark brown. This is caused by the stability of the polymer, the quality of the solvent and other factors. The color of the fiber depends on that of the spinning solution. The problem of producing white fibers has been many times discussed in publications (Refs 1-10). The present paper serves the purpose of explaining the causes of the phenomena of colors of concentrated solutions of PAN in DMF, as well as in the ready fiber. Furthermore production methods of white fibers

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SOV/153-58-5-18/28

Investigation of the Mechanism of Darkening and of the Decoloring Methods of Spinning Solutions and of the "Nitron" Fiber

were to be devised. PAN, PAN solutions in DMF, films and fibers were investigated. Tables 1 and 2 as well as figures 1-4 give the results obtained. Since spinning solutions as well as freshly formed fibers become yellow or dark on a longer heating to 100° it must be assumed that DMF is saponified in an aqueous medium. Colored amidine compounds are formed by the interaction of the separated dimethyl amine and ammonia with the polymer (-CN-groups). This assumption was proved by 3 facts experimentally checked (Figs 3, 4). The causes are admixtures in DMF, as there are H-COOH, NH_3 and $(CH_3)_2NH$. The substances of basic character present in the spinning solution lead to a darkening, those of acid character brighten the solution. Acids forming compounds with ammonia and amines and which are capable of entering reactions with -CN-groups are an exception. A scheme of the mechanism of this reaction was suggested. Production methods of the white polyacrylonitrile fibers was devised. The authors recommend usage of a) a pure solvent, as well as substances that bind dimethyl amine and ammonia to a non volatile solid compound, and which are incapable of reacting with the

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SOV/153-58-5-1[illegible]

Investigation of the Mechanism of Darkening and of the [illegible] of Spinning Solutions and of the "Nitron" Fiber

-CN-groups of the polymer. They are H_2SO_4, SO_2, $H_2C_2O_4$ and others. b) To carry out an acid treatment of the ready fiber with weak acid solutions, and c) to bleach the ready fiber w acid solutions of sodium chlorite.
There are 4 figures, 2 tables, and 15 references, 11 of which are Soviet.

ASSOCIATION: Vsesoyuznyy zaochnyy institut tekstil'noy i legkoy promyshle nosti i vsesoyuznyy nauchno-issledovatel'skiy institut iskuss vennogo volokna (All-Union Correspondence Institute for Textile and Light Industry, and All-Union Scientific Research Instit for Synthetic Fibers)

SUBMITTED: January 11, 1958

Card 3/3

POKROVSKIY, L.I.; PAKSHVER, A.B.

Improving physicomechanical indices of capron cord fiber by means of heat treatment. Izv.vys.ucheb.zav.; tekh.tekst.prom. no.6:95-96 '58. (MIRA 12:4)

1. Ivanovskiy khimiko-tekhnologicheskiy institut.
(Textile fibers, Synthetic)

Pakshver A.B.

FINGER, G.G.; PAKSHVER, A.B.; MOGILEVSKIY, Ye.M.

Investigating the process of desulfurization of viscose fibers. Tekst. prom. 18 no.5:17-19 My '58. (MIRA 11:5)
(Rayon)

PAKSHVER, A. B

AUTHOR: Kharitonova, V.P., Pakshver, A.B. 69-20-1-16/20

TITLE: The Effect of the Acetyl Group Content of Acetylcellulose on the Properties of its Solutions. (Vliyaniye soderzhaniya atsetil'nykh grupp v atsetiltsellyuloze na svoystva yeye rastvorov)

PERIODICAL: Kolloidnyy Zhurnal, 1958, Vol XX, # 1, pp 110-117 (USSR)

ABSTRACT: In the article, the properties of acetylcellulose solutions in connection with the content of bound acetic acid are investigated. The minimum of viscosity corresponds to the maximum of pliability of the macromolecules in the solution. The maximum of pliability may be observed at the least regular arrangement of the polar hydroxyl and acetyl groups. Such a distribution correponds to a content of 56.5-58.5% of bound acetic in the solution. The dependence of the specific viscosity on the content of bound acetic acid is shown in fig. 1. The heats of solution of acetylcellulose depend on the ratio of acetyl and hydroxyl groups. The highest values are observed in formic acid, the lowest in acetone (Fig. 3). The turbidity of acetylcellulose solutions changes 100 times in different solvents. The addition of small doses of a second component causing, solvation of the polar groups

