"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

L 25628-65
ACCESSION NR: AP4047599

2

containing aromatic aminogroups. The so obtained colors were much more stable than those obtained by adsorption into the fiber. The condensation reaction depended upon the structure of the dye, location of the amino groups and the molecular weight. Only 1-2% of the copolymer aldehyde groups participated in the reaction. The fiber strength was reduced by 5-10%. An up to 100% increase of thermostability was obtained by 3 methods: (1) using hexamethylenediamine to obtain intermolecular chemical links; crosslinking between the macromolecules was proved by its increased thermostability and failure to dissolve in dimethylformamide, as well as by a new IR band, indicating the formation of a C=N bond; (2) coordinated linking was obtained with $FeCl_3$ and HCl or; (3) with Ni^{+2} following treatment with hydroxylamine. Upon reacting the copolymer with proteins (gelatin) or polyvinylalcohol, sandwich polymers were obtained. Up to 4% gelatin were added to the polymer. This fiber could be dyed with acid dyes. The alcohol added 2% to the weight. Orig. art. has: 3 tables and 7 formulas

ASSOCIATION: Institut khimii Akademii nauk Estonskoy SSR (Institute of Chemistry, Academy of Sciences, Estonian SSR)

Card 2/3

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

L 24660-65 EPF(c)/EPF(n)-2/EPR/EWG(j)/EWA(h)/EWP(j)/EWT(m)/T/EWA(1) Pc-4/ Pr-4/Ps-4/Pu-4/Peb GG/RM/WW

ACCESSION NR: AP4049877 S/0183/64/000/006/0014/0018

49
42
B

AUTHOR: Wu, Jung-jui; Konkin, A. A.; Rogovin, Z. A.

TITLE: Investigation of the structure and properties of modified polypropylene fibers

SOURCE: Khimicheskiye volokna, no. 6, 1964, 14-18

TOPIC TAGS: polypropylene fiber, structure, physical mechanical property, polyacrylonitrile polypropylene graft copolymer, polymethylvinylpyridine polypropylene copolymer, polyvinyl acetate polypropylene copolymer, crystallinity, ion exchange resin

ABSTRACT: The changes in the structure and the physical-mechanical properties of polypropylene (PP) fibers modified with polyacrylonitrile (PAN), poly-2-methyl-5-vinylpyridine (PMVP), polyacrylic acid (PAK) and polyvinyl acetate (PVAc) were investigated. Isotactic PP was subjected to preliminary γ-irradiation and then to grafting of the PAK, PAN, PMVP or PVAc. The degree of crystallinity and orientation of the structural elements along the fiber axis decreased in the copolymers in comparison to PP alone. The block chains in the grafted

Card 1/2

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

L 24660-65
ACCESSION NR: AP4049877

7

copolymers did not significantly affect the heat and thermal stability of the PP fiber, but did lower the mechanical properties. Addition of up to about 10% of the graft polymer did not impair the mechanical properties significantly, but larger quantities of PAN, PVMP or PVAc reduced the strength and modulus of deformation, regardless of the graft polymer. Fibers and cloth made of the PP-PVMP and PP-PAK graft copolymers are ion exchange materials. PP-PVMP (120%) had the same capacity as anionite AN-25; the cation exchange capacity of PP-PAK (100%) was 4.35 mg. equiv. /gm. "The authors thank D. Ya. Tsvankin, E. Z. Faynberg, M. P. Zverev and A. G. Monasty*rsko for help in conducting the given work." Orig. art. has: 4 tables and 7 figures

ASSOCIATION: MTI

SUBMITTED: 20Nov63 ENCL: 00

SUB CODE: OC, GC NO REF SOV: 005 OTHER: 000

Card 2/2

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

BORISOV, A.; BIRGER, G.; VOLKOV, A.; DICH, S.; DUSEYEVA, Ye.; KONKIN, A.A.; MEOS, A.; MIKHAYLOV, N.; MOGILEVSKIY, Ye.; POKSHVER, A.; ROGOVIN, Z.; SERKOV, A.; SHIFRIN, L.

On the 60th birthday of an honored worker. Khim.volok. no.2:79 '62. (MIRA 15:4)

(Gruzdev, Vasilii Alekseevich, 1902-)

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

CA

23

PROCESSES AND PROPERTIES INDEX

Cellulose nitration. II. Nitration with nitric acid in the presence of nitrates. Z. Rogovin and P. Paradnya. *Iskusstvennoe Volokno* (*Artificial Fiber*) 5, No. 3, 9-12 (1934); cf. *Ibid.* 1933, No. 7; cf. preceding abstr.—The degree of nitration of cellulose with 90-95% HNO_3 is considerably increased (by 0.6-0.7% N) on addn. of 15% $NaNO_3$. This is explained by the changed degree of HNO_3 dissocn. with the corresponding increase in its esterifying ability (Farmer). Similar addns. of KNO_3 and especially of NH_4NO_3 result in a reduction of the degree of nitration, which is caused by formation of complexes (Werner) of the type $RNO_3.HNO_3$, where R = cation, removed from the sphere of reaction with a resulting decrease of HNO_3 concn. and the degree of cellulose nitration.

Chas. Blanc

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

BC

B-II-5

Nitration of cellulose. IV. Effect of nitrogen oxides on [illegible] and K. [illegible] 41—45; cf. [illegible] with 2 pts. [illegible] addition of N [illegible] degree of nitration. N_2O_5 was the most effective. N_2O_3 and N_2O_4 increase destruction of cotton. Ch. Abs. (p)

COMMON ELEMENTS

COMMON VARIABLES INDEX

MATERIALS INDEX

OPEN

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

AUTHOR INDEX

1ST AND 2ND LETTER

3RD AND 4TH ORDERS

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

Destruction of cellulose in the process of nitration and denitration. Z. Rogovin and M. Shlyakhover. *Ishustvennoe Volokno (Artificial Fiber)* 6, 104-11(1935).—A relationship between the viscosity of the cellular material and that of the resulting nitrocellulose and denitrated cellulose was studied with different samples of linters by nitrating and denitrating with alc. NH_4SH at 20° under identical conditions. The tabulated results show that contrary to Okada (*C. A.* 24, 957) the viscosity of the original cellulose is considerably reduced in the process of denitration of nitrocellulose. Moreover, when the esterification and the denitration are carried out under identical conditions, the denitrated products possess approx. the same sp. viscosity regardless of the viscosity of the original cellulose and the nitrocellulose (cf. Lenze and Ruberm, *C. A.* 25, 5779). No direct relation exists between the I nos. and Cu nos. of a denitrated cellulose, and between the I nos. and the viscosity of the Cu-NH_3 solns. of the cellulose. Thus, 2 cellulose samples with viscosities varying 3-3.5 times on dissolving in Cu-NH_3 soln. (2% concn.) gave viscosities differing 15 times. The assertion of Staudinger that the sp. viscosity of a soln. of cellulose is independent of the degree of its esterification was disproved in many cases. Hence the comparative sp. viscosities of cellulose and the resulting nitrocellulose do not indicate the degree of cellulose destruction. C. B.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

Influence of the starting material on the physico-mechanical properties of (nitrocellulose) products. Z. Rogovin and A. Shapiro. *Iskusstvennoe Volokno (Artificial Fiber)* 6, 182-8(1935). The influence of the degree of destruction of colloxylin and the viscosity of collodion solns. on the physicomech. properties of the resulting films was studied with 10% soln. of colloxylin of equal N contents but different viscosities obtained under different conditions from various bleached and unbleached cellular materials. In most cases no direct relation exists between the sp. viscosity of a dil. nitrocellulose soln. and the strength of the resulting film. In many cases, depending on the conditions of the preliminary treatment, the solns. with higher sp. viscosities gave weaker films than the products of lower viscosities. This is true only when the disintegration of the nitrocellulose did not exceed a certain degree specific for each case. No direct relation exists between the viscosity of the concd. solns. of nitrocellulose and the sp. viscosity of the same products. Hence a relation between the concd. solns. and the film strength (even when it does exist) cannot possibly be established, because the viscosity of a concd. soln. is not the sole function of the size of the particles. It must also be considered that the conditions of treating colloxylin and linters greatly influence the strength of the film. Thus, reducing the viscosity of linters by acid treatment, bleaching or nitration at an elevated temp. (37-40°) results in the same sp. viscosity of the solns. in films of lower strength than those produced, *e. g.*, by colloxylins obtained from linters with the viscosity reduced by steeping.

Chas. Blanc

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

3

Technical estimation of the quality of colloxylin for the production of nitrocellulose rayon. Z. A. Rogovin. *Iskusstvennoe Volokno* (*Artificial Fiber*) 6, No. 1, 28-33 (1935).—The existing methods of detn. of the physical and chem. properties of colloxylin are critically discussed.

Chas. Blanc

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

Physical heterogeneity of cellulose nitrates and the properties of fractions prepared from them. I. A. Rogovin and S. Glazman. *J. Applied Chem.* (U.S.S.R.) 8, 1237-47(1935). Com. cellulose nitrate (I) may be sepd. into three chief fractions by fractional pptn. from $COMe_2$. Fractions *A* and *B* account for about 90% of the I, and have the same N content, while fraction *C* has a smaller N content, and more disintegration products. The structural η of concd. solns. of *A* is greater than that of *B*, but the sp. η values do not differ significantly; the η of the original I is detd. by *A*. Cellulose regenerated from *A* exhibits less destruction than does that from *B*. The films given by I and by fractions *A* + *B* are of approx. the same strength.

B. C. A.

COMMON ELEMENTS

COMMON VARIABLES INDEX

MATERIALS INDEX

OPEN

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

PROCESSES AND PROPERTIES INDEX

Nitration of cellulose. Z. A. Rogovin and K. Tikhonov. *Org. Chem. Ind.* (U. S. S. R.) 1, 76-9(1936); cf. *C. A.* 29, 3826[7].—The effect of the structure of cellulose fiber on the kinetics of esterification was studied by nitrating ramie, cotton and wood pulp with a mixt. of HNO_3 21, H_2SO_4 70 and H_2O 9% at 20°. The degree of nitration was detd. at definite intervals (2, 5, 10, 15 min.), the kinetics of the reaction by calorimetric measurements of the rate of heat liberation for every 15 sec., and the rate of diffusion by the relative rise of the nitrating acid through a suspended fiber previously treated with diphenylamine. The rate of nitration increases with increasing distance between micelles or between the sep. chains conditioned by decreased orientation of particles or by increased swelling of cellulose fiber. This factor influences the kinetics of nitration to a considerably greater extent than the changes of principal valence chains. The results agree with those of Elöd and Schmid-Bielenberg (*C. A.* 28, 4580[9]) for the kinetics of cellulose acetylation. C. B.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

Colloid-chemical study of viscose solutions. I. A. Rogovin and M. Shlyakhover. *Org. Chem. Ind.* (U. S. S. R.) 1, 285-9(1936); cf. *C. A.* 29, 6754[9], 8323[9]. The effect of addn. of polyhydric alcs. (mannitol, glycerol) to NaOH liquor during mercerization of cellulose on the viscosity of viscose solns. was studied. On addn. of 0.5% mannitol, based on the wt. of mercerizing liquor, the viscosity of concd. viscose solns. (4-6%) from linters is decreased 3-4 times and from sulfite pulp 2 times. Addns. of more than 1% mannitol (20% of the wt. of cellulose) do not increase the viscosity. Introduction of mannitol during dissolving of xanthate or into a prepd. viscose soln. causes no depression of the viscosity. The reduction of viscosity has no marked effect on the ripeness of viscose soln. The sp. viscosity of dil. viscose solns. contg. 0.25% cellulose is likewise reduced on the addn. of mannitol to the mercerizing liquor. Hence the estns. of the degrees of destruction and esterification of xanthate by the detn. of sp. viscosities should be made in solns. contg. definite amts. of NaOH. Similar addns. of monohydric alc. (EtOH) do not affect the viscosity of viscose solns. The reduction of viscosity of viscose solns. cannot be explained by addnl. destruction of cellulose by mercerizing in the presence of mannitol, because all essential consts. of cellulose recovered after mercerization, with and without the addn. of mannitol are nearly identical.

