

YURYSHEV, A. V. and TURKIN, V. S.

"Technique of Gas Line and Compressor Station Construction in the USSR."

report presented at the Eighth International Gas conference at Stockholm,
28-30 June 61

YURYZHEV, B.

Results of analyzing title records. Fin. SSSR 19 no.9:49-50
S '58. (MIRA 11:10)

1. Upravlyayushchiy Kostromskoy kontoroy Prombanka.
(Kostroma--Construction industry)

YURYZHEV, B.

From practice in analyzing the prospective plan. Fin. SSSR 20
no.1:74:76 Ja '59. (MIRA 12:2)

1. Upravlyayushchiy Kostromskoy kontoroy Prombanka.
(Kostroma Province--Economic policy)

YURYZHEV, B.

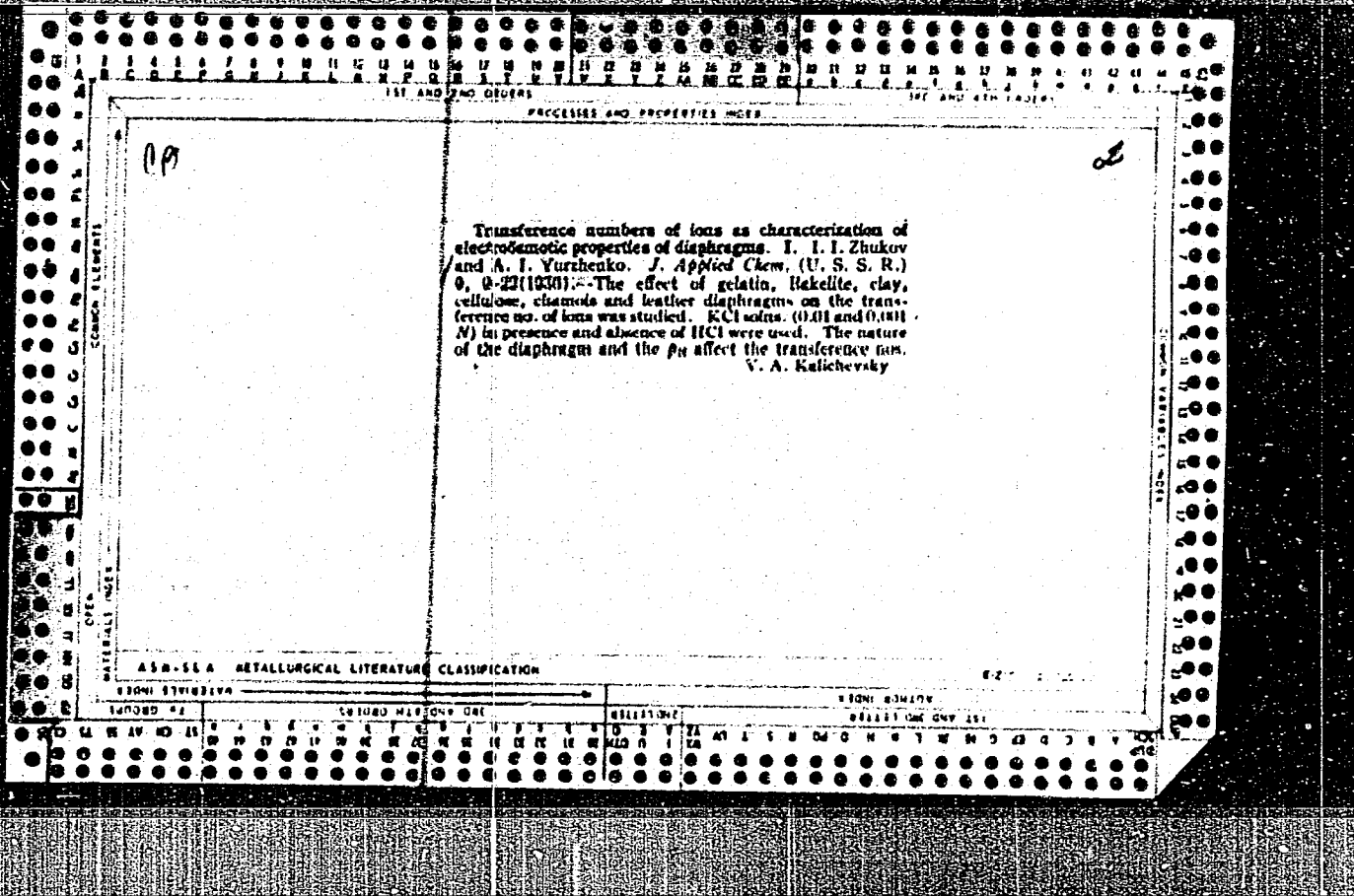
Are construction trusts needed in Kostroma? Fin.5533 20
no.12:60-61 D '59. (MIRA 12:12)

1. Upravlyayushchiy oblastnoy kontory Stroybanka.
(Kostroma Province--Construction industry)

FARBEROV, I.L., doktor tekhn. nauk; YUR'YEVSEAYA, N.P.

Investigating the effect of the moisture content in Moscow Basin lignite on the composition of gas produced in coal channels. Podzem. gaz. ugl. no.1:39-42 '59. (MIRA 12:6)

1. Institut goryuchikh iskopayemykh AN SSSR.
(Moscow Basin--Coal gasification, Underground)
(Lignite--Testing)



ca

Electrokinetic investigation of diaphragms. II. Effect of temperature on the number of ions transported through diaphragms and on their electrokinetic potentials. I. I. Zhukov and A. I. Yurshenko. *J. Applied Chem.* (U. S. S. R.) 9, 1733-8(1937); *Ch. C. A.* 30, 5857.
 —The transference no. of ions of 0.01 N KCl through "marine" (cheese cloth impregnated with cellulose) and ceramic diaphragms varied (no. of Cl equal to 0.321-0.338 and 0.289-0.303, resp.) very slightly within 10-80°, attaining a max. at 40-65° (0.336-0.338) for "marine" and at 65° (0.303) for the ceramic diaphragm. The electrokinetic potential of the ceramic diaphragm increased (in abs. value) with increase in temp. by 2-3 mv., disclosing a variation in the charge on the surface of the solid body. The current strength in all expts. was 20-30 ma. Twenty references. III. **Electrokinetic investigation of double diaphragms.** *Ibid.* 1739-44.—A double diaphragm prepd. by depositing a 10% gelatin soln. on a ceramic diaphragm (preventing the penetration of the gelatin soln. into the ceramic diaphragm), had an electrokinetic potential (ϵ) equal to $\epsilon' = 3.84$ mv. if the gelatin layer faced the cathode and $\epsilon'' = 5.14$ mv. if it faced the anode.

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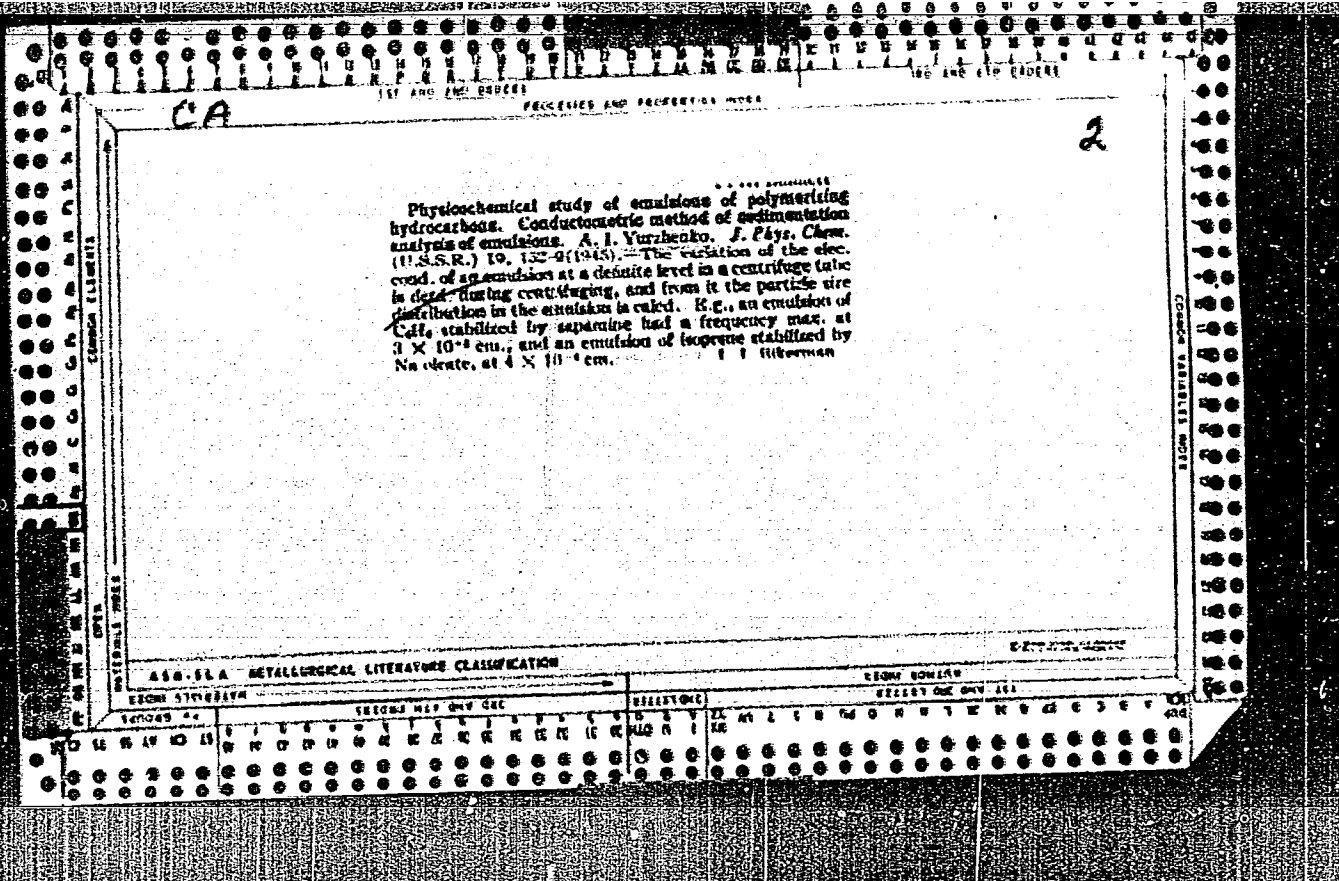
A diaphragm, prepd. from a filter paper treated with 2-4% formalin and impregnated with a 10% gelatin soln., had $\epsilon' = 10.42$, and a ceramic diaphragm alone had $\epsilon' = -12.23$ mv. In all expts., the solns. had $p_H = 1.644$ and the current strength was 20 ma. The electrokinetic potential of the above double diaphragm increased with increase in the concn. of the gelatin soln. deposited on the ceramic diaphragm. The radius of pores of the ceramic