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69-20-1-16/20

The Effect of the Acetyl Group Content of Acetylcellulose on the Properties of Its Solutions

of the acetylcellulose diminishes the turbidity by 40-60%. The increase of fractions with a low content of acetyl groups causes higher turbidity of the solutions.

There are 3 figures, 7 tables, and 11 references, 7 of which are Soviet, 2 American, 1 English, and 1 German.

ASSOCIATION: Ivanovskiy khimiko-tekhnologicheskiy institut
(Ivanovo Chemical-Technological Institute)

SUBMITTED: September 1, 1956

AVAILABLE: Library of Congress

Card 2/2

5(1,3)

AUTHORS: Kharitonova, V. P., Babenkov, L. N., Pakshver, A. B. SOV/153-2-2-21/31

TITLE: The Influence of the Contents of Combined Acetic Acid in the Acetyl Cellulose on the Filtrating- and Spinning Property of the Production Solutions (Vliyaniye soderzhaniya svyazannoy uksusnoy kisloty v atsetiltsellyuloze na fil'truyemost' i pryadomost' proizvodstvennykh rastvorov)

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i khimicheskaya tekhnologiya, 1959, Vol 2, Nr 2, pp 254-257 (USSR)

ABSTRACT: During the production of acetate rayon considerable variations often occur between individual batches of acetylcellulose with regard to the filtrating- and spinning-property of the spinning solutions. The bad quality of the latter results in the breaking of the fibres during weaving. Therefore the authors made it their task to prepare quality indices of the spinning solutions, characterizing the filtrating- and spinning-property. These two properties depend on the interaction between the macro-molecules in the solution. This interaction depends in its turn on: 1) the physical and chemical heterogeneity of

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The Influence of the Contents of Combined Acetic Acid SOV/153-2-2-21/3
in the Acetyl Cellulose on the Filtrating- and Spinning Property of the
Production Solutions

acetyl-cellulose; 2) the homogeneity of the solution itself - the existence of gel grains. Investigated were: 1) a batch with good and one with bad spinning properties; 2) acetylcellulose with varying content of combined acetic acid, which were obtained by saponifying an equivalent batch of the primary acetate. Acetone, acetone-alcohol-, and acetone-water-mixtures were used as solvents. The retardation of the filtration (Table 1) was calculated from the determined filtrating property of the solution (Ref 1). The retardation of the filtration (Table 1) was calculated. Furthermore, the spinning property of the solution (its elasticity) is being calculated from the formula

$A = \left(\frac{v - v_1}{v_1}\right).100\ \%$ (Ref 2), with A being the elasticity of the jet in %; v - the top speed for the winding of the filament onto the bobbin, at which the breaking of the filament occurs in m/sec. Results are summarized in the table (p 255). A special laboratory device (Fig 1) was designed to

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The Influence of the Contents of Combined Acetic Acid SOV/153-2-2-21/31
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Production Solutions

determine the spinning property of the solutions. It was proved already previously (Refs 4,5) that the properties of the diluted acetyl-cellulose-solutions depend on their contents of combined acetic-acid. The quality of the solution deteriorates with the increase of fractions with a low content of acetyl groups in the acetyl cellulose. In this case the filtrating- and spinning-properties of the production-solutions (Ref 5) must apparently also be subject to a deterioration (confirmed in table, p 255). When the content of combined acetic-acid in the acetyl-cellulose decreases until below 55 %, the retardation of the filtration τ increases and the elasticity of the jet of solution A drops, which means a deterioration of the spinning property. Acetyl-cellulose with 55.3-56.3 % of combined acetic-acid shows the best qualities. Different solvents solvate the acetyl-celluloses of different esterifying degrees (Ref 5) in a different way. Consequently, the interaction between the macro-molecular chains in concentrated solutions must also be different and the stronger, the weaker the solvating