C. B.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

CA

23

Colloid-chemical study of viscose solutions. Z. A. Rogovin and F. Chernaya. *Org. Chem. Ind.* (U. S. S. R.) 1, 406-9(1936); cf. R. and Shlakhover, *C. A.* **27**, 4393, 5184; **30**, 6550[9].—Highly concd. viscose solns. (13-14% cellulose) tend rapidly to increase their viscosities. The best method of stabilizing such solns. is by the addnl. sulfiding as recommended by Geiger (*C. A.* **26**, 4148) and Fink, Stahn and Matthes (*C. A.* **28**, 7002[2]). The addn. of 15% CS_2 (based on the α-cellulose) results in higher esterification with a considerable decrease of the viscosity and retardation of aging process. A comparative study of the effect of the degree of cellulose destruction, obtained by varying the time of pre-aging, on the serimetric properties of viscose rayon showed that with increasing cellulose destruction above a definite limit the strength of rayon decreases somewhat and the stretching considerably. It is probable that short chains are better oriented than long ones. Hence at the same stretching in spinning a greater orientation results for the prepns. from cellulose of high destruction. Chas. Blanc

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

PROCESSES AND PROPERTIES INDEX

23

Mechanical properties of threads and films obtained from cellulose and its derivatives. E. Gut and Z. Rogovin. *Org. Chem. Ind.* (U. S. S. R.) 2, 330-5(1936).—Preliminary discussion of various factors affecting the mech. properties of cellulose in relation to the technological problems of rayon production is based on literature. About 30 references. Chas. Blanc

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

CA

23

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

Heterogeneity of linters, sulfite pulp and viscose. R. S. Nelman, Z. Rogovin and R. Obogi. *Org. Chem. Ind.* (U. S. S. R.) 2, 461-4(1936); cf. C. A. 30, 6554[9], 7320[9].—The heterogeneity of cellulosic materials is detd. by fractional soln. in aq. NaOH at various temps. and in cuprammonium soln. of low Cu content. C. B.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

23

Micellic structure of cellulose. Z. S. Rerovin. *Org. Chem. Ind.* (U. S. S. R.) 2, 645 8(1936).—A discussion of literature with about 40 references. Chas. Blanc.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

Solubility and swelling of cellulose and its derivatives
I. E. Gutl and Z. Rogovin. Colloid J. (U.S.S.R.) 2,
[illegible] Theoretical [illegible]

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

BC

Structural viscosity and properties of solutions of cellulose esters. II. Influence of salt content of cellulose nitrate on viscosity of concentrated colloidal solutions. Z. A. Rogovin and M. Schlachover (J. Gen. Chem. Russ., 1938, 6, 1740—1738).—The sp. η of 2% Et_2O–EtOH solutions of cellulose nitrate (I) is unaffected, and that of 16% solutions is greatly increased, by $Ca(OH)_2$, the increment increasing with the $Ca(OH)_2$ content of the (I) and the [EtOH] of the solution. The effect in other solvents rises in the order MeOH < $COMe_2$ < C_5H_{11} < OAc. The val. of η falls to a min. 5—10 min. after adding HCl to 16% (I) in Et_2O–EtOH, and then gradually rises during the following 10 days. The action of $Ba(OH)_2$ is analogous to that of $Ca(OH)_2$.

R. T.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

Ca

83

Investigation of heterogeneity of nitrocellulose and the properties of its fractions. II. New method of fractionation of nitrocellulose. Z. A. Rogovin and S. Glazman. *J. Applied Chem.* (U. S. S. R.) 9, 2250-9 (in French [illegible] (1936); cf. *C. A.* 30, 6554[9]. Nitrocellulose was fractionally dissolved in acetone-water by variations of the water content according to a modified Obugi and Broda method (*C. A.* 30, 1000[6]). The fractions obtained are more homogeneous than those obtained by fractional pptn. Six references. A. A. Podgorny

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

Causes of the gelatinization of primary cellulose acetate solutions Z. A. Roguyin and M. Ioffe. *Org. Chem. Ind.* (U. S. S. R.) 3, 274-7(1937); cf. C. A. 29, 8323[6], 30, 7327[6]. Preliminary expts. showed that the increasing viscosity and final gelation of the concd. AcOH solns. of primary cellulose acetates proceed parallel with a decrease of the sp. viscosity, increase of I values and no change in the Ac values of the dil. solns. of regenerated cellulose acetate. The results indicate that in the process of standing (gelation) a certain destruction of the cellulose acetate takes place. The effect of the components of the acetylation mixt. on the gelation process was studied by changing the proportions of each ingredient. It was found that Ac_2O does not affect the rate of gelation. By increasing the proportion of H_2SO_4 from 7 to 12% (on the wt. of linters), the destruction of cellulose acetate is considerably increased and the sp. viscosity of the primary cellulose acetate solns. is sharply reduced. The gelation can be entirely prevented by increasing the modulus of the acetylation bath from 7-10 parts to 1 part by wt. of linters in the presence of 12% H_2SO_4. The substitution of 25-50% AcOH by dichloroethane, $CHCl_3$ and tetrachloroethane resulted in considerable retardation or complete elimination of the gelation. Replacement of H_2SO_4 by $ZnCl_2$ resulted in considerably higher viscosity of primary cellulose acetate solns. incapable of gelation. The use of HCl in place of H_2SO_4 caused extremely rapid gelation (2-3 hrs.). Chas. Blanc

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

23

An investigation of the solution process for the cellulose esters. III. Influence of the nature of the solvent and the addition of small amounts of water to the solution on the properties of nitrocellulose solutions. Z. A. Rogovin and V. Ivanova. *Colloid J.* (U. S. S. R.) 3, 309-19 (1937); cf. *C. A.* 31, 3260[9].—Viscosity varies considerably in either case for dil. and more so for concd. solns. H_2O addn. usually reduces viscosity but in some cases increases it. Org. substances as acetone, CH_3OH, nitrobenzene, EtOAc, are less effective than water. The results are explained by means of changes in degree of solvation.

F. H. Rathmann

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

The solubility and the swelling of cellulose and its derivatives. E. Guth and A. A. Rogovin. *Colloid J.* (U. S. S. R.) 3, 327-35(1937). A discussion of some data in the literature. Differences in soly. are due to changes in mol. vol., to mutual dipole interaction, and to steric effects. F. H. Rathmann

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

Viscose spinning by the two bath method. Z. Koguvin and K. Lesina. *Org. Chem. Ind.* (U. S. S. R.) 4, 92-8 (1937). The hygiene, tech. and com. advantages of the 2-bath viscose spinning as compared with 1-bath method are discussed. The preliminary results of lab. and semicom. expts. presented by tables show that the best effect in coagulating viscose soln. is obtained with 10% $(NH_4)_2SO_4$ or an equiv. mixt. of $(NH_4)_2SO_4$ and Na_2SO_4. The amt. of salts required for the coagulation depends on the ripeness of the viscose and the concn. of the salt soln. In the decompn. of the xanthate filament the best results were obtained at 20° with H_2SO_4 at a concn. of 40 g./l. The resulting rayon is in every way equal to the usual product except that its stretching capacity is 10-12% as compared with 20-2% for the 1-bath rayon. The degree of the viscose ripeness showed no effect on the spinning and phys. and mech. properties of the rayon obtained by the 2-bath method. Chas. Blanc

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

PROCESSES AND PROPERTIES INDEX

2a

23

The production of cellulose acetate. IV. Method of evaluation of the homogeneity of cellulose acetate from the content of hemicellulose acetate. A. Rogovin and G. Veretennikova. *Org. Chem. Ind.* [illegible] 269-71(1937); cf. *C. A.* 32, [illegible]. To det. low mol. fraction (hemicellulose acetate) (I), stir 3.5 g. of dry shredded cellulose acetate (II) with 20 parts by wt. of 80% AcOH (+ 0.5%) at 20° for 1 hr., filter through a Buchner funnel, wash the residue 2 times with hot water, then with 10% Na_2CO_3 and again 2-3 times with hot water, dry the II residue, weigh and det. I by the difference in wt. The transparency of II increases with lower I contents, the amt. of which depends on the uniformity of acetylation and aging and is independent of the II viscosity.

Chas. Blanc

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

ROWOWINE, Z.

"Etude de la ciscosite structurelle et des proprietes des solutions des ethers de cellulose Comm. III." Rowowine, Z., et Joffe, M. (p. 2167)

SO: Journal of General Chemistry (Zhurnal Obshchei Khimii). 1937, Volume 7, No. 16.

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

25

The solubility of cellulose and its esters S. Papkov, Z. Rogovin and V. Kargin. *J. Phys. Chem.* (U.S.S.R.) 10, 1247-71(1937). The temp. dependence of the solubilities of cellulose and its esters in org. liquids obeys the laws applying to 2 mutually sol. liquids. Solvents and non-solvents for acetylcellulose show upper and lower crit. temps.

F. H. Rathmann

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

BC

B-II-5

Solubility of cellulose and its esters. III. Influence of the heterogeneity of cellulose acetate on its solubility. Z. [illegible], V. Kassin, and S. Papkov (J. Phys. Chem. Russ., 1937, 10, 793—797).—The temp., t_c, of complete miscibility of cellulose acetate (I) with $CHCl_3$ is the same for different fractions of (I) which are characterized by different viscosities. For mixtures with $CHCl_3$ and with $(CH_3Cl)_2$, t_c rises when the no. of Ac radicals decreases, and for mixtures with $PhNO_2$, $CH_3Ph\text{-}OH$, and $o\text{-}C_6H_4(CO_2Et)_2$, t_c is a min. at a medium degree of acetylation. J. J. B.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

The solution process of the cellulose esters. IV. Influence of the intensity of interaction between the particles of a dissolving substance on the integral heat of solution in the case of cellulose esters. Z. A. Rogovin and V. Ivanova. *Colloid J.* (U. S. S. R.) 4, 19-30 (1938); *cf. C. A.* 32, 765[8]. The soln. of cellulose esters in acetone was investigated by the method of integral heat of soln. The sp. heat of soln. of the same cellulose ester in the same solvent increases with concn. of the ester in the soln. and decreases with increase in the particle size of the ester. Ten references.

S. L. Madorsky

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

BC

B-2-5

Spinning of concentrated viscose solutions of high viscosity. [illegible] and F. M. [illegible] [illegible] [illegible] [illegible] [illegible].—The strength of [illegible] fibres obtained from solutions of equal [illegible] content, but of different η, varies only slightly. [illegible] of satisfactory mechanical properties were obtained from solutions containing [illegible]—12% of (I) and 7·5—7·8% of NaOH, and of high η (flow time up to [illegible] sec.). R. T.

COMMON ELEMENTS

COMMON VARIABLES INDEX

OPEN

MATERIALS INDEX

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

MATERIALS INDEX

AUTHOR INDEX

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

PROCESSES AND PROPERTIES INDEX

Solution process for cellulose esters Z. A. Rogovin. *Uspekhi Khim* 7, 797-823(1938). A review with special reference to R.'s own work on the soln. of cellulose esters in acetone, Me-Et, di-Et, di-Pr and Me-Pr ketones. R. discusses the micellar structure as indicated by x-ray and other evidence and the degree of assocn. and the dipole moments of the solvents and their activity as solvents for cellulose esters. F. H. Rathmann

83

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

BC

A-1

Structural viscosity and properties of cellulose esters. IV. Change in viscosity of concentrated solutions of cellulose nitrates. E. Rosovin and S. Glassman (J. Gen. Chem. Rust., [illegible]; [illegible]—[illegible]; cf. B., [illegible], 367).—The η of 12% solutions of cellulose nitrate (I) in a series of solvents falls with time to an extent which diminishes in the series $COMe_2$ > EtOH-Et_2O > MeOH > EtOAc. The effect is not due to elimination of HNO_3, but appears to be associated with change in the shape of the (I) mols.