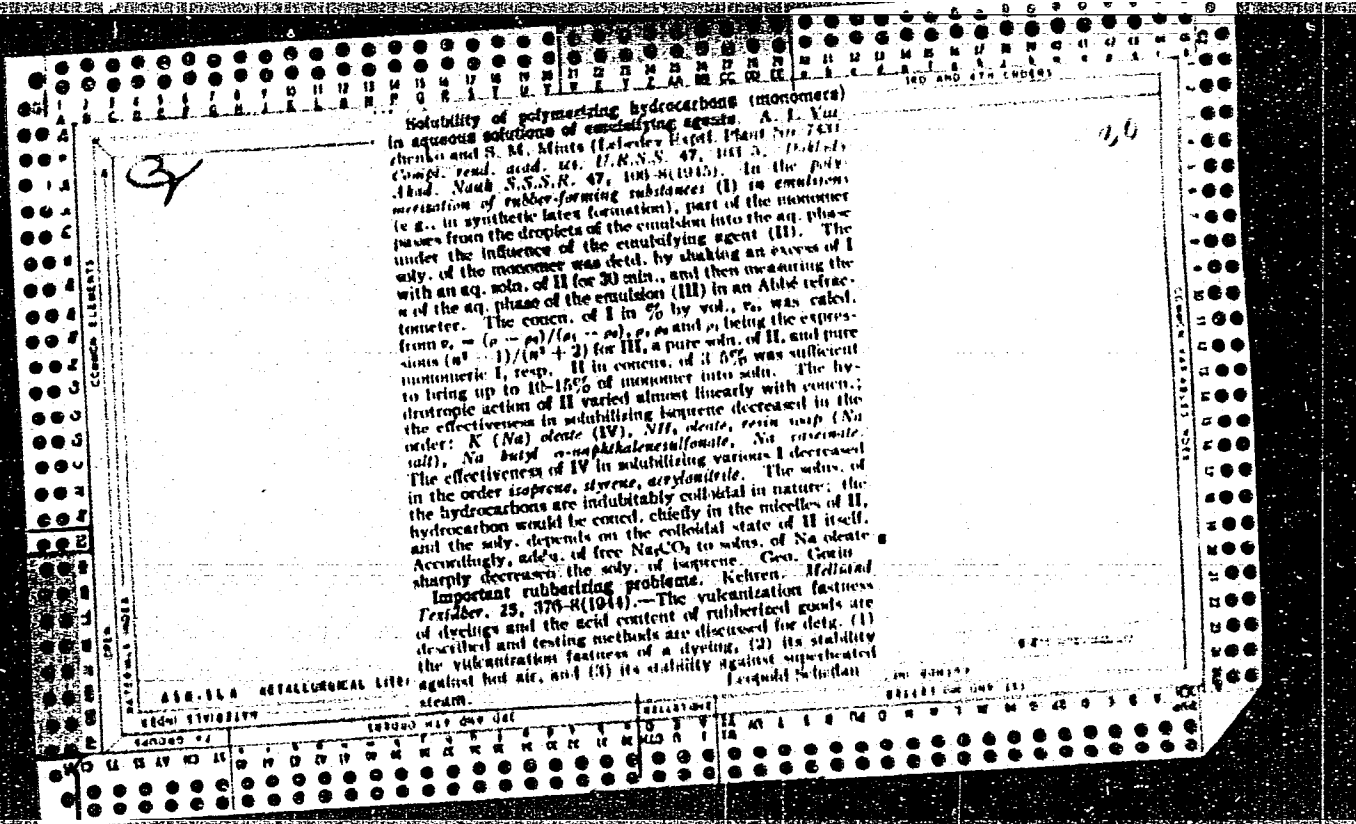
diaphragm was 103 m μ , and that of the 10% gelatin diaphragm was 20-28 m μ . A double diaphragm, prepd. from a ceramic diaphragm with a pore radius of 220 m μ and $\epsilon' = -15.85$ mv., and with the above gelatin soln., had $\epsilon' = 6.45$ mv. and $\epsilon'' = 8.31$ mv., and that prepd. from a ceramic diaphragm with a pore radius of 124 m μ and $\epsilon' = -20$ to -21 and 24, 16, 8 and 4% gelatin solns., had $\epsilon' = 2.3, 1.3, -$ and approx. 0, and $\epsilon'' = 3.1, 2.2, 1.0$ and also 0, resp. The total electrokinetic effect of double diaphragms composed of layers with different electrokinetic potentials, is detd. by the layer with smaller pore radius. Seven references. A. A. Podgorny

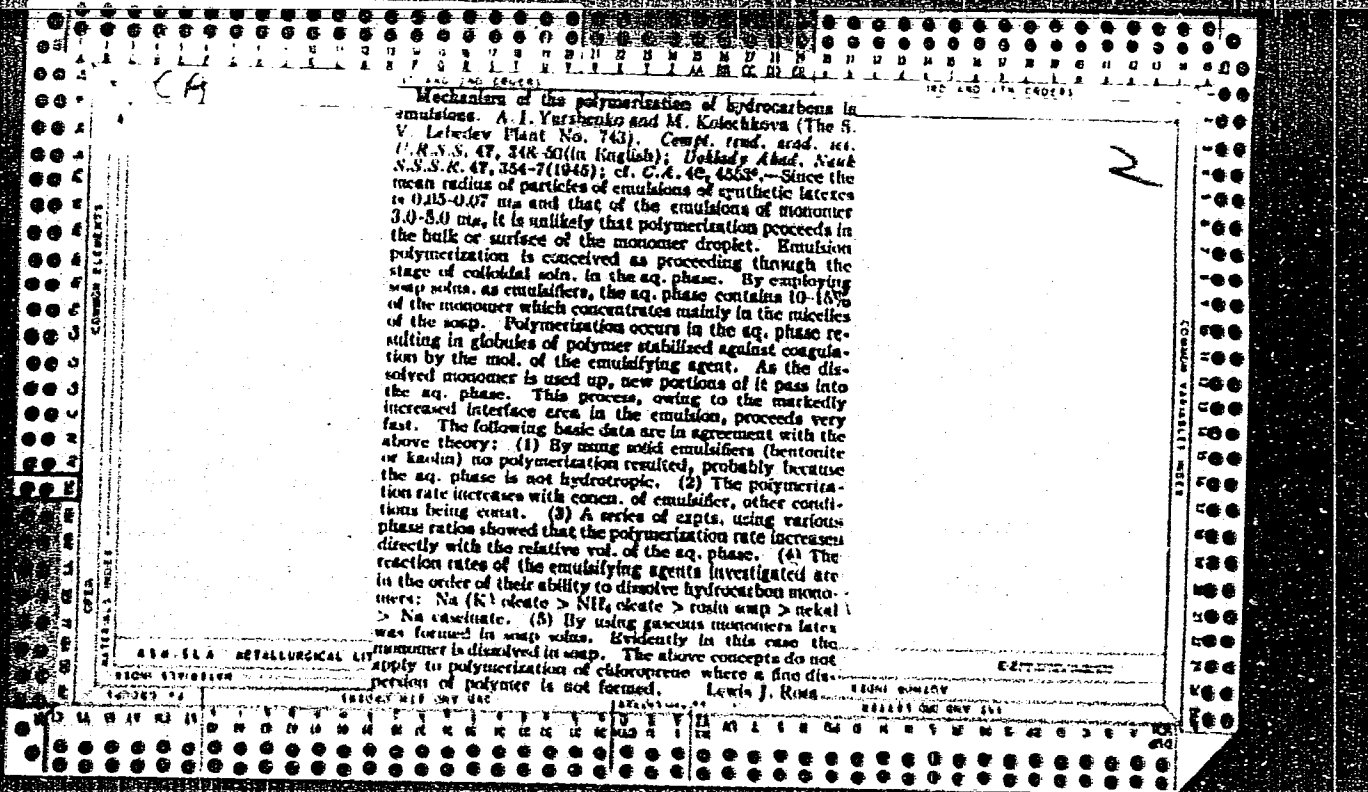
ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

140000 #4	181000 #18	210000 #1	240000 #1	270000 #1	300000 #1	330000 #1	360000 #1	390000 #1	420000 #1	450000 #1	480000 #1	510000 #1	540000 #1	570000 #1	600000 #1	630000 #1	660000 #1	690000 #1	720000 #1	750000 #1	780000 #1	810000 #1	840000 #1	870000 #1	900000 #1	930000 #1	960000 #1	990000 #1
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Electroosmosis investigations on diaphragms. IV. Transfer of ions through double diaphragms. A. I. Yurshenko and G. N. Skrynnikova. *J. Gen. Chem.* (U. S. S. R.) 9, 2184-90(1939); cf. Zhukov and Y., *C. A. B.*, 249149.—For the double diaphragms were used diaphragms consisting of ceramic and gelatin layers. On a moist ceramic diaphragm was added a liquid layer of gelatin of a definite concn. (10-24%). After solidification the gelatin was treated with a 3% soln. of formalin and carefully washed with water. In all cases a HCl soln. was used for an electrolyte. The value of Z was detd. from $Z = 100(s'_{Cl} - s'_{Ca})/s_{Ca}$ where Z is the percentage change of the transference no. (TN) in the capillaries of the diaphragm in relation to the TN in a free soln., s'_{Cl} is the TN of Cl^- in the capillaries of the diaphragm and s_{Ca} the TN of Cl^- in a free soln. Ceramic diaphragms with capillary radii of 165 (I), 185 (II), and 250 (III) μ m were used. The Z value for I at s'_{Ca} 0.119 is -31.6, for II at 0.126 is -27.3, for III at 0.145 is -16.8, and for 10% gelatin at 0.314 is 80.4. In an acid medium the ceramic diaphragms were negatively charged and the transfer of Cl^- was decreased. The abs. value of Z decreased with an increase in the radius. In the double diaphragms the following values were obtained for the same ceramic diaphragms covered with 10% gelatin. When the 10% gelatin layer was facing the anode, for I at s'_{Ca} 0.177 and 0.198 Z was 11.3 and 11.39; for II at s'_{Ca} 0.206-0.208 Z was 18.8-19.8; for III at s'_{Ca} 0.232-0.233 Z was 45.2-50.00. When the 10% gelatin layer was facing the cathode, for I at s'_{Ca} 0.232-0.243 Z was 33.6-39.0; for II at s'_{Ca} 0.229-0.246 Z was 31.0-40; for III at s'_{Ca} 0.301-0.313 Z was 79.0-79.8. The double diaphragms were positively charged. An increase of s'_{Ca} was obtained at ways. With an increase of the radius of the capillaries of the ceramic diaphragm the electrokinetic properties of the double diaphragm approached those of the single gelatin layer. The TN through the double diaphragms depended on the position of the diaphragm, i. e., the double diaphragms were asym. The investigation of the transfer of ions through double diaphragms by means of membrane potential gave analogous results. The effect of the pos. gelatin layer increased with the increase of its concn., i. e., with the decrease of the radius of the capillary. 7 references and 3 tables. W. R. Heun







31
 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

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CA

PHYSICOCHEMICAL STUDIES OF THE PROCESS OF POLYMERIZATION OF HYDROCARBONS IN EMULSIONS. II. THE MECHANISM OF FORMATION OF SYNTHETIC LATEX IN CONNECTION WITH THE PROCESS OF COLLOIDAL SOLUTION OF MONOMERS IN AQUEOUS SOLUTIONS OF EMULSIFIERS. A. I. Yurzhenko (Lebedev All-Union Synthetic Rubber Inst., Leningrad). *J. Gen. Chem. (U.S.S.R.)* 16, 1171-88 (1940) (in Russian); cf. *C.I.* 39, 3901.

A physicochem. study of the emulsion polymerization of styrene, isoprene, and butadiene was made, with Na oleate, NH₄ oleate, rosin soap, Na caseinate, and saponin for emulsifiers. It is concluded that the usual concept of polymerization as proceeding in the dispersed phase of the monomer is not satisfactory. The role of the emulsifier goes beyond the indifferent stabilization of globules of monomer and polymer structures. Since the rate of accumulation of polymer is almost linearly affected by the concn. of the emulsifier (with oleates it is most effective), this cannot be explained merely by an increase of interface area. Under polymerization conditions part of the monomer dissolves colloiddally in the aq. soln. of the emulsifier. Detn. of soln. refractometrically of styrene, methylstyrene, isoprene, and acrylonitrile placed the above emulsifiers in the same order as was found for the rate of polymerization. Thus, the emulsion polymerization process takes place in the aq. phase in the micelles of the emulsifiers, and the role of the latter is explained by their ability to form colloidal solns. of the monomers. The formation of latex can take place without emulsification of the monomer, merely on contact of the aq. and the hydrocarbon phases. The large area of interface in emulsions favors a rapid satn. of the aq. phase by the monomer, which is important, since the equil. is being constantly disturbed by monomer removal through polymerization.

456.55A METALLURGICAL LITERATURE
 G. M. Kosolapoff

COMMON ELEMENTS
 OPEN
 MATERIALS INDEX

FROM 1000000000
 TO 1000000000

100 99 98 97 96 95 94 93 92 91 90 89 88 87 86 85 84 83 82 81 80 79 78 77 76 75 74 73 72 71 70 69 68 67 66 65 64 63 62 61 60 59 58 57 56 55 54 53 52 51 50 49 48 47 46 45 44 43 42 41 40 39 38 37 36 35 34 33 32 31 30 29 28 27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

YURZHENKO, A. I. (Cont'd)

"The Mechanism of the Formation of Synthetic Latexes in Connection with the Process of Diffusion Monomers in Aqueous Solutions of an Emulsifier," 1947.