Card 3/4

The Influence of the Contents of Combined Acetic Acid SOV/153-2-2-21/31
in the Acetyl Cellulose on the Filtrating- and Spinning Property of the
Production Solutions

action of the solvent. The ketone group of acetone favors solvating, by linking the dipol-groups of the acetones through the acetyl-cellulose. The solvating degree drops with a decrease in the number of acetyl-groups and with an increase of hydroxyl-groups in the acetyl-cellulose. At the same time the reciprocal action between the chains goes up and the possibility of forming gel grains increases. S. S. Frolov, Docent, gave valuable advice. There are 2 figures, 1 table, and 5 Soviet references.

ASSOCIATION: Ivanovskiy khimiko-tekhnologicheskiy institut i Vsesoyuznyy zaochnyy institut legkoy i tekstil'noy promyshlennosti (Ivanovo Chemical-technological Institute and All-Union Correspondence-institute for Light- and Textile Industry)

SUBMITTED: March 12, 1958

Card 4/4

5(1,3)

AUTHOR: Pinger, G. G., Pakshver, A. B., Mogilevskiy, Ye. M. SOV/153-2-2-22/31

TITLE: The Influence of the Structure of the Viscose Fibre on the Rate of the Removal of Sulphur From Fibre (Vliyaniye struktury viskoznogo volokna na skorost' udaleniya sery iz volokna)

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i khimicheskaya tekhnologiya, 1959, Vol 2, Nr 2, pp 258-262 (USSR)

ABSTRACT: The viscose fibre and the hydrate-cellulose-films possess a very irregular molecular structure. This is a result of the fast extraction of the cellulose-molecules from the spinning-solution. It affects the dissolution-rate of the fibre in alkali (Ref 1), the iodine and copper sorption from the solutions (Ref 2), the dye-stuff and alkali diffusion (Ref 3) of the films, et al. These differences of the molecular structure have a particularly strong influence on the removal of sulphur from fibres and films. As is well known, sulphur containing secondary compounds deposit during their decomposition elementary sulphur, which partly remains within the fibre and must be removed when being

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The Influence of the Structure of the Viscose Fibre SOV/153-2-2-22/31
on the Rate of the Removal of Sulphur From Fibre

cleaned (desulpnurated). Since this process must be considerably accelerated, the authors undertook the present investigation. It deals with the influence of the molecular structure of the hydrate-cellulose-fibres and films on the rate of the sulphur-removal. The influence of the medium on this rate was also investigated. The usual viscose-acetate rayon (elementary-number 2,000-2,500), were examined dried and undried, wetstretched and dried in a stretched state. Furthermore, rayon with different degrees of decomposition of the cellulose-xanthogenates was tested. For the purpose of comparison, the diffusion-rate of colloidal-sulphur by freshly formed cellulose-film (cellophane) was determined. The solutions of NaOH, Na_2S, and Na_2SO_3, which are used in practice, as well as water with the addition of surface-active-agents (oxyethylated alkylphenol OP-10) and solutions of sulphuric acid were used for desulphurating. The results are shown in table 1. As may be seen, the diffusion-coefficient D changes during the sulphur-removal from the viscose-fibre within very wide

The Influence of the Structure of Viscose Fibre on SOV/153-2-2-22/31
the Rate of Removal of Sulphur From Fibre

limits: 5.10^{-15} - 5.10^{-7} (at 80°). At the same time, the coefficient passes 3 sharply distinguishable zones: a) it approaches 0 during the treatment of fibre in a swelled condition; b) it increases up to 1.10^{-10} - 100.10^{-10} in an acid- or neutral medium and c) it increases to $5,000.10^{-10}$ during desulphuration in an alkaline medium. This distinction is explained by a fundamentally different mechanism of sulphur-diffusion in different media. On the basis of their results, the authors arrive at the following conclusions: 1) The sulphur-diffusion can take place according to two mechanisms: a) by sublimation and b) by secondary sulphur-condensation as crystals of the rhombic sulphur, $16S_8$. 2) The rate of the displacement of the sulphur particles in the fibre depends on the size of the pores in the fibre. In a normally swelled fibre the size of the pores enables this displacement at a varying rate, according to the degree of swelling of the fibre. 3) An addition of surface-active agents (OP-10 for example) considerably accelerates the sulphur-diffusion, that is owing to the dispersion and reduction of the aggregate-size.