R. T.

COMMON ELEMENTS

COMMON VARIABLES INDEX

OPEN

MATERIALS INDEX

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

MATERIALS INDEX

AUTHOR INDEX

Fe GROUPS

3RD AND 4TH ORDERS

2ND LETTER

1ST AND 2ND LETTER

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

CK

2

Dissolved state of highly polymerized substances. S. Papkov, Z. A. Rogowin and V. A. Kargin. *Acta Physicochim. U. R. S. S.* 8, 647-68(1938).—Several theories of the dissolved state of highly polymerized substances are considered, and it is shown that the soln. represents mol. soln. and not colloidal dispersion, the phase rule being completely applicable to the system: highly polymerized substance-solvent. B. C. P. A.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

BC

A-1

Properties of solutions of cellulose esters. V. Influence of the form of the molecules on the integral heat of dissolution. Z. Rogovin and V. Ivanova (J. Gen. Chem. Russ., [illegible]).—The integral heat of dissolution in $COMe_2$ of cellulose nitrate pptd. from 12% is < from 0·25% solutions; the difference is ascribed to the micellar aggregates being larger in the former than in the latter case.

R. T.

COMMON ELEMENTS

COMMON VARIABLES INDEX

MATERIALS INDEX

OPEN

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

MATERIALS INDEX

AUTHOR INDEX

1ST AND 2ND LETTER

3RD AND 4TH ORDERS

3RD LETTER

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

PROCESSES AND PROPERTIES INDEX

The effect of plasticizers on the physical and mechanical properties of cellulose acetate films. III. Z. G. Ivanova and Z. A. Rogovin. *J. Applied Chem.* (U. S. S. R.) 11, 1348-59(in French, 1360)(1938); cf. Ivanova, C. A. 32, 4687[9]. Films 100 μ thick were formed from 16% acetone soln. of cellulose acetate contg. plasticizers. The compatability decreases with increase in mol. wt. for a given homologous series, and with mol. wt. and concn. of the cellulose acetate. Di-Me phthalate added in the amts. of 5-20% decreased the mech. strength of cellulose acetate film. Di-Et, di-Bu and di-iso-Am phthalates added in the amts. of 5-10% increased the mech. strength of films somewhat but further addn. of the plasticizers decreased the strength. The strengthening effect increased with the mol. wt. plasticizer in the homolog series. Analogous results were obtained with acetates as plasticizers. Gelatinizing agents added to the cellulose acetate films decreased their strength. Addn. of small amts. of di-Bu and di-iso-Am phthalates to the fraction of same particle size increased the strength of films more than the small amts. added to the fraction of large particle size. Acetone in all cases decreased the strength of films. The strength of films prepd. from highly concd. soln. of cellulose acetate was higher than of those prepd. from less-concd. solns. Addn. of 20% of acetin to 16% and 7% soln. of cellulose acetate decreased the strength of films by 31% and 17%, resp., whereas addn. of 20% of glucose pentaacetate to the same solns. increased the strength of films by about 28% and 35%, resp.

A. A. Podgorny

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

C4

The bleaching of cottonins and comparative studies of the properties of the unbleached and bleached cottonins. D. I. Rudakov and A. A. Rogovina. *Za Rekonstruktsiyu Tekstil. Prom.* 14, No. 7, 21-32; *Chem. Zentr.* 1938, I, 775.—The use of cottonins in cotton manuf. is difficult because of the insufficient purity of the fibers, nonuniformity, etc. For the production of cottonin of high quality a supplementary bleaching is necessary to increase the cellulose content. According to B. M. Lotarev (cf. *C. A.* 25, 1389) the oxidizing method of cottonization produces good fibers and therefore subsequent bleaching with NaOCl was investigated. Decompn. of the NaOCl proceeds most rapidly at a HCl content of 0.63 g./l. The process is most rapid during the first 15-30 min. and in neutral and acid soln. is practically ended in this time. While the hypochlorite Cl is consumed almost exclusively in chlorination and oxidation of the fibers when the bleaching is done in alk. soln., a considerable portion of the active Cl is lost by decompn. in neutral and acid soln. The largest cellulose content (84.72%) is obtained by treatment of the fibers in alk. hypochlorite (0.63 g. NaOH per l.). With a strongly acid hypochlorite soln. (7.58 g./l.) the cellulose content increases by scarcely 1.6% in 2 hrs. Injury to the fibers is slight in alk. soln. and greatest in neutral soln. No definite relationship could be discovered between the lignin content of the fibers and the pH of the hypochlorite soln. The hypochlorite no. increases with decrease in the cellulose content of the fiber. Destruction of coloring matter proceeds best in neutral or faintly acid soln.; strongly acid or strongly alk. solns. impart a green tinge. Under the same conditions otherwise, increasing acidity of the hypochlorite soln. decreases the cellulose content of the cottonin fibers. Optimum conditions for bleaching are: A NaOCl soln. contg. 0.63 g. NaOH + 5.0 g. active Cl per l., a temp. of 12-13°, time 1-1.5 hrs., modulus of the bath 1:20. Expts. on the working up of unbleached (raw) and bleached cottonin with cotton in spinning and weaving mills showed the bleached product to be superior.

M. G. Moore

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

25

The total and elastic elongation of synthetic fiber. Z. A. Rogovin. *Tekh. Byull. GUIV* **1939**, No. 4, 3-13; *Khim. Referat. Zhur.* **1940**, No. 8, 124.—The crumpling of synthetic fibers is affected directly by the magnitude of elastic elongation. The factors which det. total elongation, the elastic properties and the crumpling of viscose fiber were detd. empirically. The elastic elongation of viscose rayon is 1%. The degree of swelling of fiber (which is detd. by its moisture content) affects considerably the crumpling the fiber. Fabrics made from cellulose esters crumple less than those obtained from cellulose hydrate and from viscose rayon. Elastic elongation and degree of crumpling of the fibers depend on the kind of chains in the high-mol. compds., on the strength of the bond between the chains, and on the structure of the fiber. W. R. Henn

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

Properties of products obtained from mixtures of natural and synthetic high-molecular compounds. L. A. Rogovin and L. A. Zaplina. *Org. Chem. Ind.* (U. S. S. R.) 6, 455-6 (1939). A preliminary communication. The addn. of 5-20% Novolac to 10% cellulose acetate in Me_2CO resulted in 35-50% increase of the mech. strength of films dried at 65-140° for 5 hrs. The elasticity, elongation and hygroscopicity decreased. The intense coloring of the films limits their use in com. practice.

Chas. Blanc

METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

Shape of the cellulose ester chains. Z. A. Rogovin. *Uspekhi Khim.* 8, 51-68(1939).—A review chiefly of the German literature. Cf. *C. A.* 32, 8132; 33, 4781[1]. Unpublished work of R. shows that the total integral heats of soln. of nitrocelluloses and of cellulose acetates in acetone are greater and the strengths of the films are less for prepns. pptd. from 0.25% solns. than for those pptd. from 12% solns. Dichlorohydrin gives a three-dimensional cellulose addn. compd. which does not dissolve in copper ammonia or in 9% NaOH solns. The addn. compd. of viscose rayon with dichlorohydrin does, however, swell in water and lose strength on wetting. The nitrocelluloses show polymorphism ascribed by R. to cis-trans isomerism. F. H. Rathmann

METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

ca

2

Solution of compounds of high molecular weight. Z. A. Rogovin. *Uspekhi Khim.* 8, 687–703(1939).—Review. 59 references. Properties of cellulose esters. *Ibid.* 704–18.—Review and theoretical, especially of R.'s own works. 30 references. F. H. Rathmann

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

The properties and structure of cellulose ester solutions. VI. Xanthation of cellulose solutions. Z. A. Rogovin, R. S. Neiman and Grishina. *J. Applied Chem.* (U. S. S. R.) 12, 262-8 (in French, 268) (1939); cf. *C. A.* **33**, 3583P.

Cellulose hydrate was dissolved by treatment with 10% NaOH at −3° for 1 hr., the soln. dild. with water to various concns. of NaOH and well mixed with excess CS_2 for 1.5-2 hrs. at −2° to −3°. (2) Cellulose sulfite was treated with 4-14% NaOH at 20° for 30 min., the excess of NaOH pressed out and the alkali cellulose treated with 70-80% CS_2 (by wt. of cellulose). Xanthation proceeded in both cases at lower NaOH concns. than those used for mercerizing cellulose. Preliminary treatment of cellulose with 4-6% NaOH solns. yielded xanthates with the normal degree of esterification but somewhat lower soly. in alkali (70-80%). This is attributed to the retention by the xanthate of some of the bridge linkages of the initial cellulose. **VII. The conditions of formation of tridimensional molecules of cellulose and their properties.** Z. A. Rogovin and M. Joffe. *Ibid.* 269-76 (in French, 276). One part of cellulose hydrate was treated with 10 parts of 33% NaOH soln. for 1-24 hrs. The excess NaOH soln. was pressed out and the cellulose (1 part) was mixed with soln. (20 parts) of dichlorohydrin in acetone for 5-72 hrs. The product was washed with dil. AcOH and then with water, and dried at 50-70°. The product was only slightly sol. in 9% NaOH soln. and was insol. in copper ammonium hydroxide soln. This is attributed to the formation of "bridges" between sep. chains. The product was more hygroscopic and less strong in the wet state than an initial cellulose owing to the increased distance between the chains of fiber.

A. A. Podgorny

METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

23

The structure and properties of cellulose and its esters. VIII The possibility of acetylation of cellulose with acetic acid Z. A. Rogovin and M. Ioffe. *J. Applied Chem.* (U. S. S. R.) 12, 1863-9 (in French, 1869) (1939); cf. C. A. 33, 6588. Acetylcellulose in soln. can be further esterified by treatment with glacial AcOH. If an excess of catalyst (over 0.1% H_2SO_4 or $HClO_4$) is used for a long time at high temp., acetolysis of acetylcellulose takes place and the final product is pentaacetylglucose. For addnl. esterification of acetylcellulose in soln. much less catalyst is required than in the usual esterification. Even by treatment of acetylcellulose with boiling AcOH without catalyst some addnl. esterification occurs. Though addnl. esterification of acetylcellulose with AcOH is comparatively rapid and intense, the considerable decompn. makes it almost impossible to prep. a technically valuable product. Treatment of cellulose (linters) with boiling AcOH in the presence of a catalyst and in a heterogeneous medium is not successful. Glucose can be acetylated with acetic acid in the presence of H_2SO_4, but the process is considerably slower than acetylation with acetic anhydride. Water must be distd. off in the prepn. of products of a relatively high degree of esterification. **IX. Conditions of acetylation of cellulose and of cellulose hydrate.** Z. A. Rogovin, M. Sverdlin and A. Kabatchikova. *Ibid.* 1870-3 (in French, 1873).—Cotton and sulfite cellulose and viscose and cuprammonium rayon were acetylated in a heterogeneous medium without preliminary treatment of cellulose prepns. The velocity of acetylation of viscose rayon is much less than that of the other cellulose prepns. The velocity of acetylation of cuprammonium rayon is slightly higher than that of cotton and wood cellulose.

A. A. Boehtlingk

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

1. KARGIN, V: PAPKOV, S: ROGOVIN, Z.

2. USSR (600)

"The Solubility of Compounds of High Molecular Weight --V. General Characteristics of Solutions of Compounds of High Molecular Weight"; Zhur. Fiz. Khim. 13, no. 2, 1939; Institute of Synthetic Fibers, Mytishchi; recd 19 May 1939.

9. [redacted] Report U-1613, 3 Jan. 1952.