(9900075).

Prize in. Lebedev, 1948, Publ.

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CA

Dispersion of synthetic latexes at different stages of their formation. A. I. Vutchenko and S. Muz. *Compt. rend. acad. sci. U.R.S.S.* 45: 445-8(1947) (in Russian). Latexes were obtained by polymerization of 1,3-butadiene in aq. emulsions stabilized by 4.5% Na oleate. The size of the polymer particles increased with increasing concn. of the latex. Close agreement was found with the equation $r = k^{1/2}$, where r is the av. radius, k a const., and c the latex concn. For 20.3% latex $r = 0.244 \mu$ (found) compared with $r = 0.238$ (calcd.). For 1.5% latex the values for r were 0.106 and 0.091, resp. Smaller particles were obtained when Neol was used in place of Na oleate. (cf. *C.A.* 40, 4553^b, 4954^b). Ernest A. Winter

ASR-51A METALLURGICAL LITERATURE CLASSIFICATION

2.2

33 Synthetic Rubber and Allied Products
20 Polymers from Hydrocarbons

Mechanism of the polymerisation of hydrocarbons in emulsion. A. I. YEREMENKO and M. KOLENKOVA (Compt. rend. acad. sci. U.S.S.R., 1945, 47, 344-50; Doklady, Akad. Nauk U.S.S.R., 1945, 47, 354-7; Chem. Abs., 1946, 40, 4334).—Since the mean radius of particles of emulsions of synthetic latices is 0.05–0.07 μ and that of the emulsions of monomer 3.0–5.0 μ , it is unlikely that polymerisation proceeds in the bulk or surface of the monomer

droplet. Emulsion polymerisation is conceived as proceeding through the stage of colloidal solution in the aqueous phase. By employing soap solutions as emulsifiers, the aqueous phase contains 10–15% of the monomer which concentrates mainly in the micelles of the soap. Polymerisation occurs in the aqueous phase resulting in globules of polymer

stabilised against coagulation by the molecule of the emulsifying agent. As the dissolved monomer is used up, new portions of it pass into the aqueous phase. This process, owing to the markedly increased interface area in the emulsion, proceeds very fast. The following basic data are in agreement with the above theory. (i) By using solid emulsifiers (beatanite or kaolin) no polymerisation resulted, probably because the aqueous phase is not hydro-tropic. (ii) The polymerisation rate increases with concentration of emulsifier, other conditions being constant. (iii) A series of experiments using various phase ratios showed that the polymerisation rate increases directly with the relative volume of the aqueous phase. (iv) The reaction rates of the emulsifying agents investigated are in the order of their ability to dissolve hydrocarbon monomers. (v) By using gaseous monomers latex was formed in soap solutions. Evidently in this case the monomer is dissolved in soap. The above concepts do not apply to polymerisation of chloroprene where a fine dispersion of polymer is not formed. 352112

1946

C.A.

Lithographic drying oil based on polydienes. *A. I. Yurchenko, N. I. Marchenko, and O. L. Glushkina. Poligraf. Proizvodstvo 1950, No. 9, 29-30.* The use of a synthetic substitute for linseed oil is described. The substance is polydiene, a low-mol. diene polymer from the by-products of synthetic rubber production. It forms films spontaneously at room temp. in 6-8 days, while adding 1.5-3.0% Mn-contg. drier reduces the time to 10-13 hrs. Ca and Co resins are also effective. The crude product, as obtained from the plant, is polymerized somewhat further to secure more body for lithographic use; this is accomplished by heating at 120° with the above driers until desired viscosity is reached; if low color is desired the drier should not be added until after the thermal polymerization. Tests with offset process rubber sheets showed that very little swelling of the latter occurs on immersion into the synthetic "oil." Color printing run on plant scale with the

polydiene of 100 ex. viscosity as the pigment carrier (or binder) was highly satisfactory. G. M. Kosolapoff

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CA

Molecular weight and colloidal (conjugated) solubility in aqueous solutions of dibutyl- α -naphthalenesulfonic acid. A. I. Yurshenko and R. V. Kucher (Univ. Lvov). *Kolloid. Zhur.* 13, 228-32 (1951).—The turbidity τ of solns. of Na dibutyl- α -naphthalenesulfonate (I) was negligible until the concn. c (wt. %) reached 0.01%; at this concn. micelle formation started. On further increase of c , τ increased to $c = 2.2\%$ and then decreased, presumably because the scattered light was absorbed by the soln. Between $c = 0.5\%$ and 2.2%, c/τ was a linear function of c and was greater in 0.01 N H_2SO_4 than in H_2O (pH 6.8) > 0.01 N Na_2SO_4 > 0.01 N $NaOH$. The micellar wt. (which is proportional to τ/c at $c = 0$) was 19250, 20400, 27800, and 32300 in these 4 solvents, resp. The coeff. of diffusion was greater at $c = 1.65\%$ than at 0.03%. Solubilization of Sudan III in I solns. was small at pH 1.8, a little larger at pH 6.6, larger still in 0.01 N Na_2SO_4 , and largest in 0.01 N $NaOH$; i.e., soly. increased with micellar wt. In all solvents, the amt. of Sudan dissolved by 1 g. I was independent of c between 0.7% and 3%; at pH 12 it was 0.0094 g. One g. Na oleate in 0.1 N Na_2CO_3 dissolved 0.0000 g. Sudan, all at 23°. Polymerization of styrene or isoprene also is more rapid in alk. than in neutral or acid solns. of I. The micellar wt. is important for emulsion polymerization. J. J. Bikerman

1951

YURZHENKO, A. I.; GUSYAKOV, V. P.

Emulsions

Effect of the concentration and nature of an emulsifier on the degree of dispersion of latexes. Dokl. AN SSSR, no. 1, 1952.

9. Monthly List of Russian Accessions, Library of Congress, December 1952, Unclassified.

CA

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Study of the dispersivity of synthetic latexes by means of the intensity of light scattering. A. I. Vurshenko and V. P. Gusevskoy (Med. Inst., L'vov). *Kolloid. Zh.* 14, 140-7 (1952).—The turbidity τ of synthetic latexes increased with the concn. c of the latex first linearly, then passed through a max., and finally decreased; the greatest concn. studied was 0.5%. At the same c (c_0) at which the linear increase of τ ceased, the light absorption by the latex became measurable; it rapidly increased with c at higher c . The c_0 was 0.001% for butadiene latex (I) contg. dithiantholone as initiator and 3% Na oleate as emulsifier, and 0.01% for a polystyrene latex (II). I was emulsified also by 3% Na dibutyl- α -naphthalenesulfonate and by 3% K laurate. Between the wave lengths λ of 470 and 810 m μ the length of the linear stretch was greater the greater was λ . At very small c values (less than 0.0005-0.001%), τ was a linear function of λ^{-4} , i.e., the Rayleigh law of light scattering was valid. From this law the particle radius r was 38-60 m μ for 4 samples of I and 39 m μ for II. Debye's equation yielded r values of 28-52 m μ for I and 24 m μ for II. From ultramicroscopic observations r of I was 60-87 m μ . For a given emulsifier the increase of τ with c was more rapid the greater the degree x of polymerization. The τ increased nearly proportionally to x ; this shows that polymerization in an emulsion proceeds by growth of particles rather than by increase of their number. The polymerization was conducted at 50° in N.

J. J. Bikerman

CA

2

The micellar weight of alkylbenzenesulfonic acid derivatives in aqueous solutions. A. I. Yurchenko and R. V. Kocher (Univ. Lvov). *Kolloid. Zh.* 14, 219-24 (1952); cf. *C.A.* 45, 8334b. — Light scattering τ was detd. for wave length 5000 Å. (light filter). On diln., τ becomes immeasurably small when the concn. sinks below the crit. concn. C of micelle formation. C was 0.00017 *M*, 0.00010 *M*, and 0.00020 *M* for Na octylbenzenesulfonate (I), Na dibutylbenzenesulfonate (II), and Na dibutynaphthalenesulfonate (III), resp. The high C of III presumably is due to the difficulty of packing naphthalene rings. At higher concns., $1/\tau$ is a linear function of concn., and extrapolation of $1/\tau$ to zero concn. gives the micellar wt. m . This was 20000 for III, 66000 for II, and 130000 for I, again showing the steric hindrance for agglomeration of naphthalene rings. After addn. of 0.01 g.-equiv. NaOH (to pH 11.8-11.9), m increased to 22000, 91000, and 181000, resp., and at pH 1.8 (to 0.01 *N* H₂SO₄) m was 16000, 61800, and 108000, resp. Presumably, NaOH reduces the true soly. of I, II, and III because of its common ion, whereas acids lower m because micelles of the free acid form. 0.1 *N* Na₂SO₄ increased m to 27700 and 77000 for III and II, resp. Among the 1% solns. of III in H₂O-EtOH mixts, those in 40% EtOH had the greatest τ (about 50 times that in H₂O), whereas for 1% solns. of II the max. occurred in 60% EtOH. This is caused by the dehydrating effect of EtOH. Surface tension γ of H₂O is lowered by I more than by III, which is more active than II at equal mol. concns.; γ is 39-40 ergs/sq. cm. in 0.004 *M* solns. The persistence of single films of II foam was greater in alk. than in neutral solns. J. J. Hickeyman

10/10/1952
TSVEPKOV, H.S., aspirant; YURZHENKO, A.I., professor.

Effect of promoter concentration on the speed of polymerization
of styrene in an emulsion. Dop.ta pov.L'viv.un. no.3 pt.2:33-34
'52. (MLRA 9:11)

(Styrene) (Polymers and polymerisation)

YURZHENKO, A.I.; TSVETKOV, N.S.

The conjugated effect of the initiator and emulsifying agent on
the rate of polymerization in emulsions. Soob. o nauch. rab. chl. VIKHO
no.1:24-33 '53. (MIRA 10:10)

(Emulsions) (Polymerization) (Emulsifying agents)

YURCHENKO, M. T.

Chemical Abst.
Vol. 48 No. 9
May 10, 1964
General and Physical Chemistry

The solubilization of Sudan III in aqueous solutions of
alkylbenzenesulfonic acid derivatives. A. I. Yurchenko
and P. V. Fuchter. *Colloid J. USSR* 14, 511-16
1952 (Engl. translation) See C. I. 45, 931a

YURZHENKO, A.I., professor; KUCHER, R.V., assistant.

Study of the speed of diffusion of colloidal electrolytes in
aqueous solutions. Dop.ta pov.L'viv.un. no.3 pt.2:35-36 '52.
(MLBA 9:11)

(Electrolytes) (Diffusion)

YURZHENKO, A.I., professor; GUSYAKOV, V.P., assistant.

Study of dispersion of synthetic latexes in relation to the
nature and concentration of the emulsifier and the monomer.
Dop.ta pov.L'viv.un. no.3 pt.2:36-37 '52. (MLRA 9:11)

(Latex)

YURZHENKO, A. I.

Investigating the double refraction in a stream of solutions
of emulsified polymers of 1,3-butadiene. Nauk.zap.L'viv.un.
21:36-45 '52. (MIRA 10:7)

1. Kafedra fizicheskoy i kolloidnoy khimii.
(Refraction, Double) (Butadiene)

YURZHENKO, A.I.; YURZHENKO, T.S.

Effect of phase correlation on the polymerization rate of
1,3-butadiene in emulsions. Nauk.zap.L'viv.un. 21:46-54 '52.
(MLRA 10:7)

(Butadiene) (Polymerisation)

DA 332100

YURZHENKO, A. I.

USSR/Chemistry - Polymerization Peroxides AUG 52

"The Effect of the Concentration of the Initiator on the Rate of Polymerization in Emulsions," A. I. Yurzhenko and N. S. Tsvetkov, L'vov State U

"DAN SSSR" Vol 65, No 5, pp 1099-1102

The effect of the concn of org and inorg peroxides on the rate of polymerization of styrene in emulsions at various pH of water and concn of emulsifier. The initiators used were potassium persulfate, sodium perborate, hydrogen peroxide, and dimethylphenylcarbinol hydrogen peroxide. With 239T29

the peroxide type of initiator, the polymerization rate first increases with increased concn of initiator, but then slows down. This is shown graphically by a max on the curve. Lowering the pH results in shifting the max to the side of increased concn of initiator. Submitted by Acad P. A. Rebinder 4 Jun 52.