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4) In alkalic surroundings, the sulphur is transformed into ions of the sulphur-compounds and the diffusion is accelerated 1,000 times and more. 5) The sulphur-diffusion-rate depends on the degree of the formation-perfection of the viscose-fibre, that is on the amount of the remaining xanthogenate groups. There are 2 tables and 7 references, 6 of which are Soviet.

ASSOCIATION: Vsesoyuznyy zaochnyy institut legkoy i tekstil'noy promyshlennosti i Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo volokna; Kafedra tekhnologii voloknistykh materialov (All-Union Correspondence-institute for Light- and Textile Industry and All-Union Scientific Research-institute for Synthetic Fibre; Chair of Technology of Fibres

SUBMITTED: April 23, 1958

Card 4/4

BEDER, N.M.; GELLER, B.E.; PAKSHVER, A.B.

Molecular composition of polyacrylonitrile. Khim.volok. no.2:33-36 '60.
(MIRA 13:12)

1. Kalininskiy filial Vsesoyuznogo nauchno-issledovatel'skogo instituta iskusstvennogo volokna.

(Acrylonitrile)

ZAKHAROV, V.S.; ZELENTSOV, I.G.; PAKSHVER, A.B.

Structural changes in viscose fiber in the process of spinning.
Khim.volok. no. 6:30-32 '60. (MIRA 13:12)

1. Kalininskiy filial Vsesoyuznogo nauchno-issledovatel'skogo
instituta iskusstvennogo volokna.
(Rayon spinning)

GELLER, A.A.; PAKSHVER, A.B.

Effect of the structure and number of polymer end groups on the dyeing of polyacrylonitrile fiber. Khim.volok. no.1:17-18 '61. (MI A 14:2)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut steklyannogo volokna.

(Orlon) (Dyes and dyeing—Textile fibers, Synthetic)

BUTOVICH, V.M. [translator]; PAKSHVER, A.B., red.

Production of twisted viscose fiber (From "Man-Made Textiles," no.442, 1959). Khim.volok. no.1:77 '61. (MIRA 14:2)
(Rayon)

S/183/61/000/001/004/006
B101/B205

AUTHORS: Pakshver, A. B., Kazachkova, T. M.

TITLE: New method of characterizing the structure of polyacryl nitrile fiber

PERIODICAL: Khimicheskiye volokna, no. 1, 1961, 22-24

TEXT: A rapid laboratory method has been worked out for determining the structure of polyacryl nitrile fiber (PAN), i.e., the presence of micropores, loose sites, and other inhomogeneities which affect the behavior of the fiber during treatment and dyeing. Laboratory tests have hitherto been made by simulating the manufacturing process. As the number of inhomogeneities has an effect on diffusion, calorimetric measurement of the amount of heat liberated by PAN swelling in dimethyl formamide within the first five minutes has been suggested. A figure shows that the liberation of heat (0.4-7.2 cal/g after 1 min; 0.7-8.7 cal/g after 2 min; 1.8-13.7 cal/g after 5 min) depends on the method of PAN synthesis and its preliminary treatment. The liberated heat approaches equilibrium: Q_0 = 12.5 cal/g (determined in an adiabatic calorimeter). The coefficient Q_1/Q_0 (Q_1 = first minute) varied

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B101/B205

New method of ...

from 0.080 to 0.376, depending on the degree of homogeneity of PAN. In addition, the structural density was determined from the specific gravity. Freshly precipitated PAN fiber had a specific gravity of 1.626, which was increased to 1.794 by drawing and oiling. Treatment with water reduced the specific gravity, whereby the micropores were enlarged and new ones were formed. There are 1 figure, 2 tables, and 12 Soviet-bloc references.