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

PROCESSES AND PROPERTIES INDEX

CA

23

Films, etc., from regenerated cellulose. P. I. Voskresenskii and Z. A. Rogovin. Russ. 57,883, Sept. 30, 1940. For the production of articles of regenerated cellulose, cellulose xanthate is softened by the addn. of small quantities of water or of aq. solns. of carbohydrates.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

23

(-)

Partial acetylation of cellulose fibers. Z. A. Kogovin and M. O. Sverdlin. *Org. Chem. Ind.* (U. S. S. R.) 7, 253-7(1940). In the partial acetylation of cotton yarn the untreated material should be treated preliminarily with 1-2% NaOH soln. at elevated temp. (but not under pressure) and then bleached. This treatment may raise the strength of the material by as much as 10-15% because of the elimination of fats and waxes. If the cellulose is first treated with acetic acid (I) to increase its reactivity, the acetylation in a heterogeneous medium in the presence of toluene as a diluent will proceed at a faster rate than in the presence of I as a diluent. If the cellulose has not been subjected to preliminary swelling with I or other reagents, the acetylation in a mixt. contg. toluene as a diluent will be greatly slowed down. In this case the rate of acetylation will be much lower than in a mixt. contg. I. However, I is to be used because esterification with a mixt. contg. toluene is so rapid that it is difficult to carry out a uniform partial acetylation. The use of H_2SO_4 as a catalyst is not feasible, because with small amts. of H_2SO_4 (0.75-1% by wt.) the resulting products contained less than 13-14% of bound I. With increased amts. of H_2SO_4 the process proceeded too rapidly and unevenly. In the presence of I the acetylated fibers partly dissolved in the acetylating mixt. In the presence of $HClO_4$ the acetylation was 10-15 times faster than for $ZnCl_2$ and considerably less $HClO_4$ was required than $ZnCl_2$. However, $ZnCl_2$ caused less destruction of the material than $HClO_4$. The following conditions should be observed for partial acetylation of cellulose: acetylation period of 3 hrs., temp. 35°, modulus of bath 1:18-1:20 and compn. of acetylating mixt. acetic anhydride 20, I 80 and $HClO_4$ 0.4% by wt. of cellulose (based on 100% $HClO_4$). The cellulose should be first treated with NaOH and bleached. In using an acetylating mixt of acetic anhydride and I preliminary treatment with I is not necessary.

B. Z. Karnich

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

23

Preparation of films and threads from acetate sirups of cellulose. Z. A. Rogovin, A. A. Moiseev and P. V. Bykhovskaya. *Org. Chem. Ind.* (U. S. S. R.) 7, 584-7(1940).

A study was made of the conditions for the prepn. of films and threads by the dry method from acetate sirups of cellulose. Sufficiently stable concd. acetate solns. and the elimination of unnecessary destruction of acetylcellulose can be obtained by neutralization of the H_2SO_4 which was used as a catalyst in the acetylation. Various alk. salts and org. bases were tried but best results were obtained with urea. In prepg. films from solns. of acetylcellulose in the acetylating mixt. the phys.-mech. properties are increased by raising the temp. at which the films are cast. In this case the increase in strength is less than for films prepd. from acetylcellulose in acetic acid.

B. Z. Kamich

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

CA

23

Modern problems in the physics and chemistry of cellulose. Z. A. Rogovin. *Uspekhi Khim.* 9, 737-70(1940).—Review. R. discusses detn. of mol. wt., homogeneity of cellulose samples, structure and nature of the cellulose micelles and chains, polymorphism of cellulose and its deriv. (especially the alkyl), compn. and dimensions of the crystal lattices, physicomech. properties, prepn. and properties of acetyl, alkyl, nitric acid, xanthate and Cu-ammonia derivs.

F. H. Rathmann

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

The structure and properties of cellulose and its esters.
X. The cause of fragility of cellulose acetate films. *Z. A.* Rogovin, I. Denker and Z. Zaspunok. *J. Applied Chem.* (U. S. S. R.) **13**, 255-62(in French, 262)(1940); cf. preceding abstr. - The fragility of films prepd. from primary acetates, acetylated in the presence of the $HClO_4$ catalyst, is attributed to incomplete destruction during the acetylation process, of normal chem. bonds between chains of main valences of the natural cellulose. A preliminary treatment of cellulose with AcOH with admixt. of small amt. of H_2SO_4 or HCl, or acetylation in the presence of the $HClO_4$ + H_2SO_4 catalyst is recommended to decrease the fragility of the films.

A. A. Poslgorny

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

BC

B-2-5

Structure and properties of cellulose and its ester. XIII. Preparation and properties of cellulose dixanthate. Z. Rogovin and M. Jolls (*J. Appl. Chem. Russ.*, 1940, 13, 1768—1769).—Cellulose xanthate and 0·2% aq. Cl_2 (3 min. at 20°) yield the dixanthate (I) (·6·CS·O·cellulose)$_2$. (I) is not affected by 10% H_2SO_4 at 20°, by drying at 100°, or by exposure to the atm.; H_2O at 100° and 9% NaOH at room temp. dissolve or decompose (I). The solubility of (I) in 9% NaOH or in Schweitzer's solution is < that of hydrocellulose. R. T.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

24

13

The structure and properties of cellulose and its esters. **XI. Character of the surface reactions during esterification of cellulose.** Z. A. Rogovin, N. Mikhailov and M. Sverdlin. *J. Phys. Chem.* (U. S. S. R.) **14**, 208-10 (1940); cf. C. A. **34**, 8200.—Review of literature. Assumption (in literature) of const. and characteristic (for all cellulose fibers) relations between amts. of OH groups on the surface and inside the orienting portions (micelles) is not sufficiently proved. **XII. The layer formation (coacervation) in acetylcellulose and polyvinyl acetate solutions.** Z. A. Rogovin and L. A. Tsaplina. *Colloid J.* (U. S. S. R.) **6**, 449-57 (1940); cf. C. A. **35**, 1195.—The layer formation in the soln. of acetylcellulose (I) and polyvinyl acetate (II) in org. solvents was slower at low concns. of dissolved substances (at a concn. below 3-5% no layer formation was observed at all). The layer formation at the min. concn. of soln. (equal amts. of I and II) depends on the length of the chains of I. Thus, the layer formation began at 5% concn. in the presence of an I fraction having η_{sp} = 0.35 in 0.25% acetone soln. and at 3% concn. in that having η_{sp} = 0.55. The layer formation of I soln. was faster and more intensive if the II was added in larger amts. The longer the length of the I chains or the higher the degree of polymerization of II, the smaller the amt. of II necessary to cause the layer formation. The layer formation in the mixt. of I and II was observed in acetone and other oxy. solvents. During layer formation, the main portion of II was collected in the upper layer, although the presence of definite amts. of I was also observed. The lower layer contained principally I with some II. The layer formation depended on the temp., but this effect was hard to observe because of comparatively low b. p. of acetone. However in AcOH soln. the sepn. (layer formation) of I and II at 20° was rapid and definite but at 70° no sepn. was observed. A. A. Podgorny

ASM SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

Investigations in the field of synthetic, highly polymerized substances. I. Investigation of the process of solution and the properties of solutions of polyvinyl chloride. Z. A. Rogovin and L. Tsapline. *Colloid J.* (U.S.S.R.) 7, 171-88(1941); *Chem. Zentr.* 1941, II, 3000 1.—A study was made of the process of soln. of polyvinyl chloride of varying degrees of polymerization in various org. solvents. The low-mol. products or alc. polymers are prepd. in the presence of alc. while the polymerization of the high-mol. products or emulsion polymers takes place in aq. medium. Viscosity measurements showed both these groups of polymers to be highly polydisperse. This could be demonstrated by fractional soln. in acetone at room temp. and at 40-5°. The viscosity of the sols (0.5%) depends in large measure on the solvent. E.g., with an emulsion polymer $\eta_{sp.}$ = 0.52 in dichloroethane, pyridine and nitrobenzene, 0.31 in chlorobenzene and 0.30 in furfural. With the higher-mol. products structural viscosity was observable even in 1% soln. Soln. tests were made in 40 different liquids in concns. of 0.5-6.0%, with soln. being carried out at 60-5°, after which the solns. were allowed to stand at room temp. The results revealed a series of regularities. Of the Cl-contg. solvents, dichloroethane showed the greatest solvent power, 3% solns. could be prepd. which set to a firm mass upon cooling. The solvent power of aromatic compds. was greater than that of the Cl-contg. compds. Groups introduced into the benzene nucleus showed a marked influence on the solvent power. Thus, the solvent power increased when a H was replaced by Cl, Br, NH_2 or NO_2 in that order. Thus, a 4% soln. could be prepd. in $PhNO_2$ and a 12% soln. in *o*-nitrophenol. BzH is likewise a good solvent, giving a 5% soln. Numerous heterocyclic compds. showed relatively great solvent power (6-7% solns.). The introduction of NO_2 groups and of N into aliphatic compds. produced no increase in solvent power; Cl-contg. S compds., however, were good solvents. As was to be expected, tests made on low-mol. polymers with the same solvents showed a sharp increase in soly. Thus, instead of the 3% soln. of the emulsion polymers obtained in dichloroethane, a 5% soln. of the alc. polymers could be obtained. The corresponding values for chlorobenzene were 3% instead of 1%; for nitrobenzene they were 7% instead of 4%. Attempts to prep. solns. of higher concn. by the use of a mixt. of 2 solvents were not very successful. It should be noted, however, that acetone, which when used alone did not dissolve the higher-mol. polymers, gave 5% solns. when used in a mixt. with 20% pyridine. All sols which had been prepd. at elevated temps. proved to be unstable at room temp. This was true for both those prepd. of the higher-mol. products and those prepd. of the lower-mol. products. This instability was demonstrated by successive detns. of viscosity (for 150 hrs.). The more dil. sols aged more rapidly. Sols stable at room temp. could be prepd. only by carrying out the process of soln. at room temp. The soly. of polyvinyl chlorides was thus shown to depend to a greater extent on the degree of polymerization and the temp. than does that of natural products. For tech. purposes it is thus necessary to introduce addnl. active groups into the polyvinyl chloride mol. to increase its soly.

M. G. Moore

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

1A

23

Structure and properties of cellulose and its esters. XVI. Mechanism of xanthation of cellulose. Z. A. Rogovin, N. N. Makarova-Zemlyanskaya and Shefil. *J. Gen. Chem.* (U. S. S. R.) 11, 254-8(1941); cf. C. A. 35, 6388. — The xanthation of the trityl ester of cellulose (cf. C. A. 18, 2873) by means of CS_2 in pyridine, $CHCl_3$ + pyridine or $CHCl_3$ + KOH gives a mixed ester, the xanthation degree of which varies between 25 and 50. The highest degree of xanthation is obtained in $CHCl_3$ + KOH. The amt. of trityl groups present is not changed during xanthation. The mixed ester (xanthation degree 50) is insol. in 1.6% NaOH and sol. in pyridine and $CHCl_3$. G. B.