239T29

238T19

YURZHENKO A. I.

USSR/Chemistry - Emulsifiers

Aug 52

"The Weights of Micelles and Some Colloidal Properties of Sulfonated Emulsifiers," A. I. Yurzhenko and R. V. Kucher, Lvov State University I. Franko

"DAN SSSR" Vol 85, No 6, P. 1337-1340

The size and forms of the micelles of a no of sulfonated emulsifiers were studied with respect to conjugated solubility of oleophilic substances, surface activity, mech properties of adsorption layers, and their behavior in emulsion polymerization of hydrocarbons. The size

238T19

and form of the Na salt of dibutylphthalene-sulfonic acid, Na salt of dibutylbenzenesulfonic acid, and Na salt of eicosylbenzenesulfonic acid were detd. The colloidal solubility of a typical oleophilic dye (Sudan III) in an aqueous soln of a sulfonated emulsifier was studied spectrophotometrically. By comparing weights of micelles with the molar conjugated solubility of emulsifiers, it is seen that, as the former increases, the capacity of the soap to dissolve oleophilic substances increases. Submitted 23 Jun 52

238T19

YURZHENKO, A. I.

USSR/Chemistry - Rubber, Rubber Emulsifiers

1 Sep 52

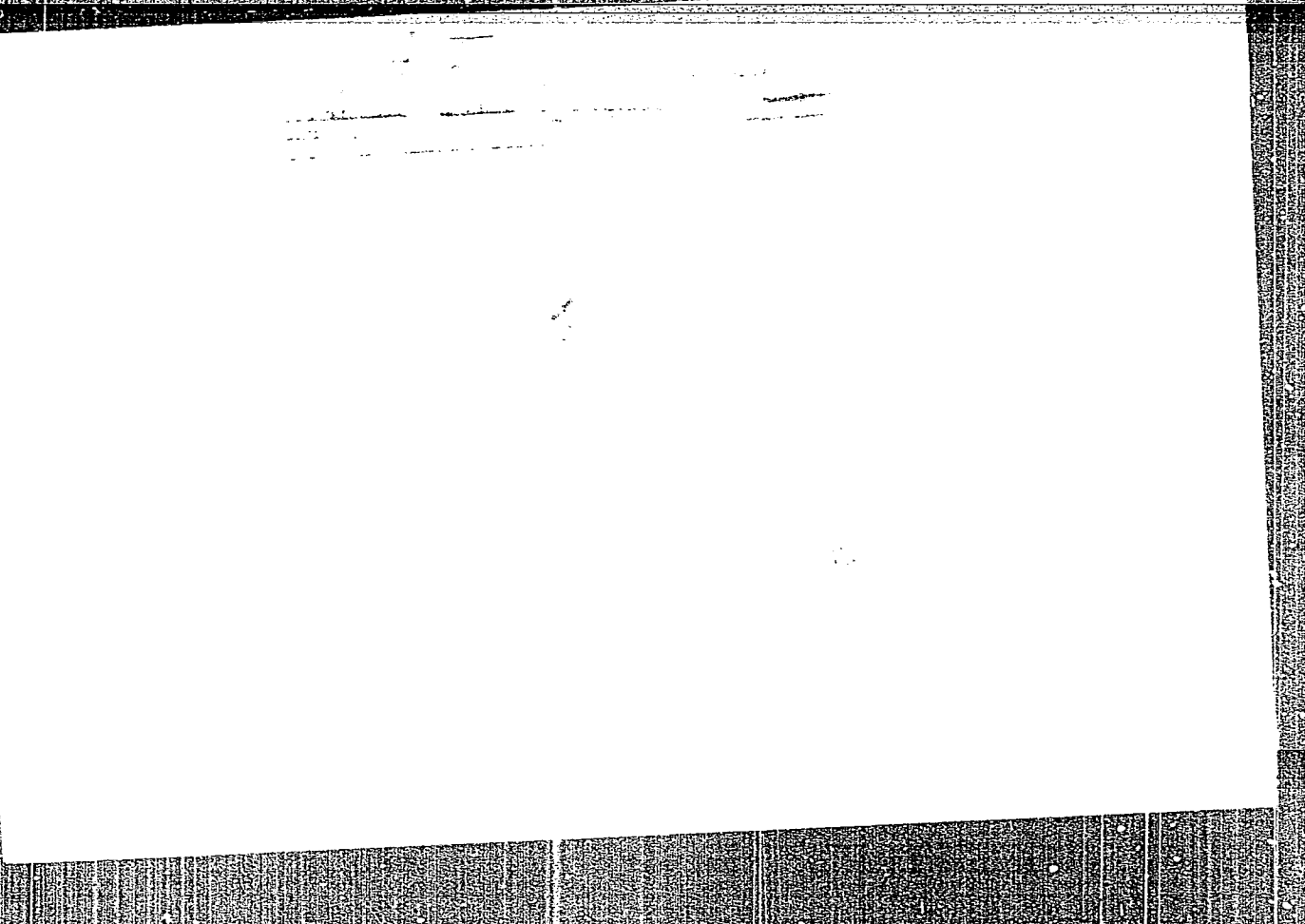
"The Effect of Concentration and Type of Emulsifier on the Dispersion of Latexes," A. I. Yurzhenko, V. P. Gulyakov, L'vov State U iment Iv. Franko

"Dok Ak Nauk SSSR" Vol 86, No 1, pp 129-131

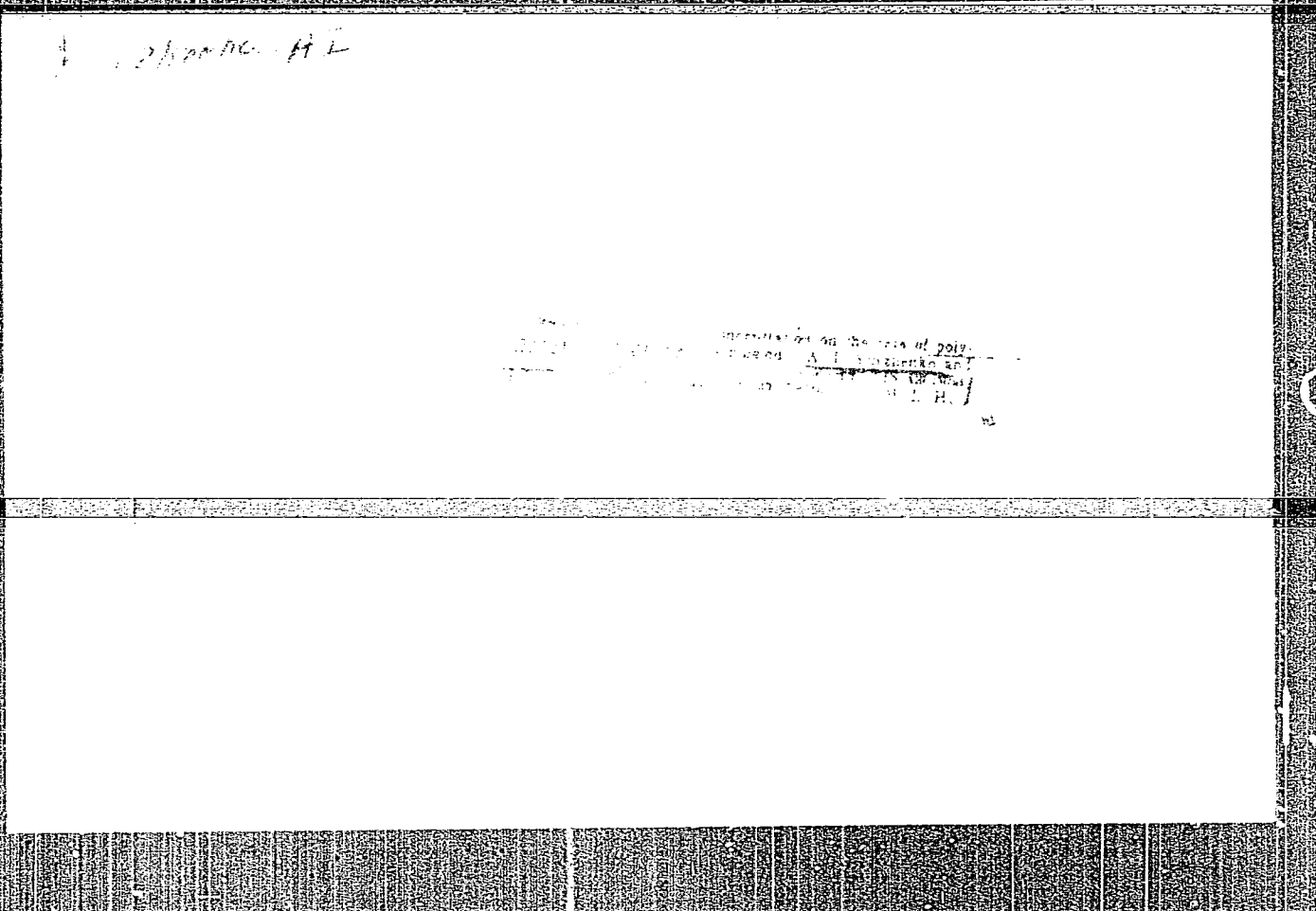
Styrene and isoprene latexes were prepd in the laboratory and tested with the following emulsifiers: Na salt of albutylbenzenesulfonic acid (BBSK), Na salt of stecybenzenesulfonic acid (sulfanoll), Na salt of albutyl-alpha-naphthalenesulfonic acid (nekal) and sodium oleate. Decreasing the concn of emulsifier in the latex increases the size of the particles. This is true for all emulsifiers. When the concn of the emulsifier is over the crit concn, the dispersion of the latex is detd by the dispersion of the emulsifier. At the crit concn, high dispersion latexes form with those emulsifiers whose dispersion latexes are lowest (sulfanoll). What happens below the crit concn is still being investigated. Presented by Acad P. A. Rebinder 23 Jun 52.

234724

"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R001963220019-8



APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R001963220019-8"



TSVETKOV, N.S.; YURZENKO, A.I.

Concentration of the emulsifier as a kinetic factor during polymerization
in emulsions. Koll.zhur. 15 no.4:308-315 '53. (MLRA 6:8)

1. L'vovskiy gosudarstvennyy universitet imeni I.Franko. Kafedra fiziches-
skoy i kolloidnoy khimii. (Polymers and polymerization) (Emulsions)

Study of the dimensions and shape of sulfonate micelles by the method of diffusion. R. V. Kucher and A. I. Yur-zhenko (I. Franko Univ., Lvov). *Koloid. Zhur.* 15, 432-4 (1953); cf. C.A. 46, 8169f, 8881g. -- The coeff. D of diffusion was detd. refractometrically. In H_2O D of Na dibutylsulfonate (I) and Na dibutyl azo-sulfonate (II) was approx. 3×10^{-4} cm.²/sec. in 1% and 1.3×10^{-4} in 0.5% soln. In 0.1 N Na_2SO_4 , D depended little on concn. and was near 1.1×10^{-4} and 0.8×10^{-4} , resp. Both I and II had spherical micelles. Na clovebenzene-sulfonate had $D = 0.36 \times 10^{-4}$, and its length was 70 times its width. The micelles of I in 0.1 N Na_2SO_4 had radii r of 21-17 A. in 0.5-2% solns. Dissohn. of Sudan III (0.3-3.3 $\times 10^{-4}$ g./ml.) increased r to 24-18 A. J. J. B.

YURZHENKO, A. I.

✓ Combined effect of emulsifier and initiator on the rate of polymerisation in emulsions. A. I. Yurzhenko and N. S. Izverkoy (Dokl. Akad. Nauk. SSSR, 1953, 80, 421-424).—In the emulsion polymerisation of styrene, the limiting rate of polymerisation R_p and the concn. of emulsifier at which it is attained, decreases with the concn. of $K_2S_2O_8$ initiator; R_p also increases with decrease in the micellar weight of the emulsifier. The mol. wt. of the polymer increases with the emulsifier concn.

R. C. MURRAY.

Effect of the electrolytes of the aqueous phase of styrene emulsions on the dispersity of the resulting latexes. *Zh. Fiz. Khim.* 1969, 43, 1171-1174. Yurshenko and V. P. Gusakov (Med. Inst., Lvov, U.S.S.R.)