ASSOCIATION: VNIISV (All-Union Scientific Research Institute of Synthetic Fiber)

[illegible]

Card 2/2

BEDER, N.M.; PAKSHVER, A.B.

Properties of polyacrylonitrile solutions. Khim.volok. no.3:21-24 '61. (MIRA 14:6)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut steklyanogo volokna.

(Acrylonitrile polymers)

L 21752-65 EWT(m)/EPF(c)/EWP(j) Pc-4/Pr-4 RM

ACCESSION NR: AP5000753 S/0191/64/000/012/0042/0044

AUTHOR: Mol'kova, G.N., Fil'bert, D.V., Pakshver, A.B.

TITLE: Fractionation of polypropylene

B

SOURCE: Plasticheskiye massy*, no. 12, 1964, 42-44

TOPIC TAGS: polypropylene, polymer fractionation, column chromatography, polymer molecular weight

ABSTRACT: The authors discuss the molecular weight distribution of polypropylene and methods for its chromotographic fractionation. The molecular weight was determined from viscosity measurements after fractionating on a quartz sand-packed column, using a temperature gradient of 140-180C, and increasing decalin concentrations in the stabilized acetone-decalin mixture used for elution. Fractions were precipitated with acetone, dissolved in decalin containing 1% phenyl-β-naphthylamine, and tested on a capillary viscosimeter at 135C. The molecular weight did not increase monotonously in the order of the fractions, and the last fractions showed a decrease in molecular weight and a rapid increase in density. The molecular weight distribution of powdered and pelleted specimens of Soviet polypropylenes (81.8 and 90% isotactic content) showed marked maxima in the

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ACCESSION NR: AP5000753

regions of low and high molecular weight. Crystallinity reached a maximum at a molecular weight of 300,000-400,000 and a minimum at 100,000-200,000, and fractions of low crystallinity and medium molecular weight were apparently washed out during production and therefore nearly absent in the fractionated samples. Fractionation obviously depends on both molecular weight and degree of crystallinity. Orig. art. has: 1 table, 5 figures and 4 formulas.

ASSOCIATION: None

SUBMITTED: 00 ENCL: 00 SUB CODE: OC, OC

NO REF SOV: 000 OTHER: 010

Card 2/2

FIL'BERT, D.V., MO[illegible]OVA, G.N., PAKSHVER, A.B.

Effect of the molecular weight distribution in polypropylene on fiber properties. Khim. volok. no.5:6-8 '65. (MIRA 18:10)

1. VNIISV.

L 29968-66 EWP(j)/EWT(m)/T RM

ACC NR: AR6000276 SOURCE CODE: UR/0081/65/000/014/S103/S103

AUTHOR: Gerasimova, L. S.; Veziryan, S. Ye.; Pakshver, A. B.

42
B
15

TITLE: Measuring relaxation stresses in polyacrylonitril fiber

SOURCE: Ref. zh. Khimiya, Abs. 14S689

REF SOURCE: Sb. nauchno-issled. rabot Khimiya i khim. tekhnol. vysokomolekul. soyedineniy. Tashkentsk. tekstil'n. in-t, no. 1 (17), 1964, 218-229

TOPIC TAGS: synthetic fiber [illegible], polyacrylonitrile, [illegible], heat effect, [illegible] heat stress

ABSTRACT: An isometric heating method was used in studying the peculiarity of polyacryllonitril fiber submolecular structure depending on the condition of forming and finishing. It consists of measuring stresses taking place during heating of the fiber. According to the authors the measured stress characterizes: the degree of deviation of structural elements and individual macromolecules in the fiber from the equilibrium state; the relaxation stress by which individual macromolecules or the structural elements which obtained relative freedom

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ACC NR: AR6000276

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during heating tend to relax and assume a most appropriate shape and arrangement. The intensity of the processes depends on the surrounding in which the heating of the fiber takes place. Temperature-stress curves for various polyacrylonitril fibers are given in the article. It is shown that the magnitude of the relaxation increases with an increase in the swelling agent. Isometric heating of the fiber increases relaxation stresses as well as slipping of the structural elements. The isometric heating method is sensitive to the formation of the fiber, and can be used in the study of supermolecular structure.