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

CA

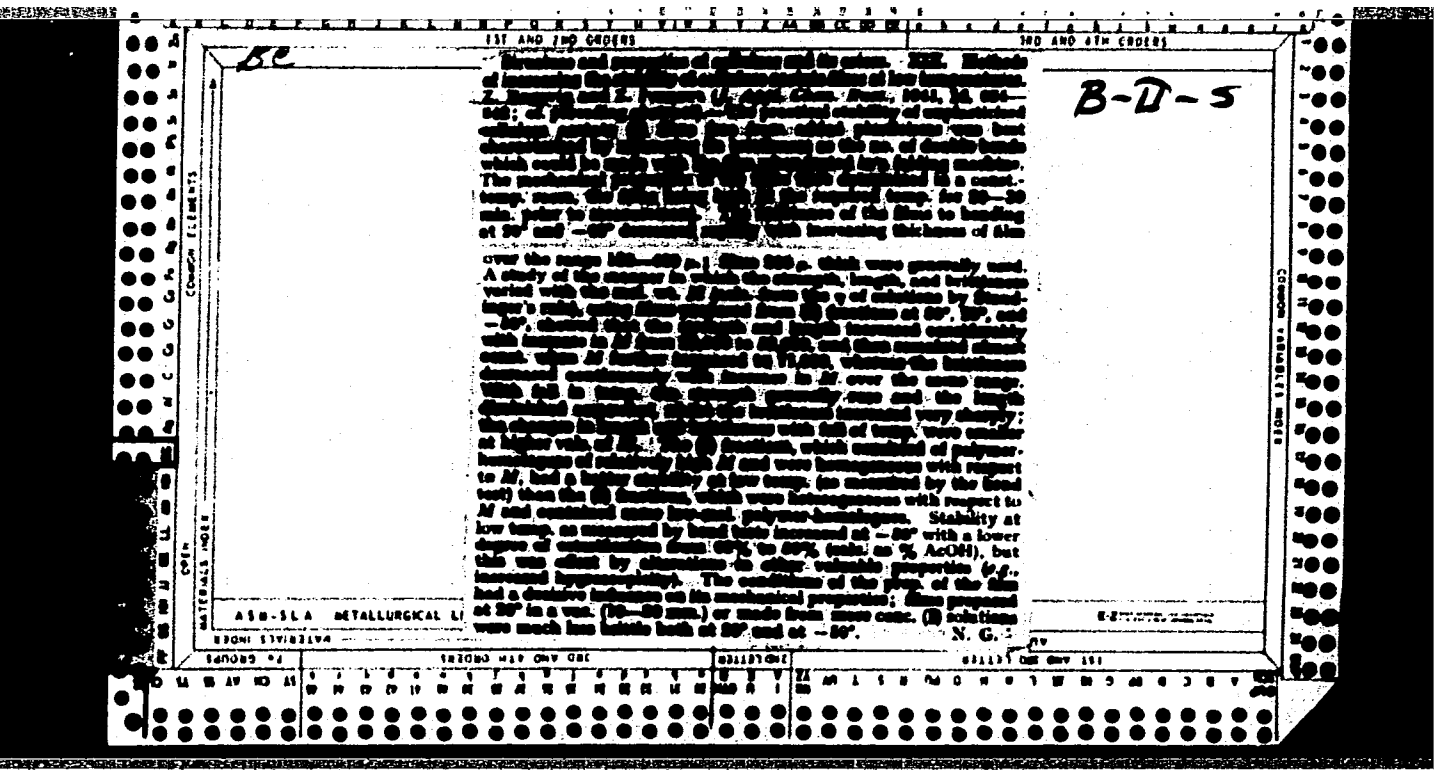
The effect of the conditions of formation upon the physicochemical properties of cellulose acetate films. I. A. A. Moiseev and I. A. Rogovin. *J. Applied Chem. (U. S. S. R.)* 14, 559-80(1941). Cellulose acetate (contg. 56.7% bound AcOH, mol. wt. 37,000) dissolved in 18% concn. in Me_2CO-EtOH (85:15), in dioxane-EtOH (85:15), and in AcOH-EtOH (85:15) was deposited on glass plates in film thickness of 60-80 μ. After evapn. of the solvent, the films were tested for tensile strength, elongation and flexing strength (number of repeated flexes before failure). The solvent was evapd. at 20° or 50° and 1-3 min. at room temp. or, finally, in the vapors of the solvent (to give retarded evapn.). Increased rate of solvent evapn. (i. e., film formation) improves the physical properties tested, with relatively small differences between the different solvents used; this improvement is particularly notable in the flexing strength. The improvement is greatest when the rate of solvent evapn. is increased by application of vacuum, even if the evapn. *in vacuo* is slower than at an elevated temp. Fractions of cellulose acetate of mol. wt. 24,000 to 53,000 were compared. The fractions of higher mol. wt. showed greater relative improvements of physical properties on rapid film formation than did the fractions of lower mol. wt.; this is apparently due to greater restrictions to free motion of the larger mols. which are hence more susceptible to changes of the environment. Each solvent appears to have its sp. optimum evapn. rate. The improvement in the film properties is apparently detd. by a more uniform relative distribution of the macromols., rather than by a unidirectional orientation. For cellulose acetate plasticized with 30% di-Et phthalate, in low-boiling solvents the rapidly formed films do not show improvement over the slowly formed ones, in medium-boiling solvents there is a distinct improvement attained by the rapidly formed films, although the effect is smaller than it is for unplasticized film. The results indicate the possibility of the use of smaller proportions of plasticizers and even possible elimination of plasticizers.

G. M. Kosolapoff

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445



APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

1A

23

Obtaining cellulose triacetate by acetylation of cellulose in a heterogeneous medium. Z. A. Rogovin and M. Mironov. *J. Chem. Ind.* (U. S. S. R.) 18, No. 7, 7-11 (1941).—Cellulose (I) is treated with 10-15 times its wt. of AcOH to cause swelling. It is centrifuged to remove excess AcOH and then stirred with a mixt. of 30 parts Ac_2O and 70 parts toluene (II) in the ratio 1 part I to 25 parts soln. at 35° for 1.5-2 hrs. As a catalyst, 0.5% $HClO_4$ is used. This gives a product contg. 62.0-62.3% Ac groups, completely sol. in CH_2Cl_2 and $CHCl_3$. The cellulose acetate (III) after treatment is washed repeatedly with II to remove excess Ac_2O. The II is finally removed by steam and the III is dried for further treatment. The acetylating mixt. can be used until it contains 20% AcOH. It is then fractionated into AcOH, II and pure Ac_2O.

H. M. Leicester

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

CA

23

The mechanism of formation of alkali cellulose and cellulose xanthate. Z. A. Rogovin. *Trudy Konferentsii vysokomolekulyar. Soedineniyam, Akad. Nauk S.S.S.R., Otdel. Khim. Nauk i Otdel. Fiz.-Mat. Nauk* 1, 33-4 (1943)(Pub. 1945).—When the amt. of alkali bound to alkali cellulose is detd. by its removal with abs. EtOH, partial alcoholysis occurs. If PrOH or iso-BuOH is used, less alcoholysis occurs and different values are obtained. Thus, the usually accepted values for the amt. of bound alkali are incorrect. Under ordinary mercerization conditions, the degree of replacement in the OH group of cellulose is greater than is usually thought. Xanthates are usually prepd. from cellulose treated with 4% or even 2% NaOH, which is too weak a soln. to give alkali cellulose. Sometimes xanthates can be formed in the absence of NaOH, with trityl ethers of cellulose in $CHCl_3$ in the presence of pyridine. Thus alkali is not necessary to form xanthates; the required conditions are preliminary swelling of the cellulose and stabilization of the formed xanthate by its transformation to a salt. H. M. Leicester

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

Ca

25

Relation between water resistance and water repellancy of viscose fibers. E. Lev and Z. Rogovin. *Tekstil. Prom.* 5, No. 11/12, 45-6(1945).—Viscose fabrics treated with (*a*) urea-CH_2O resin in combination with Al salts, (*b*) 4% soln. of polyvinyl acetate, (*c*) 4% soln. of polymethyl methacrylate, (*d*) soln. of Velan, were submerged in H_2O and the time required for max. elongation was detd. The treated fabrics required 6-10 times as long as the untreated. The elongation of the variously treated fabrics at equil. was practically the same. No relation was found between water repellancy and water resistance (retention of strength when wet). M. Hosch

COMMON ELEMENTS

COMMON VARIABLES INDEX

MATERIALS INDEX

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

CA

23

Structure and properties of cellulose and its ethers. XXI. Causes of the lowering of strength of fibers of native and regenerated cellulose in the wet state Z. A. Rogovin and R. S. Nelman *J. Applied Chem.* (U.S.S.R.) 18, 208-13(1945)(English summary); cf. C.A. 37, 2572[2]. It was shown, as a result of study of native cotton filaments, mercerized cotton fibers, and viscose rayon, that the main factor in strength loss in the wet state is due to a change in the degree of polymerization and not to a structural change of the fiber. For the same state of polymerization, the loss is the same for native and artificial cellulose fibers. G. M. Kosolapoff

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

High-molecular polyamide resin. I. L. Knunyants, A. Rogovin, Yu. A. Rymashevskaya, and B. V. Khait. U.S.S.R. 66,321, May 31, 1946. The lactam of ε-aminocaproic acid is heated in an atm. of N in a closed vessel in the presence of 0.1-0.5% of H_2O at 230-290°.

M. Hosch

51

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

PROCESSES AND PROPERTIES INDEX

10

ε-Caprolactam. I. L. Knunyants, Z. A. Rogovin, and Yu. A. Rymashevskaya. U.S.S.R. 66,682, July 31, 1946. ε-Caprolactam is sepd. from the reaction mixt. obtained in the isomerization of cyclohexanone oxime in the presence of H_2SO_4 by dilg. this reaction mixt. with H_2O until the H_2SO_4 is around 10%. From the dild. mixt. caprolactam is extd. with boiling dichlororthane either with or without adding a water-sol. salt.

M. Hourh

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

PROCESSES AND PROPERTIES INDEX

ca

27

Nonflammable linoleum substitutes. Z. A. Rogovin, B. P. Zhukov, G. N. Sudakova, M. F. Arkhipova, S. I. Taubkin, and E. A. Blekhman. U.S.S.R. 67,701, Dec. 31, 1946. A mixt. of aq. colloxylin, a plasticizer, and a fibrous filler are treated with water at 80° for approx. 1 hr. and then antipyrines are added. The mixt. is centrifuged, not rolled, and spread on a fabric base. M. Hosch

METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

CA

Structure and properties of cellulose and its esters. XXII. Nitration of cellulose in homogeneous medium. A. A. Rogavin, K. Erkhonov, and A. Maslova. *J. Applied Chem. (U.S.S.R.)* 19, 659-67(1946)(in Russian);

(cf. C.A. 40, 3080). Nitration of bleached lint in soln. in mixts. of HNO_3 and $MeNO_2$ in varying wt. ratios at 35° gave transparent sirupy products from which nitrocellulose was pptd. on pouring into water. With 95% HNO_3: $MeNO_2$ = 2:8, 3:7, 4:6, 5:5, 6:4, 7:3, the N contents of the product (stabilized by boiling in 50% AcOH and dried) after 2 hrs. reaction were 0.9, 6.0, 10.1, 10.5, 11.55, and 12.5%, soly. in Me_2CO, $MeNO_2$, and in the nitrating mixt. was complete only from 10% N upwards. The concn. of the initial HNO_3 (i.e., the H_2O content of the mixt.) has a very marked effect: with 91, 93, 95, 97.5, and 100% HNO_3 in HNO_3: $MeNO_2$ = 40:60, 2 hrs. at 35°, the product contained 7, 9.3, 10.1, 12.8-13.3, and 13.7-14% N; the highest-N product, however, was insol. in $MeNO_2$ and in the nitrating mixt. Part of the $MeNO_2$ (up to 60%) can be replaced by diluents such as $C_2H_4Cl_2$ or CH_3Cl, with a gain in soly.; completely sol. products with 10.9 and 11.2% N were obtained with HNO_3 (95%): $MeNO_2$: CH_2Cl_2 = 40:30:30 and 40:25:35, and a sol. 9.2% N product with 95% HNO_3: $MeNO_2$: $C_2H_4Cl_2$ = 30:30:40. By use of 100% HNO_3, a completely sol. 10.9% N product was obtained with as little as HNO_3 20, in $MeNO_2$ 40, CH_2Cl_2 40. A lower-mol. diluent (CH_2Cl_2) leads to a somewhat higher degree of nitration than a higher mol. one ($C_2H_4Cl_2$). In terms of time, the degree of nitration increases during the first 2 hrs., after which it does not significantly increase with further prolonged reaction: HNO_3: $MeNO_2$ = 40:60, 0.5, 1, 2, 6, 24 hrs. at 35°, gave 5.5, 9, 10.1, 10.2, 10.1% N. In terms of temp., nitration is insignificant at 0° and will not exceed 7 to 8% even after 20 hrs. at 20°; a 10-11% N product cannot be obtained at lower than 30°. The specific viscosity in 0.25% soln. in acetone of the product (9.5% N) obtained at 40°, 2 hrs., with HNO_3 37, $MeNO_2$ 60, H_2O 3 was 0.35, as against 1.55 for the product (12% N) of nitration at the same temp. and same time, with HNO_3 25, H_2SO_4 65, H_2O 10. Homogeneous nitration seems to result in relatively greater degradation of the cellulose; on standing, degradation continues and viscosity drops further.

A V M S L A METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

The thermal effect of the reaction between benzoyl peroxide and vinyl compounds. Z. Rogovin and M. Nikolaeva (Mendeleev Chem.-Technol. Inst., Moscow). *J. Phys. Chem.* (U.S.S.R.) **20**, 753-5(1946). -When x g. of benzoyl peroxide is dissolved in 60 g. of a solvent, the heat absorbed per mol. of Bz_2O at 14° is: EtOAc 1400 cal. at x = 0.5, 1500 cal. at x = 1, and 4850 at x = 2; dichloroethane 6100-7000 cal.; methyl methacrylate 5200-5400 cal.; benzene 4300-4900 cal.; vinyl acetate 5100-6000 cal. Since the difference between the heat effects in liquids capable and incapable of polymerization is very small, the formation of an intermediate compd. between Bz_2O and monomers is not probable. Mixing a soln. of Bz_2O in C_6H_6 with methyl methacrylate produces no measurable heat effect. J. J. Bikerman

COMMON ELEMENTS

COMMON VARIABLES INDEX

MATERIALS INDEX

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

S C. L.