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Chem 10

Kolloid. Zh. 16, 73-8 (1954); cf. *C.A.* 48, 3301c.—The particle radius r of polystyrene (II) emulsions, produced by polymerization in the presence of 0.6% Na dibutyl-1-naphthalenesulfonate (II), decreased on increasing pH when $K_2S_2O_8$ or $Me_3PbCOOH$ was the initiator, and increased with pH when $(BrO)_2$ was used as the initiator. E.g., at 40° and 0.18% $K_2S_2O_8$, r was 53, 39, and 42 m μ when pH was 1.3, 7.4, and 10.6, resp., and at 45° and 0.02 M $(BrO)_2$, r was 39, 41, and 48 m μ at pH 1.3, 6.8, and 11.5; the pH was adjusted with Na_2CO_3 , $NaOH$, or H_2SO_4 , and r was calculated from the turbidity. The final no. of the latex particles cannot be greater than that of the emulsifier micelles; as the micelles of II are greater, the greater is the pH (they contain 50, 30, and 97 and II at pH 1.3, 6.8, and 12.0, resp.; fewer particles are present in alk. solns., and their r (at the const. total concn.) is greater. This is the case of $(BrO)_2$. In the instance of water-sol. initiators, the no. of active radicals of the initiator is greater in alk. solns.; therefore, in acid solns. not all micelles act as nuclei for polymerization, and the resulting r is greater at smaller pH. Small adds. of KCl or Na_2SO_4 (up to 0.05 M) lowered, and larger adds. raised r ; because small adds. increased, and large ones decreased, the no. of micelles of II. KCl had no effect on r of I emulsion, after prepn. The mol. wt. (from viscosity) of I was greater (10,000-310,000) when the polymerization took place at pH 11 than at pH 1.25 (41,000-25,000).

J. J. Berman

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Submitted April 2, 1952

Gurzhenko A. I.

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...~~...~~ GURZYAKOV, Rubb. Chem.
...abs. 2442. A
281033

YURZHENKO, T.S.; YURZHENKO, A.I.

Effect of nonelectrolytes (alcohols) on the rate of styrene
polymerization in emulsion and on the dispersion of styrene
latexes. Nauk.zap.L'viv.un. 34:15-25 '55 no. 4 (MLBA 9:10)

(Polymers and polymerization) (Styrene) (Latex)

Category : USSR/Atomic and Molecular Physics - Physics of High- Molecular Substances. D-9

Abs Jour : Ref Zhur - Fizika, No 3, 1957, No 6466

Author : Kurzhenko, A.I., Martynyuk-Lototskiy, Yu.Ye.

Title : Investigation of the Elasto-Viscous Properties of Solutions of Synthetic Rubbers.

Orig Pub : Nauk zap. L'vivs'k. un-tu, 1955, 34, 30-38

Abstract : For the purpose of clarifying the effect of molecular structure and the chemical composition of a polymer on its deformation properties in solution, the latter were investigated in solutions of rubbers of various chemical nature (natural rubbers, as well as polystyrols with various molecular weights) and synthetic rubbers (poly-isobutylene, butadiene-styrol, and nitril rubbers). The investigation was carried out with the Shvedov apparatus. It was shown that the composition of the macromolecules affects substantially the elasto-viscous properties and the structuring of the solutions of polymers, and also the viscosity of solutions that have no elastic properties.

Card : 1/1

Yurzhenko A.I.

USSR/Thermodynamics - Thermochemistry. Equilibria. B-8
Physical-Chemical Analysis. Phase Transitions.

Abs Jour : Referat Zhur - Khimiya, No 6, 1957, 18530

Author : ~~A.I. Yurzhenko~~, V.D. Yenal'yev.

Inst : Lvov University.

Title : Study of Distribution of Isopropylbenzene Hydroperoxide
between Styrene and Water Phases.

Orig Pub : Nauk. zap. L'vivs'k. un-tu, 1955, ^{Vol. No. 4.} 34, 45-50

Abstract : The distribution of isopropylbenzene hydroperoxide (I) between the styrene and water phases at 20°, 35° and 43° was studied. The distribution factor (K) describing the ratio of molar parts of I in the water phase and in styrene decreases with the temperature rise from 0.0639 at 20° to 0.0314 at 43°. Addition of small amounts of NaOH (0.001 to 0.025 n.) causes a decrease of K due to salting out, but at the increase of NaOH concentration to 0.1 n., K rises due to the formation of a I salt soluble in water. Addition of Na₂CO₃ and K₂SO₄ causes salting out of I and a decrease of K.

Card 1/1

Relation between the rate of adsorption of high polymers
 on carbon black and their molecular weight. A. I. Kuz-
 netsov and I. M. Kuznetsov. Sov. Chem. Rev. 1958, 27,
 1022. S.S.S.R. Acad. Sci. Div. Chem. Sci. Engl. transl.
 The influence was in-
 vestigated of the mol. wt. of polystyrene, polystyrene,
 and technical copolymers in a concentration variation 0.1-
 0.25% on the adsorption of carbon black on the surface of
 which was held by Van der Waals forces from benzene solution
 in addition to the adsorption of benzene solution by frac-
 tionated deposition with MeOH were obtained on the C black.
 The adsorption capacity of low molecular polymers was con-
 siderably higher than that of the higher polymers. The
 adsorption rates vary greatly with the solvent used, as
 shown in the following table. Adsorption from a no. of
 solvents. The adsorption mechanism of carbon black is
 now to be investigated. A. I. Kuznetsov.

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YURZHENKO, A. I.; Gussyakov, V. P.

"Dispersion of Synthetic Latexes in connection with the Concentration of
Micelle Emulsifier" (Dispersnost' sinteticheskikh lateksov v svyazi s
kontsentratsiyey mitsell emul'gatora) from the book Trudy of the Third
All-Union Conference on Colloid Chemistry, pp420-428, Iz. AN SSSR, Moscow, 1956

(Report given at above Conference, Minsk, 21-4 Dec 53)

USSR/Chemistry of High Molecular Substances. F

Abs Jour : Referat Zhurnal Khimiya, No 6, 1957, 19442.

Author : N.S. Tsvetkov, A.I. Yurzhenko.

Inst : -

Title : Influence of Inorganic Salts on Process of Polymerization of Styrene in Emulsion.

Orig Pub : Kolloid, Zh., 1956, 18, No 3, 362-368.

Abstract : The influence of Na_2SO_4 and KCl (in quantities of up to 0.1 - 0.02 g-equ/l) on the speed of the emulsion polymerization of styrene in presence of initiators - $\text{K}_2\text{S}_2\text{O}_8$, dimethylphenylcarbinol hydroperoxide (I) and benzoyl peroxide (II) - and of the emulsifier saltless Nekal, as well as their influence on the molecular weight of the polymere were studied by the dilatometric and viscosimetric methods. The polymerization speed curves in presence of $\text{K}_2\text{S}_2\text{O}_8$ and I depending on the concentration of salts possess a maximum (at 0.02 - 0.03 g-equ/l) that is the sharper the higher the con-

Card 1/2

-18-

USSR/Chemistry of High Molecular Substances.

F

Abs Jour : Referat. Zhurnal Khimiya, No 6, 1957, 19442.

centration of the initiator and Ph of the aqueous phase are. The authors explain the discovered phenomena by the influence of salts on the colloidal solubility of the monomers. In presence of II, the salts do not influence the polymerization speed within the limits of the studied concentrations. The molecular weight curve of polystyrene depending on the salt content in the polymerized mixture also passes through a maximum corresponding to the salt concentration of 0.01 - 0.04 g-equ/l.

Card 2/2

-19-

YURZHENKO, A. I.

APPROVED FOR RELEASE: 09/19/2001

CIA-RDP86-00513R001963220019-8

Category: USSR/Chemistry of High-Molecular Substances

F.

Abs Jour: Referat Zhur-Khimiya, No 9, 1957, 30899

Author : Kucher R. V., Yurzhenko A. I.

Inst : not given

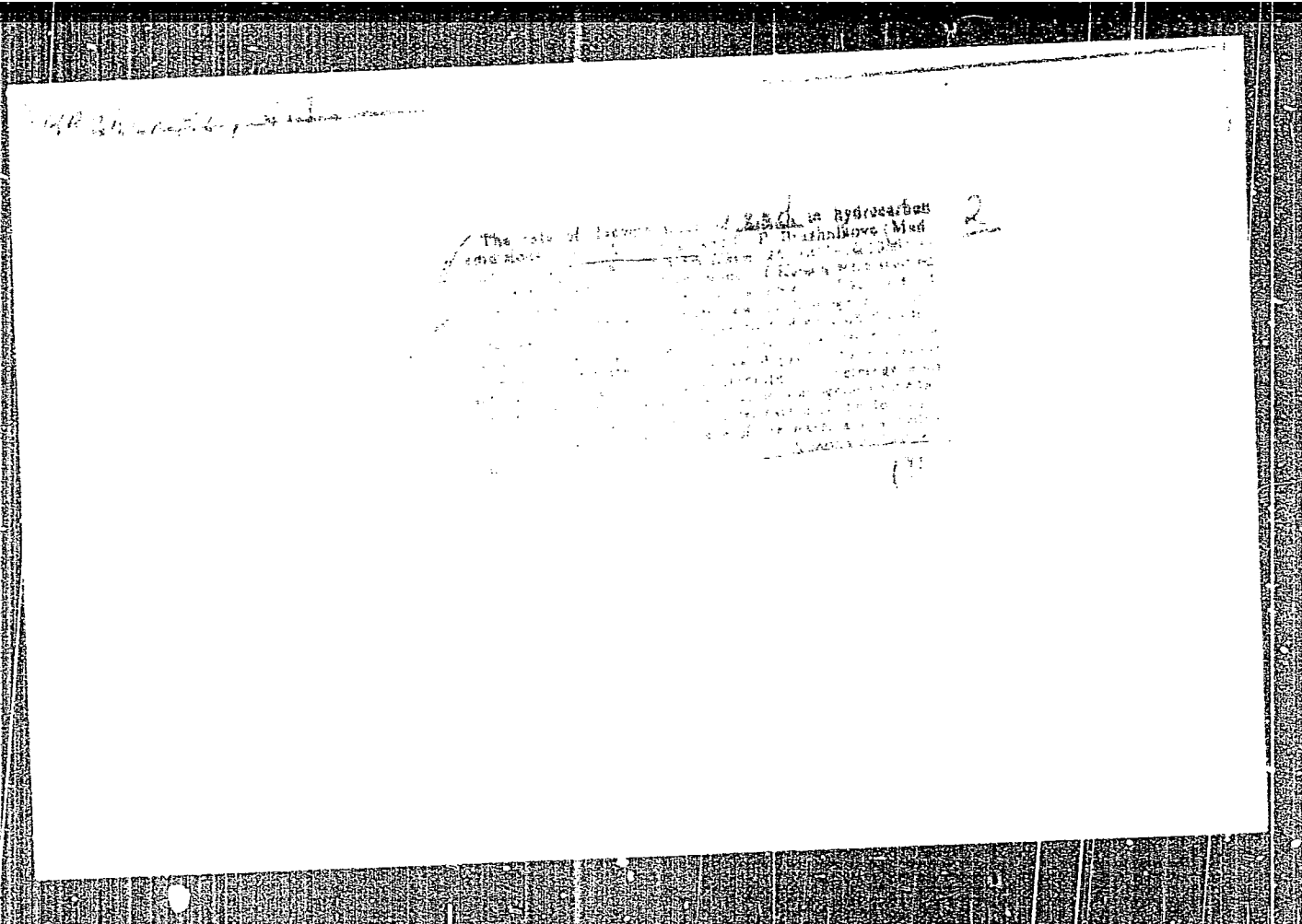
Title : Rate of Decomposition of Isopropyl-Benzene Hydroperoxide in Aqueous Solutions of Emulsifying Agents

Orig Pub: Kolloid. zh., 1956, 18, No 5, 555-561

Abstract: Thermal decomposition of isopropyl-benzene hydroperoxide (I) in aqueous solutions, at 98.5°, conforms to the 1-st order. Rate of decomposition of I increases in the presence of acids and bases, and also on addition of emulsifiers (K-stearate and laurate, Na-oleate). Addition of Nekal accelerates decomposition in acid medium, and retards it in alkaline: on increase of nekal concentration in aqueous solutions from 0 to 3% decomposition velocity constant of I ($K \cdot 10^3 \text{ min}^{-1}$) increases from 11.4 to 31.4 at pH 0.9, from 0.183 to 0.336 at pH 5.8, and decreases from 1.57 to 0.974 at pH 9.9. Change in order of re-

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YURZHENKO, A.I.; YENAL'YEV, V.D.