E. Faynberg

SUB CODE: 11/ SUBM DATE: 25Jul65

Card 2/2 nC

GERASIMOVA, L.S., ispolnyayushchiy obyazannosti starshego nauchnogo
sotrudnika; PAKSHVER, A.B., prof.

Isometric method for the evaluation of synthetic fibers.
Tekst. prom. 25 no.4:59-63 Ap '65. (MIRA 18:5)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut sinteticheskogo
volokna (for Gerasimova, Pakshver).

FIKHMAN, V.D.; ASH, M.A.; VOROB'YEV, Ye.A.; PAKSHVER, A.B.

Mechanism of the formation of polyvinyl chloride fibers. Khim. volok. no.1:28-34 '65. (MIRA 18:2)

1. VNIISV (for Fikhman, Ash, Pakshver). 2. Vsesoyuznyy zaochnyy institut tekstil'noy i legkoy promyshlennosti (for Vorob'yev).

VIREZUB, A.I.; GINZBERG, M.[illegible]; [illegible], [illegible].

Determining [illegible] content [illegible] viscose. Khim. volok. [illegible]

[illegible]

1. Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo volokna (for Virezub, Ginzberg). 2. Vsesoyuznyy zaochnyy institut tekstil'noy i legkoy promyshlennosti (for Rakshver).

BEDER, N.M.; ANDREYEVA, A.S.; PAKSHVER, A.B.

Polymerization of acrylonitrile in the presence of bi- and polyfunctional amines. Khim. volok. no.4:14-17 '64. (MIRA 18:4)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut steklyanogo volokna.

GERASIMOVA, L.S.; PAKSHVER, A.B.

Studying the changes in the structure of synthetic fibers with the method of isometric heating. Izv.vys.ucheb.zav.; tekh.tekst.prom. no.5:20-26 '64. (MIRA 18:1)

1. Vsesoyuznyy zaochnyy institut tekstil'noy i legkoy promyshlennosti i Vsesoyuznyy nauchno-issledovatel'skiy institut sinteticheskikh volokon.

MOL'KOVA, G.N.; FIL'BERT, D.V.; PAKSHVER, A.B.

Fractionation of polypropylene. Plast. massy no.12:42-44 '64.
(MIRA 18:3)

MANVELYAN, V.F.; PAKSHVER, A.B., prof., doktor khim.nauk

Selecting temperature parameters for the thermal stabilization and dyeing of the "Meron" bulked yarn. Tekst.prom. 25 no.2:10-13 F '65. (MIRA 18:4)

1. Zamestitel' glavnogo khimika Vsesoyuznogo nauchno-issledovatel'skogo instituta torfyanoy promyshlennosti (for Manvelyan). 2. Vsesoyuznyy nauchno-issledovatel'skiy institut steklyannogo volokna (for Pakshver).

L 6645-65 EWT(m)/EPF(c)/EWP(j)/T Pc-4/Pr-4/Pa-4 RPL/AFETR/SSD/AFWL/
ASD(m)-3 JW/RM

ACCESSION NR: AP4042736 S/0183/64/000/004/0014/0017 66
64

AUTHORS: Beder, N. M.; Andreyeva, A. S.; Pakshver, A. B.