35. Synth. Rub. & Allied Products

Polymerisation of unstable cyclic compounds. I. Polymerisation of caprolactam. I. I. KNUNYANTS, Z. A. KOGOVIN, V. A. RYMASHEVSKAYA, and E. V. KHAIT (J. Gen. Chem., U.S.S.R., 1947, 17, 987–91; Chem. Abs., 1948, 42, 2578 g). The polymerisation of ε-caprolactam to form linear polyamides of high molecular weight has been studied over the temperature range 230°–310°. 90% complete polymerisation was obtained in 24 hours at 230° or 6 hours at 300°. Tough, lustrous polymers were obtained at all polymerisation yields above 50%. A small amount of water was necessary for the polymerisation reaction and the viscosity of a polymer solution, and hence the molecular weight, was higher if the polymerisation was carried out in a nitrogen atmosphere. The mechanism of the polymerisation reaction was discussed.

3S2MEN22.1223

1948

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

28

Polymerization of Unstable Ring Compounds. II. Polymerization of Caprolactam in the Presence of Small Quantities of Water. III. Study of the Conditions of Synthesis and Properties of the Polymethyl Caprolactams. (In Russian.) Z. Rogovin and others. *Zhurnal Obshchei Khimii* (Journal of General Chemistry), v. 17(79), July 1947, p. 1316-1326.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

PROCESSES AND PROPERTIES INDEX

Effect of the viscosity of the medium on the polymerization of vinyl compounds. Z. A. Rogovin and L. A. Tsaplina (Moscow Textile Inst.). *J. Applied Chem.* (U.S.S.R.) 20, 875-82(1947)(in Russian).—Bulk polymerization of CH_2:$CMeCO_2Me$ (I) is accelerated considerably if its viscosity is raised by advance addn. of the polymer; e.g., with 33% polymer (of sp. viscosity 0.8 in 25% Me_2CO soln.) added, at 100°, in the presence of a const. amt. of air, the yields y of polymer after 0.5, 1, and 2 hrs. were 53.6, 89.2, and 97.2%, as against 1.3, 7.7, and 36.6% without addn.; the acceleration is thus particularly marked in the initial stages; it is observed both with repptd. and nonrepptd. polymer. That the effect is due solely to increased viscosity η of the medium was demonstrated in runs with equal amts. of polymers of different mol. wts., resulting in media of different η; e.g. with 15% of polymers of sp. η 0.68 and 0.16 (in 25% Me_2CO soln.), after 0.5, 1, 2 hrs., y = 65.0, 90.3, 99.1% and 6.0, 9.9, 16.8%, resp., as against 10.6% after 2 hrs. without addn. of polymer. The nonspecificity of the effect is further demonstrated by the fact that addn. of numerous extraneous polymers (other than the polymer of I) had an equally strong accelerating effect; e.g., with 20% polystyrene, polyisobutylene, nitrocellulose, y (after 3 hrs.) = 97.3, 95.0, 98.0%, as against 16-20% without addn. The accelerating effect is more marked at lower temps. On the other hand, inert polymers which are neither dissolved nor swell in I, not only do not accelerate the polymerization but have an inhibiting effect; thus, with 33% acetylcellulose and sulfite cellulose, y after 3 hrs. reached only 6.2 and 1.0%, resp. Such inhibition by inert polymers was also observed in the polymerization of CH_2:$CHOAc$ (II) and of $PhCH$:CH_2 (III); the former is suppressed altogether by 30% sulfite cellulose, the latter, at 100°, attains, in 10 hrs., y = 4% as against 15.1% without addn. The inhibiting effect is obviously due to increased probability of rupture of chains. The polymer of I, obtained in accelerated polymerization in a medium of higher η, has a higher degree of polymerization; thus, with 0, 5, 10, and 20% polymer added in advance, in 1.5 hrs., y = 15.0, 45.2, 85.1, and 92.9%, and the specific η (in 25% soln. in Me_2CO) of the polymer produced = 1.20, 1.45, 1.35, and 1.40, resp. Consequently, in the case of I, acceleration of polymerization entails no lowering of the degree of polymerization. Higher η of the medium results also in a significant shortening of the induction period; while, in pure I, the induction period (by the constancy of the η) at 80° lasted 2 hrs. in the presence of 10 and 20% ethylcellulose, increase of η set in within 20 min. Possibly, the well-known autocatalysis of the polymerization of I is simply the result of the increasing η. In contrast to I, the rate of polymerization of II is slowed down in a medium of higher η; thus, without addn. and with 20% nitrocellulose, ethylcellulose, polyvinyl acetate, and acetylcellulose, y = 52.9, 7.9, 13.3, 39.9, and 11.7%. Evidently, the factors detg. the rupture

71

ASM SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

31

Polymerization of vinyl compounds in the presence of esters of nitric acid Z. A. Rogovin and L. A. Tsaplina (Moscow Textile Inst.) *J. Applied Chem.* (U.S.S.R.) 20, 883-6(1947)(in Russian). Addn. of 10% nitrocellulose had the same accelerating effect on the polymerization of $CH_2:CMeCO_2Me$ at 100° (in sealed tubes, with a const. amt. of air) as 0.05% Bz_2O_2 (yield of polymer, y = 60% in 40 min.). An acceleration of the polymerization is brought about not only by nitrocellulose, which raises the viscosity η of the medium (see preceding abstr.) but also by nitroglycerin which does not change η. With 0, 1, 5, 10, 20% nitroglycerin added, in 1 hr., y = 11.0, 22.0, 42.7, 56.8, 100%. The degree of polymerization of the product could not easily be detd. in the presence of nitrocellulose, owing to the difficulty of sepn., but in the presence of nitroglycerin, acceleration definitely entailed a lowering of the degree of polymerization: without addn. and with 1 and 20%, the sp. η of the product (in 25% soln. in Me_2CO) was 0.60, 0.55, and 0.30, resp. The same effect is found in the polymerization of $PhCH:CH_2$; along with acceleration by nitroglycerin, the degree of polymerization of the product decreases; e.g., without addn. and with 5 and 20%, at 100°, 20 hrs., y = 16.1, 25.5, and 93.0%, sp. η 0.22, 0.10, and 0.06. On the polymerization of $CH_2:CHOAc$, nitroglycerin has a slowing down effect; thus, without addn. and with 1, 10, and 20%, in 8 hrs., y = 42.8, 7.0, 1.0, and 0%. In analogy with the effect of nitroglycerin, it is inferred that the action of nitric acid esters, in general, is specific, the effect of nitrocellulose consists in both the specific action and the non-specific effect of increase of η. N. Thon

METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

ARBUZOV, B.A., redaktor; DOLGOPOLOSK, B.A., redaktor; KARGIN, V.A., redaktor; MEDVEDEV, S.S., otvetstvennyy redaktor; RAFIKOV, S.R., redaktor; ROGOVIN, Z.A., redaktor; VASKEVICH, D.N., redaktor izdatel'stva; SIMKINA, Ye.N., tekhnicheskiy redaktor

[Proceedings of the third conference on high molecular weight compounds; polymerization and polycondensation] Trudy tret'ei konferentsii po vysokomolekulyarnym soedineniiam; polimerizatsiia i polikondensatsiia. Moskva, Izd-vo Akademii nauk SSSR, 1948. 177 p. (MLRA 10:1)

1. Konferentsiya po vysokomolekulyarnym soyedineniyam. 3d, Moscow, 1945.
(Polymerization) (Condensation products (Chemistry))

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

ROGOVIN, Z.A.; TREYVAS, M.G.; YASHUNSKAYA, A.G.

The reactivity of various functional groups in the cellulose macromolecule. Trudy Konf. Vysokomolekul. Soedineniyam 4-oy Konf., Moscow '48, 36-55.
(CA 47 no.14:7207 '53)

1. Moscow Textile Inst.

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

ROGOVIN, Z. A.

Study of structure and properties of cellulose and its esters. XXIX. New data on reactivity of functional groups in cellulose macromolecule. Z. A. Rogovin (Moscow Textile Inst.). *Issledovaniya v Oblasti Vysokomolekul. Soedinenii, Doklady 6-oi Konf. Vysokomolekul. Soedineniyam, Akad. Nauk S.S.S.R.* 1949, 160–71; cf. *C.A.* 48, 8740b.—Specimens of oxidized cellulose formed by partial oxidation of CH_2OH groups to CO_2H show high strength properties while retaining low degrees of polymerization (D.Ps.) as shown by viscometry. A small no. of CO_2H groups in the 6 position lowers the resistance of the product to alkalies and even to hot H_2O, yielding a friable material. This does not occur when the CO_2H groups are in the 2 or 3 positions. Xylan has much higher soly. in alkali, greater reactivity in esterification, and lesser resistance to acid hydrolysis than does a cellulose hydrate of the same mol. wt.; this is ascribed to the absence of CH_2OH groups in xylan. The explanation for the high strength of the oxidized material is given in terms of greater inter-chain attraction when the group polarity is increased as it is in the conversion of CH_2OH groups to CO_2H. G. M. Kosolapoff

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

B2

5

Effect of dynamic forces on the mechanical properties of viscose rayon. A. A. Bogovina (Tekst. prom., 1960, No. 2, 15-17).—The effects of sudden, practically instantaneous, stresses ("jarks") in processing and weaving on viscose, cotton, silk, Perlon, and cupr-ammonium yarns is studied. Loss of work of rupture produced by such forces, and the effects of rapidly repeated stresses on elongation and fatigue, are tabulated. The properties of fabrics woven from viscose yarns so stressed are described. E. B. Uvarov

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

ROGOVIN, Z.A.

26954: ROGOVIN, Z.A., SHORYGINA, N.N., YASHLINSKAYA, A.G., TREYVAS, M.G.- Ovliyanii kharaktera funktsional'nykh grupp v makromolekule tsellyulozy na svoystva tsolyulozy i poluchayemykh it neyezfirov. Soobshch. 24.-Avt: Z: A. Zhurnal Prikl. Khimii. 1949, No. 8, s. 857-64-Bibliogr: s. 864.

SO: Letopis'Zhurnal'nykh Statey, Vol. 36, 1949.

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

ROGOVIN, Z. A.

26974 YASHUNSKAYA, A. G. SHORYGINA, N. N. ROGOVIN, Z. A. Poluchyeniye preparatov dial'dellyulozy i eye zforov (Soobshch. 25). Zhurnal prikl. Khimii, 1949, No 8, S. 865-73.-Bibloigr: S. 873
A. geologogeogr a fichyeskiye nauki b tselom. Geologiya. Petrografiya. Mineralogiya. Kristallografiya.

SO: Leptopis' Zhurnal'nykh Statey, Vol. 36, 1949

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

ROGOVIN, Z. A.

22514 Rogovin, Z. A. O Nekotorykh Voprosakh Khimii Tselyulozy. Vysokomolekulyar. Soyedineniya, Vyp. 9, 1949, S. 1-24

SO: Letopis' No 30, 1949

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

ROGOVIN, Z. A.

USSR/Chemistry - Cellulose Compounds
Easters

Aug 49

" Preparation of Dialdehyde-Cellulose Compounds and Their Esters," A. G. Yashunskaya, N. N. Shorygina, Z. A. Rogovin, 9 pp

"Zhur Prik Khim" Vol XXII, No 8

Performed the oxidation of dialdehyde-cellulose with varying percentages of aldehyde and secondary hydroxyl groups in the macromolecule, and examined the products. The derived nitric acid esters evidenced a greatly reduced solubility in acetone whenever aldehyde groups were present. In the acetic acid ester, irrespevtive of the amount of aldehyde groups contained, the quantity of acetic acid bore relation to the number of acetyl groups in triacetylcellulose. Further investigation of the phenomena exhibited by the esters of these two acids was advised. Investigated the complex acetals of dialdehydecellulose and methyl alchol and the "internal" acetals of dialdehydecellulose (acetal bonds between the macromolecules). Submitted 18 Sep 48

PA 67/49T65

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

ROGOVIN, Z. A.