Interaction between organic hydroperoxides and ferrous salts.
Dop. ta pov. L'viv. un. no.7 pt.3:195-197 '57. (MIRA 11:2)
(Chemical reaction, Rate of)
(Hydroxides) (Iron salts)

YENAL'YEV, V.D.; KUCHER, R.V.; YURZHENKO, A.I.

Effect of interphase distribution of hydroperoxides on the
rate of certain reactions in emulsions. Dop. ta pcv. L'viv un.
no. 7 ~~pt. 3:261-204~~ 157. (MIRA 11:2)
(Hydroxides) (Chemical reaction, Rate of)
(Emulsions)

YURZHENKO, A.I.; MALEYEV, I.I.

Studying the adsorption of high polymers on carbon black. Dop.
ta pov. L'viv. un. no.7 pt.3204-206 '57.. (MIRA 11:2)
(Adsorption)
(Macromolecular compounds)
(Carbon black)

Distri 4841/4820(1)/4821 7

Radical activity of 1,1-diphenylethane hydroperoxide in
emulsion autoxidation of the hydrocarbon...
V. D. Enaley and A. I. Y...
Sur. Doklady Khim. 1971, 100, 1000. Kinetic curves are
shown for decomp. of 1,1-diphenylethane hydroperoxide
(1) (m. 83°) under various conditions. The more stable ther-
mally in 1,1-diphenylethane hydroperoxide in aq. media. The
decomp. is accelerated by the presence of the hydro-
carbon. The rate of decomp. of 1,1-diphenylethane hydroperoxide
and 1,1-diphenylethane hydroperoxide in the presence of carbon
dioxide and oxygen. Liquid phase autoxidation of 1,1-diphenyl-
ethane by O₂ in homogeneous phase. The reaction appears
to be in the autoxidation mechanism. The rate of formation of
the RO free radicals is increased up to 100% in the presence of
the hydrocarbon.

6
2 May
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YURZHENKO, A. I. 20-4-26/52
AUTHORS: Kucher, R. V., Yurzhenko, A. I., Kovbuz, M. A.

TITLE: The Oxidation of Cumene by Molecular Oxygen in Emulsions in the Presence of Various Emulsifiers (Okisleniye kumola molekulyarnym kislorodom v emul'siyakh v prisutstvi razlichnykh emul'gatorov).

PERIODICAL: Doklady AN SSSR, 1957, Vol. 117, Nr 4, pp. 638-640 (USSR)

ABSTRACT: The present report studies the velocity of the oxidation referred to in the title in connection with the ratio of the phases and with the nature of the used emulsifiers. The purified hydrocarbon was oxidized in glass retorts by bubbling pure oxygen in a thermostat at 80°C. Specimens for the analysis with respect to the content of hydroperoxide were taken in certain intervals from the reaction mixture. The cumene-phase was further analyzed with respect to the total output of carbonyl compounds. A diagram illustrates the kinetic curves of the output of hydroperoxide of cumene at different ratios of the phases with lacking emulsifier. It results from these data that an increase of the volume of the aqueous phase considerably increases the velocity of accumulation of the hydroperoxide of cumene. These data can also be checked in other systems and show among other things the following:

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20-4-26/52

The Oxidation of Cumene by Molecular Oxygen in Emulsions in the Presence of Various Emulsifiers.

The aqueous phase is the essential kinetic factor in the oxidation of hydrocarbons in the emulsions, since it acts as initiation zone of the process and the hydroperoxides are produced in it. The importance of the aqueous phase for the emulsionlike oxidation still increases substantially in the presence of colloidal electrolytes (emulsifiers) containing a surface-active anion. The emulsifiers accelerate the production of the hydroperoxides at otherwise equal conditions. In the emulsionlike oxidation of the hydro-carbons the initiation of the reaction and the production of hydroperoxide occur mainly in the aqueous phase. The primary initiation of the processes discussed here consists in the production of free hydrocarbon-radicals. Besides the specific influence of the emulsifier on the decay of hydroperoxide of cumene the solubility of the hydroperoxide in the aqueous phase connected with this process must also be taken into account. There are 2 figures, 1 table, and 6 references, 3 of which are Slavic.

ASSOCIATION: State University imeni Iv. Franko, L'vov (L'vovskiy gosudarstvenny universitet imeni Iv. Franko).
Card 2/3

The Oxidation of Cumene by Molecular Oxygen in Emulsions in the Presence of Various Emulsifiers. 20-4-26/52

PRESENTED: May, 21, 1957, by P. A. Rebinder, Academician.

SUBMITTED: May 3, 1956

AVAILABLE: Library of Congress

Card 3/3.

YURZHENKO, A. I., and KHOMIKOVSKIY, P. M.,

"The mechanism of emulsion polymerization."

report presented at the Fourth All-Union Conference on Colloidal Chemistry,
Tbilisi, Georgian SSR, 12-16 May 1958 (Koll zhur, 20,5, p.677-9, '58, Tansman, A.B)

YURZENKO, A. I.

1516

ATTORNEY:

TITLE:

SYNOPSIS:

ABSTRACT:

Zhurzenko, A. A., Akademicheskii Vestnik Akademi Nauk SSSR, 1959, No. 1, pp 44-51 (USSR)

See Trends of Colloid Chemistry (Sovetsko polsk razgovor kolloidnoi khimii)

At present, colloid chemistry plays an especially important part in political economy as it is a physical-chemical science concerning substances of modern engineering. It is of great practical importance that at present it is possible to carry on uninterrupted transitions from liquid to solid state.

It is possible to carry on uninterrupted transitions from liquid to solid state. Much of the present structural-mechanical properties of polymers is determined by the theory of highly molecular substances and their solutions. The theory of highly molecular substances and their solutions has developed into an independent branch of colloid chemistry. The vitality of modern colloid chemistry is proved by the fact that its progress may not be independent branches of science. Further, the author describes the course of the 4th All-Union Conference of Colloid Chemistry which took place in Tallin in May 1958, 1959. It was organized by the Oldeniyevskiy Khimicheskiy Institut.

A. A. Zhurzenko, A. I. Yurzenko described the synthesis of aluminum-silicon jelly of crystalline structure.

V. E. Yurzenko et al. examined the optical properties of macromolecular solutions and their structural peculiarities.

E. A. Bogdanov and collaborators reported on questions of compatibility of polymers and their solutions.

G. A. Kuznetsov, P. I. Zubov and collaborators discussed the process of gelatin formation and its role in sticking of particles.

A. I. Yurzenko, A. I. Yurzenko referred to the coincidental results of physicochemical and dilatometric examination methods of the transition of gelatin jelly into a liquid solution at a rise in temperature.

A. I. Yurzenko and collaborators (S'ev), P. M. Zhornitskiy reported on the clarification of polymerization processes in the state of dispersion.

E. Ya. Kamal'din, A. B. Gulyaev, S. F. Yurzenko, A. P. Plesnitskiy and collaborators examined the process of the formation of active fillers on the processes of structural formation of polymers.

A. V. Kuznetsov et al. (S'ev) examined the process of the formation of active fillers on the processes of structural formation of polymers.

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Card 5/6

YURZHENKO, A. I. and MALEYEV, I. I.

(Lvov State Franka University, Lvov, USSR)

"Adsorption of Certain High Polymers by Carbon Black in Dilute Solutions,"
paper submitted at Soviet High-Polymers, Intl. Conference, Nottingham,
Uk,m 21-24 July 1958.

E-3,109,661

5(2), 5(4)
AUTHORS;

Ivanchov, S. S., Yurzhenko, A. I.

SOV/153-58-4-3/22

TITLE:

Thermal Decomposition of Potassium Persulfate in the Presence of Salts of the Acids of the Aliphatic Series (Termicheskoye razlozheniye persulfata kaliya v prisutstvii soley kislot zhirnogo ryada)

PERIODICAL:

Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i khimicheskaya tekhnologiya, 1958, Nr 4, pp 13 - 18 (USSR)

ABSTRACT:

Potassium persulfate is an "active" initiator of polymerization processes in emulsions, which is widely used in industry products of a free-radical type are formed in its thermal decomposition. In this connection more and more attention is paid to the kinetics and process of that decomposition, in dependence on the conditions. A survey of the publications so far available is presented (Refs 1-3). The influence exercised by salt additions on the decomposition rate of potassium persulfate is interesting, because in practical use the decomposition takes place in the

Card 1/4

Thermal Decomposition of Potassium Persulfate in the
Presence of Salts of the Acids of the Aliphatic Series

SOY/153-58-4-3/22

presence of various salts. Accurate data on the influence of the salts mentioned in the title are not available. In the present paper the influence is investigated that is exercised by sodium salts of low fatty acids (from formiate to laurate) upon the polymerization kinetics in the emulsion, if the polymerization was initiated by potassium persulfate. Furthermore, the influence is investigated that is exerted by the above salts upon its decomposition rate (this is the only subject of this report) and the colloidal properties of the emulsifiers. Figure 1 presents experimental results of the decomposition of potassium persulfate in aqueous solutions a) without additions and b) in the presence of salts of fatty acids of various concentrations. As may be seen (Curves 1-3), the decomposition rate of the persulfate increases with increasing sodium-formiate concentration within the whole range of the concentrations investigated. When the next salt - sodium acetate - is introduced, the decomposition rate of the persulfate is increased only to

Card 2/4

Thermal Decomposition of Potassium Persulfate in the
Presence of Salts of the Acids of the Aliphatic Series

S07/153-58-4-3/22

the concentration of the acetate of 0,02N. Further additions of acetate slow down the decomposition the more, the higher the acetate concentration is. That applies for all other salts up to capronate incl. If sodium caprylate and salts of higher acids are introduced, the persulfate decomposition in all concentrations is accelerated, i. e. the more, the higher the concentration of the additions introduced has been. The authors have come to the conclusion that the salts investigated can exercise different effects in concentrations above 0,02N. These effects depend on the length of the hydrocarbon radical of the anion: the lower salts (up to capronate) slow down the decomposition when large additions are introduced, whereas the decomposition is accelerated by higher ones; sodium formiate shows an anomalous behavior. If the anion radical is lengthened, the persulfate decomposition is accelerated in any case by introducing small quantities of salt. The above mentioned influence is explained by two effects: 1) By a

Card 3/4

Thermal Decomposition of Potassium Persulfate in the
Presence of Salts of the Acids of the Aliphatic Series

SOV/153-58-4-3/22

purely chemical, which is connected with the interaction between the salt and the persulfate, and leads to accelerated decomposition; 2) By the salt-effect which is analogous to that of inorganic salts and slows down the decomposition (in increased concentrations). The latter effect (2nd) is decreased, if the hydrocarbon radical of the salt anion is lengthened, and is no longer visible above caprylate. The behavior of formiate requires further investigations. There are 4 figures, 6 tables, and 4 references, 2 of which are Soviet.