TITLE: Polymerization of acrylonitrile in the presence of bi- and polyfunctional amines

SOURCE: Khimicheskiye volokna, no. 4, 1964, 14-17

TOPIC TAGS: acrylonitrile, polymerization, polyacrylonitrile, polyamine, polycondensation, dye sorption, dyeability, polymer strength, yield, monomer conversion, specific viscosity, molecular weight, fiber

ABSTRACT: Polyacrylonitrile obtained by polymerization of acrylonitrile in the presence of hexamethylenediamine (HMD) and its condensation product with formalin (polyamine) contained basic terminal groups and only a small amount of low molecular fractions. The maximum possible amount of polyfunctional amine regulator (as determined by sorption of acid dyes) entered the polymer when only persulfate (instead of persulfate + metabisulfite) was present in the polymerization system. The induction period was reduced by polymerizing under nitrogen. Sorption of dye was higher with polyamine

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L 6645-65
ACCESSION NR: AP4042736

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than with HMD. The specific viscosity of the polymer, depending on the degree of monomer conversion, did not change with HMD; with polyamine, it increased up to about 35% conversion, then remained constant. 1-2% HMD or 6% polyamine gave products with small low molecular fractions, increased specific viscosities and increased strength. Fibers formed of these polymers were readily bonded with 1.5-2% acid dyes prior to drying. Dried fibers do not dye well. Orig. art. has: 2 tables and 6 figures.

ASSOCIATION: VNIISV

SUBMITTED: 22Apr63 ENCL: 00

SUB CODE: MT, OC NR REF SOV: 003 OTHER: 001

Card 2/2

MIKHLIN, I.A., inzh.; PAKSHVER, A.B., doktor tekhn. nauk

Continuous deaeration of viscous soltutions. Izv. vys. ucheb. zav.; tekh. leg. prom. no.5:51-55 '63. (MIRA 16:12)

1. Sovmestnaya issledovatel'skaya laboratoriya Kiyevskogo kombinata iskusstvennogo volokna i Kiyevskogo eksperimental'nogo zavoda (for Mikhlin). 2. Vsesoyuznyy nauchno-issledovatel'skiy institut sinteticheskikh volokon (for Pakshver). Rekomendovana kafedroy tekhnologii iskusstvennykh i sinteticheskikh volokon Kiyevskogo tekhnologicheskogo instituta legkoy promyshlennosti.

BEDER, N.M.; PAKSHVER, A.B.

Effect of the polymer properties on the physicomechanical properties of the polyacrylonitrile fiber obtained. Khim.volok no.6:6-9 '63. (MIRA 17:1)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut sinteticheskogo volokna.

BEDER, N.M.; PAKSHVER, A.B.

Effect of the properties of the polymer on the physiocomechanical properties of polyacrylonitrile fibers. Khim. volok. no.5:9-12 '63. (MIRA 16:10)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut sinteticheskogo volokna.

L 17478-63 EWP(j)/EWT(m)/BDS ASD Pc-4 RM

ACCESSION NR: AP3004762 S/0183/63/000/004/0042/0045

AUTHORS: Gerasimova, L. S.; Pakshver, A. B.

59

TITLE: Internal fatigue stress of cellulose fibers

SOURCE: Khimicheskiye volokna, no. 4, 1963, 42-45

TOPIC TAGS: internal stress, fatigue stress, cellulose, cellulose fiber

ABSTRACT: The interdependence between internal stress and fatigue stress of cellulose fibers was shown. Heating viscose filaments at high temperatures (140C) lowered their internal stresses. Aqueous and acid treatment of viscose fibers at pH 4.5 decreased their internal stresses. Lowering the degree of polymerization deteriorated the elastic-properties, while formation of cross-acetal bonding improved the elastic properties and fatigue stress of viscose fibers. Orig. art. has: 2 tables and 5 figures.

ASSOCIATION: VZITLP (All-union textile and light industries correspondence institute)

SUBMITTED: 12Nov62 DATE ACQ: 20Aug63 ENCL: 00

SUB CODE: MA NO REF SOV: 004 OTHER: 007

Card 1/1

GERASIMOVA, L.S.; PAKSHVER, A.B.