PA 67/49T66

USSR/Chemistry - Cellulose Aug 49
Esters, of Cellulose

"Effects of the Nature of Functional Groups in the Macromolecule of Cellulose on the Properties of the Cellulose and the Esters Derived From Them," Z. A. Rogovin, N. N. Shorygina, A. G. Yashunskaya, M. G. Treyvas, Chair of Synthetic Fiber, Moscow Textile Inst, 7½ pp

"Zhur Prik Khim" Vol XXII, No 8

Investigated modified compounds of cellulose, subjected to selective oxidation of the isolated hydroxyl groups into aldehyde and carboxyl groups,

[redacted]

67/49T66

USSR/Chemistry - Cellulose (Contd) Aug 49

to show that the presence of a small quantity of either of these two groups in a macromolecule of cellulose sharply affects the solubilities of the derived nitric and acetic acid esters. Suggests chemical isomerism of the molecule of modified cellulose as one of the main factors in determining the solubility of esters and their other properties. Esterification of polyuronic acid not only affects its properties but also the configuration of the secondary hydroxyl groups in the polysaccharide molecule. Submitted 18 Sep 48.

[redacted]

67/49T66

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

ROGOVIN, Z.

Modification of the physico-mechanical properties of cellulose fibres by the effect of high temperatures. T. Finkelstein, V. Kargin, and Z. Rogovin. (Tekst. prom., 1950, No. 8,9-11). --Cotton fibres (I) and high-tenacity viscose tyre cord (II) were heated to 270° at a pressure of 10^{-6} mm., Hg in the absence of air and H_2O, to exclude oxidative and hydrolytic degradation. At 180--200°, the d and degree of polymerisation (D.P.) of I fell considerable, whilst those of II were little affected. Rapid thermal degradation of I and II, shown by the increase of CO groups, began at 220°. Exposure of II to 230--240° for 50 hr. produced a loss of 1 mos. of H_2O per glucose residue and a 4-fold fall of D.P., but the X-ray diagram was unchanged. Results with cellulose triacetate containing no free OH-groups were similar, showing that fall of D.P. is due only to thermal degradation and not due to hydrolysis by split off H_2O.

E. B. UVAROV

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

BA

BII-5

Physico-chemical properties of synthetic polyamide fibres. V. V. Linde and A. A. Rugovina (*Tekst. prom.*, 1950, No. 12, 22—25).—The effects of H_2O at 18°, 60°, and 95°; dry heat at 40°, 60°, 120°, and 150°; and static loading on air-dry yarns, on Perlon, and Capron yarns are reported. Treatment with H_2O at 95° for 2 hr., followed by conditioning at 20°/60—65% R.H., results in permanent shrinkage, fall in tenacity, and increase in extensibility. Changes in mechanical properties caused by dry heat on yarns not under tension are reversible at <150°; heating in air at 150° under tension results in a 60% fall of tenacity and 40% fall of extensibility. Heating in sealed tubes in N_2 or air without tension at 150° does not alter the tenacity or extensibility. Deformation of air-dry yarns under static load is fully reversible on relaxation. E. B. Uvarov.

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

CA

Twenty five years of the scientific activity of S. M. Lipatov. Z. A. Rogovin and M. Shul'man. *Kolloid. Zhur.* 12, 158-9(1950). J. J. Bikerman

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

(A

25

Specimens of monocarboxycellulose. Z. A. Rogovin, L. Kondrashchuk, and R. Malakhov. *Zhur. Prikkl. Khim.* (J. Applied Chem.) 23, 118-27(1950); cf. *C.A.* 44, 835i.—Modified cellulose prepd. by action of NO_2 on cellulose (so called monocarboxycellulose) contains 2-5% CO_2H groups and possesses low viscosity in cuprammonium solns. corresponding to polymerization state of only 80-100 units. When NO_2 oxidation introduces 3-5% CO_2H groups into cellulose the strength of cellulose or cellulose hydrate is slightly lowered, or may be actually slightly raised. Hence the low state of polymerization is illusory and is probably caused by cleavage of the glucoside links in the alk. soln. (cuprammonium) during viscosity detn. Attempts to measure viscosity in H_3PO_4 failed as the products were insol. at the requisite low temp. Exposure of products to hot H_2O led to fairly rapid mech decompn. and expts. with woven cloth treated with NO_2 while confirming little if any change in mech. properties (a slight increase in strength usually was observed) showed that abs. dry cloth is not necessary, if destructive effects of the treatment are to be prevented; specimens with 3-12% H_2O showed no strength loss. The results are explained by better penetrability of moist fibers to NO_2. The only mech. property which suffers significantly is the crease resistance to repeated flex which declines to 1% of original value. The effect is partially explained by increased polar attraction of CO_2H groups located along the mol. chains. The CO_2H groups, located as they are at the 6-C atom, sharply decrease the resistance to alkalies, acids, and water at elevated temp. and after brief boiling the products are turned to powder. Specimens with similar (2-5%) CO_2H content but located at 2- and 3-C atoms, made by further oxidation of "dialdehydocellulose" with chlorites which yields "dicarboxycellulose" in which the pyranose ring is open, the mech. properties are similar to those of "monocarboxycellulose" but the product is mechanically stable on hydrolytic treatment. Percale oxidized by alk. hypochlorite gives products of intermediate character since the oxidation is not specifically localized in this case. G. M. Kosolapoff

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

23

CA

Comparison of esterification conditions and properties of xylan and cellulose. A. A. Konkin and Z. A. Rogovin. *Zhur. Priklad. Khim.* (J. Applied Chem.) 23, 539-44 (1950).—The soly. of xylan specimens in dil. alkalies is much higher than is that of degraded cellulose hydrate; the xylan specimens were prepd. from straw by 2-hr. boiling with H_2O, then with 8% NaOH in an atm. of N for 48 hrs. at 20°, followed by addn. of MeOH and neutralization by AcOH; the product contained 3.2% MeO and 0.44% CO_2H groups and was a dense gray solid. Its treatment with ClO_2 (0.3%) at 18-20° for 2-4 days removed residual lignin, with consequent soln. and reppin. as the above. The alkali soly. is explained by a lack of primary side chain groups in xylane and a lesser total no. of OH groups, in comparison with cellulose; this reduces the interchain H-bond formation. Nitration of xylan (45% HNO_3, 45% H_3PO_4, and 10% P_2O_5 mixt. for 2-8 hrs. at 0-20°) gave 92-8% yields of nitroxylane, contg. 10.2-10.9% N, i.e., replacement of 1.65 OH units per mol. unit; the products were incompletely sol. in cellulose nitrate solvents (80% soln. in Me_2CO, for example). Acetylation by Ac_2O, Ac_2O-AcOH, with pyridine, H_2SO_4, HNO_3, or H_3PO_4 catalysts, for 1-4 hrs. at 30-140° (best at 70°) proceeds much faster than the reactions with cellulose, proper. Ac_2O alone at 140° causes partial acetylation; addn. of H_2SO_4 leads to significant hydrolysis, but H_3PO_4 used with Ac_2O-AcOH mixts. is most satisfactory for giving 100% yields of diacetylxylane, almost without hydrolysis; the product is sol. in solvents for completely acetylated cellulose ($CHCl_3$, CH_2Cl_2), is insol. in Me_2CO. Aeration of solns. of xylan in cuprammonium soln. or 8% NaOH at 25° results in progressive oxidation, as is the case with cellulose hydrate; hence a primary OH group is not necessary for this degradation.

G. M. Kosolapoff

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDER

B2

Production of [illegible] cellulosic fibre. Z. A. Rogovin, A. G. [illegible] *U. appl. Chem., USSR* [illegible] The production of coloured cellulosic fibres by the following steps is described: (*i*) partial oxidation of the cellulose by HIO_3, (*ii*) condensation through the CHO groups so produced with aromatic amines (p-NH_2·C_6H_4·OH, γ-acid, etc.), and (*iii*) coupling of the condensation product with a diazo-compound (from p-NO_2·C_6H_4·NH_2, benzidine, 1-$C_{10}H_7$·NH_2). Whereas cotton fibres lose mechanical strength by the oxidation treatment, viscose fibres and fabrics are unaffected by treatments giving up to 5% of CHO groups; further work was therefore confined to viscose materials. Increase in CHO groups beyond 2% gave no increase in colour value on subsequent treatments. The best conditions for the condensation stage are: 0·5% of p-NH_2·C_6H_4·OH in 0·5% AcOH; pH 4—5; 15—20° for 30 min. Only 50% of the CHO groups react. Coupling was carried out in NaOAc medium at 5—10° for 30 min. Colours obtained are: yellow to brown with p-NH_2·C_6H_4·OH with all diazo-compounds, and red-yellow (diazotised p-NO_2·C_6H_4·NH_2) or red-brown (diazotised benzidine) with γ-acid. The colours are fast to washing, rubbing, org. solvents, and 7—10% HCl, but no faster to light than are conventionally dyed fabrics. Mechanical strength drops (by 20—25%) on soaping but this can be prevented by "blocking" the unreacted CHO groups, *e.g.*, bytreatment with NH_2·OH. J. B. J. ZABA.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

CA 10

Preparation of poly-β-amino acids. I. N. Gorkacheva, Z. A. Rogovin, and T. G. Machulko (Moscow Textile Ins.). *Doklady Akad. Nauk S.S.S.R.* 71, 291-2(1950).

Heating $H_2NCH_2CH_2CO_2H$ in a dry N stream to 200° over 48 hrs. resulted in evolution of H_2O and only 10.9% of the NH_3 expected from the "classical" deamination of a β-amino acids. Extn. of the glassy residue with hot abs. EtOH and with H_2O gave a colorless insol. solid (sol. only in 30% HCl and H_2SO_4), m. above 300° (decompn.), and having 10.21% N. The analysis and the high viscosity of its solns. indicate this is a *polymer* of the amino acid, confirmed by hydrolysis with 25% H_2SO_4 to *β-alanine*; some 45.6% of this polymer is obtained. The EtOH ext. gave 10% of an unidentifiable hygroscopic product, while the aq. ext. gave 44% (on the original wt.) of a colorless powder, decomp. 300° (or above), contg. little amino-N, 16.6% total N, and 1.67% CO_2H groups. This appears to be an *interpolymer* of *acrylic acid* and *β-alanine*; its hydrolysis gave some β-alanine and a semiliquid acid contg. 10% CO_2H groups. G. M. Kosolapoff

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

CA

25

Preparation of chemically dyed fiber. Z. A. Rogovin, A. G. Yashunskaya, and B. M. Bogoslovskii. *Chem. Premysl* 1, 242-7(1951); *J. Applied Chem. U.S.S.R.* 23, 605-73 (1950)(Engl. translation).—A chem. dyed fiber can be prepd. by condensation of dialdehyde-cellulose of low oxidation degree with aromatic amines, followed by coupling with diazo compds.

Jan Micka

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

C.A
1951

Cellulose and Paper 73.

Structure and properties of cellulose and its esters. XXXII. Conditions for mutual transformations of specimens of native and hydrated cellulose. M. Ginzberg and Z. Rogovin. *Zhur. Obshchei Khim.* (J. Gen. Chem.) 21, 933-9 (1951); cf. *C.A.* 41, 6044*i*.—In transformations of specimens of native cellulose to cellulose hydrate, and the reverse, parallelism between structure and physicochem. properties does not always occur. In the regeneration of cellulose from cellulose trialcoholate by the action of Na in liquid NH_3, a cellulose is formed with the structure of cellulose hydrate but with physicochem. properties (dye adsorption, moisture sorption) that lie between native cellulose and cellulose hydrate. Cellulose regenerated from alkali cellulose of γ 95, formed by the action of 3% NaOH in iso-AmOH, is almost identical with native cellulose in all respects. Heating cellulose hydrate in glycerol to about 230° leads to a structural change, a modification of native cellulose, although the physicochem. properties are basically identical with those of the hydrate; thus, the x-ray pattern shows coincidence with that of native cellulose, but moisture sorption is close to that of the hydrate and dye adsorption is identical with that of the latter. Fiber strength of native cellulose is decreased by treatment with org. solvents, whereas cellulose hydrate shows increased fiber strength. G. M. Kosolapoff

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

CA

23

Structure and properties of cellulose and its esters XXXII. Conditions for mutual transformations of specimens of native and hydrated cellulose. M. Ginzberg and Z. Rogovin. *J. Gen. Chem. U.S.S.R.* 21, 1023-8(1951) (Engl. translation).—See *C.A.* 45, 9263*f*. B. R.