ASSOCIATION: L'vovskiy gosudarstvennyy universitet (L'vov State University)
Kafedra fizicheskoy i kolloidnoy khimii (Chair of Physical and Colloidal Chemistry)

SUBMITTED: September 16, 1957

Card 4/4

AUTHORS: Yurzhenko, A.I., Storozh, G.F. SOV-69-20-5-5/23

TITLE: The Effect of Ethylene Glycol on the Colloid Properties of Aqueous Sodium Oleate Solutions (Vliyaniye etilenglikolya na kolloidnyye svoystva vodnykh rastvorov oleata natriya)

PERIODICAL: Kolloidnyy zhurnal, 1958, Vol XX, Nr 5, pp 550-555 (USSR)

ABSTRACT: The addition of alcohols, e.g. methyl, ethyl, n-butyl, and isoamyl alcohol, to aqueous sodium oleate solutions, increases the turbidity and viscosity of these solutions. The addition of ethylene glycol to these solutions is investigated in the article. Figure 1 shows that the viscosity of soap solutions increases with the content of ethylene glycol. The curves for the changes of the relative viscosity of 0.1 M solutions of sodium oleate, depending on the concentration of ethanol and ethylene glycol, are shown in Figure 2, a. The measurements of the specific electroconductivity are presented in Figure 3. The addition of ethylene glycol reduces the electroconductivity, but at maximal viscosity the electroconductivity reaches a constant value. The turbidity curves of the solutions are given in Figure 5. The turbidity decreases rapidly after addition of alcohols, attains a maximum, and decreases again. This fact is in accordance with the theory that the alcohol causes a dehydration of

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The Effect of Ethylene Glycol on the Colloid Properties of Aqueous Sodium Oleate Solutions

SOV-69-20-5-5/23

the solutions. An increase of the NaOH content decreases the turbidity and at a concentration of alkali of 0.0005 mole/l hydrolysis of the oleate is completely suppressed (Figure 6). The dependence of the turbidity on the sodium oleate concentration in the presence of various quantities of ethanol and glycol is shown in Figure 7. It is evident that alcohols decrease the turbidity of soap solutions without suppressing hydrolysis. Ethanol and glycol, like alkalis, lower the critical concentration of sodium oleate micelle formation. There are 9 graphs and 9 references, 2 of which are Soviet, 3 German, 2 English, and 2 Swedish.

ASSOCIATION: L'vovskiy universitet im. Iv. Franko (L'vov University im. Iv. Franko).

SUBMITTED: December 24, 1957

1. Sodium solutions--Colloids
2. Sodium solutions--Properties
3. Ethylene glycols--Chemical reactions

Card 2/2

YURZHENKO, A.I. [IUrshenko, O.I.]; YENAL'YEV, V.D. [IEnal'iev, V.D.]

Investigation of the reactions of organic hydroperoxides with
salts of ferrous oxide. *Nauk.zap.L'viv.un* 46:7-12 '58.

(MIRA 12:7)

(Hydroperoxides) (Iron salts)

KUCHER, R.V.; YURZHENKO, A.I. [Iurshenko, O.I.]; KOVBUZ, M.O.

Means of accelerating the oxidation reaction of isopropylbenzene
in the liquid phase. Nauk.zap.L'viv.un. 46:17-20 '58.

(MIRA 12:7)

(Cumene) (Oxidation)

YENAL'YEV, V.D. [IEnal'iev, V.D.]; YURZHENKO, A.I. [IUrzhenko, O.I.]

Effect of the relationship of phase to the kinetics of redox
polymerization in emulsions. *Nauk.zap.L'viv.un.* 46:21-25 '58.
(MIRA 12:7)

(Polymerization)

YENAL'YEV, V.D. [IEnal'iev, V.D.]; YURZHENKO, A. I. [IUrzhenko, O. I.]

Effect of the concentration of the initiating system on the kinetics
of redox polymerization in emulsions. Nauk.zap.L'viv.un 46:
26-33 '58. (MIRA 12:7)
(Polymerization)

GUSYAKOV, V.P. [Kusiakov, V.P.]; YURZHENKO, A.I. [Iurshenko, O.I.]

Effect of saturated aliphatic alcohols on the scattering light
by protein solutions and on their viscosity. Nauk.zap.L'viv.un.

1961/4-42 '58.

(MIRA 12:7)

(Alcohols) (Viscosity) (Proteins=Optical properties)

YURZHENKO, A.I. [Iurzhenko, O.I.]; MALEYEV, I.I. [Maliev, I.I.]

Adsorption of polystyrene, methyl methacrylate polymers, and
methyl acrylate polymers on carbon black. Nauk.zap.L'viv.un. 46:
43-47 '58. (MIRA 12:7)
(Polymers) (Adsorption) (Carbon black)

YURZHENKO, A. I. [Iurzhenko, O.I.]; STOROZH, G.F. [Storozh, H.F.]

Effect of lower aliphatic alcohols on the colloidal properties of
sodium oleate solutions. Nauk.zap.L'viv.un. 46:48-52 '58.

(MIRA 12:7)

(Colloids) (Alcohols)

KUCHER, R.V.; YEMAL'YEV, V.D. [Esnal'iev, V.D.]; YURZHENKO, A.I.,
[IUrzhenko, O.I.], Kovbuz, M.O.

Effect of the molecular weight of tertiary hydrocarbons on
their oxidizability in the liquid phase and in emulsions. Nauk.
zap.L'viv.un. 46:13-16 '58. (MIRA 12:7)
(Hydrocarbons) (Oxidation)

YURZHENKO, A. I. [IUrshenko, O. I.]; IVANCHCHOV, B. S.

Polymerization of styrene in an emulsion in the presence of
sodium salts of lower aliphatic acids. Nauk.zap.L'viv.un. 46:
161-167 '58. (MIRA 12:7)
(Styrene) (Polymerization)
(Sodium salts)

AUTHORS: Yurzhenko, A. I., Ivanchov, S. S.

SOV/ 20-120-2-35/63

TITLE: Influence of the Salts of the Lower Fatty Acid Series Upon Emulsion Polymerization (Vliyanie soley ryada nizshikh zhirnykh kislot na emul'sionnuyu polimerizatsiyu)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol. 120, Nr 2, pp. 349 - 352 (USSR)

ABSTRACT: First, reference is made to a number of pertinent papers published previously. The influence of the sodium salts of the series of lower fatty acids ranging from sodium acetate to sodium laurate upon the polymerization of styrene in emulsion is investigated. The initial styrene (which is by 99,8% a monomer) was treated with a 20% solution of NaOH. It was stored on metallic sodium for some time and then sublimed in vacuum. The data documenting the influence in question upon the polymerization velocity are given in a diagram. The introduction of small amounts of salt (up to a concentration of 0,02 M) increases the reaction velocity. At concentrations above 0,02 M the introduction of the electrolyte has a varying effect

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Influence of the Salts of the Lower Fatty Acid Series
Upon Emulsion Polymerization

SOV/20-120-2-35/63

according to the nature of the anion. The lower homologs including sodium capronate show an increase of polymerization velocity when salts are added to the polymerization system. When the concentration 0,02 M is exceeded polymerization is retarded. Further details are given. The salts of the fatty acids belong to two groups according to their influence upon the polymerization process: 1) Salts of the lower fatty acids (from the acetate to the capronate). They give the highest polymerization velocity, according to the concentration. 2) The salts of the higher fatty acids (above capronate). The reaction velocity increases continuously with the concentration of the salt in the reaction mixture. The influence of these salts upon the molecular weight of the resulting polymers is similar. The influence of such additions of salts upon the initiation velocity is discussed. In the homolog series of the salts up to capronate the effect of salting out upon the emulgator predominates. Hence, the polymerization velocity and the initiation velocity are gradually reduced. With the salts of caprylic acid and of higher acids the stabilizing effect predominates.

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Influence of the Salts of the Lower Fatty Acid Series SOV/20-120-2-35/63
Upon Emulsion Polymerization

There are 4 figures and 6 references, 3 of which are Soviet.

ASSOCIATION: L'vovskiy gosudarstvennyy universitet im. Ivana Franko (L'vov State University imeni Ivan Franko)

PRESENTED: January 13, 1958, by P.A. Rebinder, Member, Academy of Sciences, USSR

SUBMITTED: January 13, 1958

1. Styrenes--Polymerization 2. Fatty acids--Chemical properties

Card 3/3

5(4)

AUTHORS:

Yurzhenko, A. I., Ivanova, N. Ya.,
Yenal'yev, V. D.

SOV/20-123-2-32/50

TITLE:

The Participation of the Emulsifier in the Oxidation Reduction
Initiation of Emulsion Polymerization (Uchastiye emul'gatora v
okislitel'no-vosstanovitel'nom initsirovanii emul'sionnoy
polimerizatsii)

PERIODICAL:

Doklady Akademii nauk SSSR, 1958, Vol 123, Nr 2, pp 324-326
(USSR)

ABSTRACT:

One of the most important factors influencing the kinetics of
polymerization in emulsions is the nature of the emulsifying
agent. The nature of the emulsifier used influences not only
the velocity of the polymerization process but also the
properties of the polymer formed. When investigating emulsion
polymerization in the presence of various emulsifiers, the
authors noticed several particularities in the development of
the polymerization process in connection with the application
of cetyl pyridine bromide. In this case the part of the emul-
sifier is played not only by a purely colloidchemical factor.
Investigation was carried out by the dilatometric method in a
dilatometer which prevents contact between the polymerization

Card 1/4

The Participation of the Emulsifier in the Oxidation SOV/20-123-2-32/50
Reduction Initiation of Emulsion Polymerization

system and air. In the case of all experiments, the ratio between the hydrocarbon- and the aqueous-phase was 1 : 9. The hydroperoxide of isopropyl benzene served as initiator, and styrene was used as monomer. Polymerization kinetics was investigated at various temperatures. In the course of one of the test series sodium carbonate was introduced into the aqueous phase. The results obtained by the experiments are shown in a diagram. Conditions otherwise being equal, polymerization develops much more rapidly than if other classes of emulsifiers are used. Cetyl pyridine bromide warrants sufficiently rapid polymerization also at low temperatures (4 and 18°C), which is not the case with other emulsifiers. If sodium carbonate is present in the aqueous phase, polymerization velocity passes through a maximum at increased temperatures. In the course of experiments carried out without sodium carbonate, polymerization increases with rising temperature, in which case linear dependence is conserved up to a rather high degree of polymerization. An addition of sodium carbonate and an increase of temperature acts in the same direction (increase of polymerization velocity). The velocity

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The Participation of the Emulsifier in the Oxidation SOV/20-123-2-32/50
Reduction Initiation of Emulsion Polymerization

of the polymerization process is due to the velocity of initiation. The decay of isopropyl benzene hydroperoxide in an aqueous solution is considerably accelerated by the introduction of cetyl pyridine bromide also if Na_2CO_3 is lacking.

This decay is still more accelerated if cetyl pyridine bromide and sodium carbonate are present at the same time. Data concerning the kinetics of this decay at various conditions are given by a diagram. An increase of temperature increases the initial velocity of polymerization and reduces the final yield of the polymer. Also an addition of sodium carbonate produces the same effect. A comparison between these and other data makes it possible to draw the following conclusion: The surface-active emulsifier may play a double rôle in emulsion polymerization: Firstly, it may act as an ordinary emulsifier stabilizing the original emulsion of the monomer, and, secondly, the emulsifier may have the functions of a polymerization activator by causing an induced decay of the hydroperoxide. There are 4 figures and 7 references, 4 of which are Soviet.

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The Participation of the Emulsifier in the Oxidation SOV/20-123-2-32/50
Reduction Initiation of Emulsion Polymerization

ASSOCIATION: L'vovskiy gosudarstvennyy universitet im. Ivana Franko
 (L'vov State University imeni Ivan Franko)

PRESENTED: July 3, 1958, by P. A. Rebinder, Academician

SUBMITTED: May 16, 1958

Card 4/4

"Some Peculiarities in the Course of Chain Reactions in Hydrocarbon Emulsions Stabilized by Surface-active Emulsifiers."

report presented at the Section on Colloid Chemistry, VIII Mendeleev Conference of General and Applied Chemistry, Moscow, 16-23 March 1959.
(Koll. Zhur. v. 21, No. 4, pp. 509-511)

EXPLANATIONS

Yurzhenko, A.I.

Abstracts and summaries. Soviet Ministry of Defense. Chemical Laboratory of the Academy of Sciences (Oxidation of Hydrocarbons in the Liquid Phase) Collection of Articles Moscow, 1959. 378 p. First ally printed. 2,200 copies printed.

M. K. E. Semak, Corresponding Member, Academy of Sciences USSR; Ed. of Publishing House: E. N. Sverdlov, Tech. Ed.: I. P. Kuznetsov.

Purpose: This collection of articles is intended for chemists interested in hydrocarbon oxidation reactions, particularly for those specializing in hydrocarbon oxidation.