Method for determining the internal stresses of rayon fibers. Khim.volok. no.2:33-36 '63. (MIRA 16:5)

1. Vsesoyuznyy zaochnyy institut tekstil'noy i legkoy promyshlennosti (for Gerasimova). 2. Vsesoyuznyy nauchno-issledovatel'skiy institut steklyanogo volokna (for Pakshver).
(Rayon--Testing)

GERASIMOVA, L. S.; PAKSHVER, A. B.

Formation mechanism of cross links in cellulose hydrate fibers. Khim. volok. no.6:22-25 '62. (MIRA 16:1)

1. Moskovskiy Vsesoyuznyy zaochnyy institut tekstil'noy i legkoy promyshlennosti.

(Cellulose) (Chemical bonds)

KHURGINA, R.A.; PAKSHVER, A.B.

Kinetics of viscose ripening process. Khim.volok no.4:34-37 '62. (MIRA 15:8)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo volokna (for Khurgina). 2. Vsesoyuznyy nauchno-issledovatel'skiy institut steklyanogo volokna (for Pakshver).

(Viscose)

KHURGINA, R.A.; PAKSHVER, A.B.

Kinetics of decomposition of cellulose xanthate and of formation of sodium trithiocarbonate in viscose. Khim.volok. no.2:25-30 '62. (MIRA 15:4)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo volokna.
(Cellulose xanthates) (Sodium thiocarbonate) (Viscose)

RASSOLOV, O.P.; PAKSHVER, A.B.

Equipment for the continuous xanthation of alkali cellulose.
Khim.volok. no.6:33-35 '61. (MIRA 14:12)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo volokna.

(Cellulose xanthates)

RASSOLOV, O.P.; PAKSHVER, A.B.

Effect of different factors on the exanthation of alkali cellulose. Khim.volok. no.3:25-29 '61. (MIRA 14:6)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo volokna.

(Cellulose xanthates)

PAKSHAVER, A. B.

M. AYOUTZ

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3558* Diffusion of Different Substances Through Hydrate-Cellulose Films. Diffuziia razlichnykh veshchestv cherez gidratselliuloznye plenki. (Russian.) A. B. Pakshver and I. V. Bykova, *Kolloidnyi Zhurnal*, v. 16, no. 5, Sept.-Oct. 1954 p. 381-388.

Diffusion velocity, under different conditions; relation between diffusor and film. Tables. 6 ref.

PAKSHVER, Aleksandr Bernardovich; **GELLER**, Boris Emmanuilovich;
BABUSHKINA, S.I., red.; **KOGAN**, V.V., tekhn.red.

[Chemistry and technology of the manufacture of nitron fiber]
Khimiia i tekhnologiia proizvodstva volokna nitron. Moskva,
Gos.nauchno-tekhn.izd-vo khim.lit-ry, 1960. 147 p.
(Orlon) (MIRA 14:2)

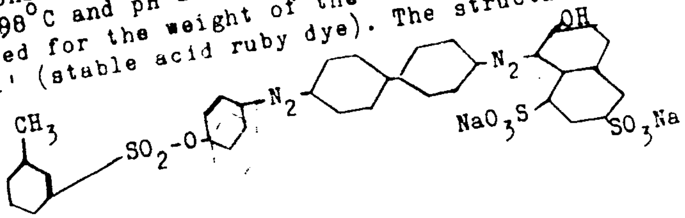
S/183/60/000/003/008/016/XX
B004/B067

AUTHORS: Geller, A. A. and Pakshver, A. B.

TITLE: Dyeing of Polyacrylonitrile Fibers in the Presence of Monovalent Copper

PERIODICAL: Khimicheskiye volokna, 1960, No. 3, pp. 19-21

TEXT: The authors experimentally studied the processes taking place when dyeing the polyacrylonitrile fiber, nitron, with acid dyes in the presence of monovalent copper ions. One-bath and double-bath dyeing were examined. Nitron was treated at 98°C and pH = 1.6 - 5.7 for 1.5 hours with 4% $CuSO_4$, 3% rongalite (calculated for the weight of the fiber), and the kislotnyy alyy prochnyy krasitel' (stable acid ruby dye). The structural formula of the dye is given:



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