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

ROGOVIN, Z.A.

PHASE I TREASURE ISLAND BIBLIOGRAPHICAL REPORT AID 118 - I

Call No.: TS1548.5.R6

BOOK

Author: ROGOVIN, Z. A.

Full Title: CHEMISTRY AND TECHNOLOGY OF ARTIFICIAL FIBERS

Transliterated Title: Khimiya i tekhnologiya iskusstvennykh volokon

Publishing Data

Originating Agency: None

Publishing House: State Scientific-Technical Publishing House of Light Industry (Gizlegprom)

Date: 1952 No. pp.: 676 No. of copies: 4,000

Editorial Staff

Editor: D. I. Tumarkin

Editor-in-Chief: None

Tech. Ed.: M. V. Smol'yakova

Appraisers:

Professor A. B. Pakshver, Doctor of Technical Sciences, A. A. Strepikheev, Doctor of Chemical Sciences, V. A. Gruzdev, Engineer, and A. N. Ryauzov, Engineer.

Text Data

Coverage: The book consists of two parts. Part 1: General principles and methods of production of artificial and synthetic fibers are discussed. Part 2: Conditions of production of individual types of artificial and synthetic fibers are covered.

1/2

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

ROGOVIN, Z.A.

Khimiya i tekhnologiya iskusstvennykh volokon

Call No.: TS1548.5.R6
AID 118 - I

Purpose: The work is designed to serve as a textbook for students of higher technical schools specializing in the production of artificial and synthetic fibers. It also might be useful to engineers and scientific workers in the synthetic fiber industry.

Facilities: None

No. of Russian and Slavic References: 181

Available: Library of Congress.

2/2

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

ROGOVIN, Z. A.

Chemical Abst.
Vol. 48 No. 9
May 10, 1954
Cellulose and Paper

(3)

Relation between the reaction ability and solubility of cellulose samples. Z. A. Rogovin, N. V. Shulyatikova, and D. I. Mandel'baum. *Colloid J.* (U.S.S.R.) 14, 495-500 (1952) (Engl. translation).—See *C.A.* 47, 3555*h*.

H. L. H.

NF
9-17-54

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

ROGOVIN, Z.A., laureat Stalinskoy premii, professor, doktor tekhnicheskikh nauk.

[Recent developments in the chemistry of polymers] Novoe v khimii polimerov. Moskva, Izd-vo "Znanie," 1953. 26 p. (MLRA 6:12)
(Polymers and polymerization)

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

V/5
613.86
.R7

ROGOVIN, Z A

Khimiya tsellyulozy i yeye sputnikov (Chemistry of Cellulose and Associated Materials, by) Z. A. Rogovin i N. N. Shorygina. Moskva, Goskhimizdat, 1953.

678 p. diagrs., tables.

"Literatura" at the end of each chapter.

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

KONKIN, A.A.; BUYANOVA, V.K.; VINOGRADOVA, L.M.; ROGOVIN, Z.A.

Effect of the composition and structure of monoses and aglucons on the resistance of glucosides to the action of acids. Soob.o nauch. rab.chl.VKHO no.3:1-5 '53. (MIRA 10:10)
(Hydrolysis) (Glucosides)

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

KONKIN, A.A.; KRYLOVA, R.A.; ROGOVIN, Z.A.

Effect of intermolecular interaction on the resistance of the glucoside bond in a cellulose macromolecule, to the action of hydrolyzing reagents. Koll.zhur. 15 no.4:246-251 '53. (MLRA 6:8)

1. Moskovskiy tekstil'nyy institut. Kafedra iskusstvennogo volokna. (Cellulose) (Hydrolysis)

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

Rogorin, Z. A.

Effect of molecular interaction on the stability of the glucosidic bond in the macromolecule of cellulose towards the action of hydrolyzing agents. A. A. Konkin, R. A. Kryllova, and Z. A. Rogovin. *Colloid J. U.S.S.R.* 15, 253-7(1953) (Engl. translation).—See *C.A.* 47, 12301*b*. H. L. H.

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

KONKIN, A.A.; ROGOVIN, Z.A.

Delignification of wood with ethylene glycol. Bum.prom. 22 no.9:15-19 S '53. (MLRA 6:8)

1. Kafedra iskusstvennogo volokna Moskovskogo tekstil'nogo instituta.
(Wood--Chemistry)

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

ALEKSANDRU, L.: ROGOVIN, Z.

Investigation of conditions for the production of, and properties of stable derivatives of cellulose xanthogenic acid. Zhur. ob. khim. 23 no. 7:1199-1203 Jl '53 (MLRA 6:7)

1. Moskovskiy tekstil'nyy institut.
(CA 47 no.22:12802 '53)

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

ALEKSANDRU, L.; ROGOVIN, Z.

Distribution of thiocarbonic groups among primary and secondary alcohol groups in cellulose xanthate. Zhur.ob.khim. 23 no.7:1203-1205 Jl '53. (MLRA 6:7)

1. Moskovskiy tekstil'nyy institut. (Xanthates) (Cellulose)

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

ROGOVIN, Z.A.

USSR.

Structure and properties of cellulose and its esters. XLIII. Development of a method of study of the rate of hydrolysis and oxidative decomposition of disaccharides in alkaline medium. Z. A. Rogovin and Yu. A. Rymashevskaya. *J. Appl. Chem. U.S.S.R.* 26, 163-7(1953)(Engl. translation).—See *C.A.* 48, 8740b. H. L. H.

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

ROGOVIN, Z.A.

Structure and properties of cellulose and its esters. XLIII. Development of a method of study of the rate of hydrolysis and oxidative decomposition of disaccharides in alkaline medium. Z. A. Rogovin and Yu. A. Rymashevskaya. *Zhur. Prikl. Khim.* [illegible] 7(1953); cf. *C.A.* 46, 7763*b*; 47, 12802*a*.—The method is described as follows. The disaccharide was treated with NaOH in the presence of atm. O for various periods, the alkali neutralized, the content of CHO groups detd. (this is usually low), and the product then treated with hot acid for complete hydrolysis. Detn. of the iodine no. after hydrolysis in comparison with its value after alk. oxidation gives the CHO content formed in acid hydrolysis, and, by difference from the content of CHO groups expected from total hydrolysis of the material, there is found the content of CHO groups formed in alk. hydrolysis. The isomerization and decline of CHO content in 16% NaOH (lowering of iodine no.) reaches 90–5% of the total. For best results the acid hydrolysis is run in *N* H_2SO_4 8–16 hrs. at 100°. During the alk. treatment a current of air or O is passed through the app., which is best kept at about 70–5°. It was shown that the presence of CHO groups in position 1 in disaccharides increases the rate of acetal cleavage in alkali 50–150 fold. Replacement of CHO by CO_2H greatly stabilizes the acetal toward alkali.

G. M. Kosolapoff

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

Konkin and Z. A. Rogovin (Moscow Textile Inst.). *Bumash. Prom.* 28, No. 9, 15-19(1953).—A no. of variables in the delignification of wood with ethylene glycol (I) were studied. Spruce-wood flour (150 g.) [8-10% H_2O, 55.6% Cross and Bevan cellulose, 11% pentosans, and 28.4% lignin (II)] in a 10-fold amt. of I contg. HCl catalyst was heated at various temps. and for various times, and the pulp sepd., washed with I and with hot H_2O, dried, and analyzed. The filtrate was concd. *in vacuo* at 120-40° to 15-20% II and a total solids of 30-40%, the dark sirup washed with H_2O, and II filtered, washed with H_2O, and dried at 100°. At a HCl concn. of 0.02, 0.035, 0.05, and 0.10%, and heated for 0.5 hr. at 180°, the pulp yield (III) was 57.3, 41.3, 40.9, and 40.5%; α-cellulose (IV) in pulp 78.50, 78.00, 77.55, and 77.15%; II in pulp 19.50, 1.43, 1.20, and 1.02%; % pentosans (V) in pulp 4.34, 3.34, 1.49, and 1.40; Cu no. (VI) of pulp 0.68, 1.45, 1.00, and 0.67; the yield of II from the I ext. (as % of the total II dissolved (VII)) was 83.50, 89.00, 90.86, and 93.96. For a HCl concn. of 0.05% and 180°, at 4, 8, 15, and 30 min., % III 43.8, 43.2, 41.0, and 40.9; % IV 83.5, 79.5, 78.3, and 77.5; % II in pulp 2.9, 2.4, 1.4, and 1.2; % V in pulp 3.20, 2.82, 1.54, and 1.49; VI 0.51, 0.70, 0.50, and 1.00; VII 88.5, 89.5, 90.0, and 90.9; and degree of polymerization of pulp —, 620, 585, and 416. At 160, 170, 180°, and 0.2% HCl, and at 160 and 180° and 0.1% HCl, the % III was 43.5, 40.3, 40.0, 55.3, and 40.9, and the % II in pulp 3.7, 2.7, 1.2, 14.7, and 1.4. In a study of the effect of I on cellulose, a sulfite pulp (VIII) (contg. 87.3% IV, VI 1.6, and a cuprammonium viscosity (IX) of 125 millipoises at 1% concn.) was heated 30 min. at 180° with I contg. 0.05% HCl, 0.05% HCl and 0.05% NH_4Cl, and 0.134% H_3PO_4; the % III (based on original VIII) was 83.5, 90.5, and 91.8; % IV 58.0, 77.1, and 72.8; VI 0.40, 0.40, and 0.60; and IX 39.7, 44.0, and 48.2 millipoises. When wood was hydrolyzed 2 hrs. at 100° with a 1% soln. of HCl (loss in wt. 21%, and polysaccharides dissolved 18-19%, of which 7-8% were pentosans and 11-12% hexosans, with little change in II content), washed, dried, and heated 1 hr. at 160° with I without catalyst, 55% of the II was dissolved; no II was removed from unhydrolyzed wood, and it is assumed that during hydrolysis chem. bonds are split between a part of II and the hydrolyzed hemicelluloses. Glycol lignin (X) could be solvent fractionated; EtOH + 10% H_2O dissolved 70% X, anhyd. EtOH 5%, Me_2CO 60-5%, and Me_2CO + 10% H_2O 90-5%; undried X was sol. in AcOH, dioxane, PhOH, 1% NaOH soln., C_5H_5N, and I, whereas X dried at 100° dissolved with considerable difficulty. The carbohydrate content of undried X was 5.6%, made up of 3.12% pentosans and 2.48% hexosans; X pptd. from AcOH with H_2O contained 1% carbohydrate. Upon treatment of X with a 5% soln. of H_2SO_4, it became insol. in I, AcOH, PhOH, and 1% NaOH soln. For HCl concns. of 0.10, 0.05, 0.035, 0.02, 0.05, and 0.05% and extn. times of 30, 30, 30, 30, 8, and 4 min., the VII was 93.96, 90.88, 89, 83.5, 89.5, and 88.5%; the % OH in X 8.79, 10.19, 10.54, 13.68, 10.34, and 11.40; and the % OMe 14.1, 14.7, —, 15.39, 14.4, and —, resp. The OMe content of unpurified X was 14.0%, of X pptd. 3 times from AcOH 15%, of X pptd. from 1% NaOH soln. 17%, and of X treated with 5% H_2SO_4 13%.

John Luke Keavs

C.A. V-48
Jan 10, 1954
Cellulose & Paper

3

Inst

AF 7-13-54

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001445

ROGOVIN, Z.A., professor.

Artificial and synthestic fibers. Priroda 42 no.9:23-30 S '53. (MLRA 6:8)
(Textile fibers, Synthetic)

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0014451