Content: This collection of 33 articles reviews the results of investigations over a period of several years on problems of hydrocarbon oxidation. The authors present their own theoretical and experimental data and also draw from the literature. In particular, the following are mentioned: Mechanism of oxidation of hydrocarbons; Kinetics of oxidation of hydrocarbons; Kinetics of oxidation of hydrocarbons in the presence of emulsifiers; Kinetics of oxidation of hydrocarbons in the presence of emulsifiers in the presence of hydrogen peroxide; Kinetics of oxidation of hydrocarbons in the presence of emulsifiers in the presence of hydrogen peroxide; Kinetics of oxidation of hydrocarbons in the presence of emulsifiers in the presence of hydrogen peroxide.

Author: M. K. E. Semak, Corresponding Member, Academy of Sciences USSR; Ed. of Publishing House: E. N. Sverdlov, Tech. Ed.: I. P. Kuznetsov.

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Author: M. K. E. Semak, Corresponding Member, Academy of Sciences USSR; Ed. of Publishing House: E. N. Sverdlov, Tech. Ed.: I. P. Kuznetsov.

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Author: M. K. E. Semak, Corresponding Member, Academy of Sciences USSR; Ed. of Publishing House: E. N. Sverdlov, Tech. Ed.: I. P. Kuznetsov.

Author: M. K. E. Semak, Corresponding Member, Academy of Sciences USSR; Ed. of Publishing House: E. N. Sverdlov, Tech. Ed.: I. P. Kuznetsov.

5(2)

SOV/21-59-1-16/26

AUTHORS: Kucher, R.V., Storozh, G.F., and Yurzhenko, A.I.

TITLE: The Viscosity of Water Solutions of Sodium Oleate in the Presence of Some Alcohols. (Vyazkost' vodnykh rastvorov oleata natriya v prisutstvii nekotorykh spirtov).

PERIODICAL: Dopovidi Akademii nauk Ukrain's'koi RSR, 1959, Nr 1, pp 60-63 (USSR)

ABSTRACT: The water solutions of soaps are usually characterized by means of the so-called first and second critical concentrations of the formation of micelles. It was proved in the described experiment, that apart from the critical micelles concentrations CMC-1 and CMC-2, there exists one intermediate concentration which can be quite accurately determined from the minimum of the concentration curves of a given specific viscosity. Small quantities of alcohols (ethyl,

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SOV/21-59-1-16/26

The Viscosity of Water Solutions of Sodium Oleate in The Presence of Some Alcohols.

n-butyl, isoamyl, ethylen-glycol and glycerine) in solution lowered the middle critical concentration, and larger quantities raised it. Experiments have confirmed the theoretical data contained in the referred literature, and, therefore, the authors recommend it for guidance. There are 3 graphs and 9 references, 2 of which are Soviet, 2 German, 1 Scandinavian, 2 Japanese, and 2 American.

ASSOCIATION: L'vovskiy gosudarstvennyy universitet im Iv.Franko
(The L'vov State University imeni Ivan Franko)

PRESENTED: July 19, 1958, by A.V. Dumanskiy, Member of the AS UkrSSR

Card 2/2

5(4)

SOV/69-21-3-12/25

AUTHORS: Kucher, R.V., Yurzhenko, A.I., Kovbuz, M.A.

TITLE: Some Emulsifiers as Kinetic Factors of Cumene Oxidation in Emulsions

PERIODICAL: Kolloidnyy zhurnal, 1959, Vol XXI, Nr 3, pp 309-314 (USSR)

ABSTRACT: The authors report on the effect of a number of emulsifiers (potassium palmitate, Nekal, Leucanol and cetyl pyridine bromide) on the kinetics of oxidation of cumene (isopropylbenzene)(IPB) and on the yield of hydroperoxides (HPC). The maximum rate of oxydation of IPB in emulsion and the maximum yield (70-80%) of HPC were obtained with a 0.5-1% potassium palmitate concentration. Nekal and Leucanol also speed up the accumulation of HPC (~70%), but this process is delayed by a certain period of induction. The effect of Nekal, like that of other colloidal electrolytes, is connected to a considerable extent with the change of the rate

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Some Emulsifiers as Kinetic Factors of Cumene Oxidation in
Emulsions

SOV/69-21-3-12/25

of decomposition of HPC in the presence of these substances. The effect of the emulsifiers on the rate of oxidation of IPB depends in the main on their colloidal properties (micelle formation, colloid solubility). The cation active emulsifier cetyl pyridine bromide, if introduced into the initial oxidation mixture, noticeably delays the process of HPC accumulation. The introduction of 0.1% cetyl pyridine bromide 30 hours after the initiation of the process stimulates the reaction. In this case, the yield of HPC reaches nearly 80%. The authors mention the Soviet scientists K.I. Ivanov and N.M. Emanuel'. There are 5 graphs, 2 tables and 11 references, 8 of which are Soviet and 3 English.

ASSOCIATION: L'vovskiy universitet (L'vov University)

SUBMITTED: 14 September, 1957

Card 2/2

S/081/61/000/020/076/089
B106/B147

AUTHORS: Kucher, R. V.; Kovbuz, M. A., Yurzhanko, A. I.

TITLE: Decomposition of isopropyl benzene hydroperoxide during hydrocarbon oxidation in a homogeneous liquid phase or in an emulsion

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 20, 1961, 321, abstract 20L46 (Sb. nauchn. rabot. In-t Fiz.-organ. khimii AN BSSR, no. 8, 1960, 22-31)

TEXT: The conversion degree of isopropyl benzene (I) into hydroperoxide (HP) at different oxidation degrees of this hydrocarbon was investigated. HP was found to be the only oxidation product in the initial stage of reaction. When the oxidation takes place in an emulsion, the reaction is more intense, and higher concentrations of HP are reached. A study of HP decomposition during the oxidation of I in a homogeneous liquid phase or in an emulsion indicated that rate and mechanism of HP decomposition vary with the degree of oxidation. When the oxidation takes place in an emulsion, the HP decomposition in the oleophase has a similar course as

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Decomposition of isopropyl ...

S/081/61/000/020/076/089
B106/B147

during the oxidation in a homogeneous liquid phase, and the rate constant of HP decomposition drops with progressing reaction. In the aqueous phase, the decomposition of HP is monomolecular throughout the oxidation of cumene in an emulsion, and the decomposition constant rises with increasing degree of oxidation. If the oxidation in a homogeneous liquid phase is stimulated with cobalt stearate, the decomposition rate of HP rises, and by-products of the reactions are formed in a large quantity. After the precipitation of the catalyst, monomolecular decomposition sets in. The results of the investigation can be explained well by a radical chain mechanism of HP decomposition. [Abstracter's note: Complete translation.]

Card 2/2

YURZHENKO, A.I.; IVANCHOV, S.S.; ZARECHNYUK, O.S.

Comparative initiating activity of peroxides of phenylcarboxylic acids in the polymerization of styrene. Soor. nauch. rab. Inst. fiz.-org. khim. AN BSSR no. 8:63-69 '60. (MIRA 14:3)

1. L'vovskiy gosudarstvennyy universitet im. I. Franko.
(Styrene) (Peroxides) (Polymerization)

S/081/62/000/012/061/063
B158/B101

AUTHORS: Yurzhenko, A. I., Ivanchov, S. S., Zarechnyuk, O. S.

TITLE: Comparative initiating activity of diacyl peroxides of the paraffin series during polymerization of styrene

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 12, 1962, 661, abstract 12R42 (Sb. nauchn. rabot. In-t fiz.-organ. khimii AN BSSR, no. 8, 1960, 70-75)

TEXT: A study was made of the dependence of the initiating activity (IA) of symmetric diacyl peroxides of the fatty series: peroxides of dianthyl (I), dicaprilyl (II), dipelargonyl (III), dicaprinyl (IV), dilauryl (V), dipalmityl (VI) and distearyl (VII) on the length of the hydrocarbon radical in the molecule. It is established that all the peroxides studied have identical thermal stability, but different IA, which is greater than in the case that the polymerization is initiated with benzoyl peroxide. The dependence of IA, which may be evaluated from the rate of polymerization of styrene, on the length of the organic radical chain of the peroxides studied is represented as a curve with a minimum. With

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Comparative initiating activity of ...

S/081/62/000/012/061/063
B158/B101

reduction in the length of the organic radical in the peroxide molecule in series V to I, an increase in the polymerization rate is observed; then increase is observed with lengthening of the hydrocarbon radical in the series V to VII. The intrinsic viscosity of the polymers did not depend on the length of the hydrocarbon radical of the peroxide and was determined only by the concentration of the latter. [Abstracter's note: Complete translation.]

Card 2/2

KUCHER, R.V.; KAZ'MIN, S.D.; YURZHENKO, A.I.

Some kinetic characteristics of the emulsion oxidation of hydrocarbons. Sbor. nauch. rab. Inst. fiz.-org. khim. AN BSSR no.8:132-137 '60. (MIRA 14:3)

1. L'vovskiy gosudarstvennyy universitet im. I. Franko.
(Hydrocarbons) (Oxidation)

68701

S/069/60/022/01/007/025
D034/D003

56 5.3230(A)

AUTHORS: Ivanova, N.Ya. and Yurzhenko, A.I.

TITLE: The Emulsion Polymerization of Styrene in the Presence of Emulsifiers of Varying Molecular Weights

PERIODICAL: Kolloidnyy zhurnal, 1960, Vol XXII, Nr 1, pp 37-41 (USSR)

ABSTRACT: This is a study of the effect of the molecular weight of emulsifiers (sodium salts of fatty acid fractions) on the rate of the emulsion polymerization of styrene and on the molecular weight of the polymer. The polymerization of styrene was carried out in dilatometers [Ref 3] in a water thermostat at 60° C. For all experiments the equation phase of the monomer: water = 1 : 9 was maintained. In order to keep constant the pH of the system, in all cases 0.1 g-equ/l Na₂CO₃ was introduced into the aqueous phase. The results of the study of the colloidal-chemical properties of the

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68701

S/069/60/022/01/007/025

DO34/DO03

The Emulsion Polymerization of Styrene in the Presence of Emulsifiers of Varying Molecular Weights

most efficient emulsifiers will be given in a special paper in this journal. As polymerization initiator the authors used isopropyl benzene hydrogen peroxide with a content of 78% active oxygen. Its concentration was equal to 0.01 M with regard to the hydrocarbon phase. The rate of polymerization (Vn) in mole/l-hour was calculated according to the equation

$$V_n = \left[\frac{\Delta S / \Delta \tau}{100} \mu \cdot \frac{1000 d\mu}{M_o} \right] \cdot \gamma$$

(μ - relative volume of the hydrocarbon phase; γ - relative volume of the aqueous phase; dμ - specific weight of the monomer at polymerization temperature; M_o - molecular weight of styrene; S - depth of polymerization

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The Emulsion Polymerization of Styrene in the Presence of Emulsifiers of Varying Molecular Weights

(quantity of polymerized monomer in percent); t - time in hours; $\Delta S/\Delta t$ - tangent of the angle of inclination of the kinetic curves for each emulsifier of the adopted homologous series). The investigation has shown that the rate of emulsion polymerization of styrene in the presence of the mentioned emulsifiers (molecular weight 166.2-336.0) increases linearly with an increase of the molecular weight of the emulsifier from 166.2 to 296.8. On further increase of the molecular weight of the emulsifier, the polymerization process, after having passed a maximum, slows down. For the given homologous series of emulsifiers the maximum corresponds to the mean length of the hydrocarbon portion of the soap $C_{17} - C_{19}$. The retardation of the polymerization process is associated with change in the colloidal properties

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S/069/60/022/01/007/025
D034/D003

The Emulsion Polymerization of Styrene in the Presence of Emulsifiers
of Varying Molecular Weights

of the emulsifier, i.e., the size and shape of its micelles, which are the main sites of polymerization in emulsions. The formation of large asymmetric micellular aggregates hinders diffusion of the monomer in the micelle, leading to decrease in the reaction rate. Up to a given limit the intrinsic viscosity of polymer solutions increases with the molecular weight of the emulsifier. The authors express their gratitude to F.V. Nevolin, who put at their disposal the fatty acid fractions. There are 3 graphs, 1 table and 6 references, 4 of which are Soviet and 2 English.

ASSOCIATION: L'vovskiy universitet im. Ivana Franko (L'vov University imeni Ivan Franko)

SUBMITTED: December 13, 1958

Card 4/4