"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

begin

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

49

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

rganic peroxides. I. Propyl and isopropyl hydroperoxide. II. Reaction be-
benzoyl hydroperoxide or benzoyl peroxide and triphenylmethyl. S. S. MRD-
AND E. ALEKSEEVA. *J. Gen. Chem.* (U. S. S. R.) 1, 1193-9, 1200-8(1931). See
26, 2412.

R. J. C.

FOREIGN LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

Oxidation of methane to formaldehyde. S. S. Medvedev. *Natural Gases U. S. S. R.* No. 4/5, 29-32 (1932). CH_4 passed over a catalytic mass prepd. from Fe borate and Sn phosphate at 600-10° yielded 19.3 mg. of CH_2O per l. of gas mixt. Presence of gaseous (0.3%) HCl in the gas mixt. considerably increased the yield of CH_2O in the presence of Al and Fe phosphate catalysts, but on a further increase of the HCl concn. the yield was lowered. An increase in O_2 in the gas mixt. favored the formation of CH_2O, but lowered the "use" of oxidation" of CH_4. The oxidation of CH_4 with air (in the presence of catalysts) yielded 5% of CH_2O, oxidation with O_2 yielded 3%. A change in the gas mixt. during the reaction had little influence on the yield and compn. of the formalin condensate. The liquid condensate contained 25-40% HCHO. A layout of the app. for the oxidation of CH_4 from the Surakhany natural gas (CO_2 20.5, O_2 3.51, N_2 19.0, CH_4 55.9 and C_2H_6 5.04%) is given. A. A. Podgorny

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

2

Velocity of the reaction between organic per acids and cyclohexene. S. Medvedev and O. Blokh. J. Phys. Chem. U. S. S. R. 4, 721-30 (1933).—Studies of per[illegible] p-methoxyperbenzoic, p- and m-nitroperbenzoic, [illegible] and β-pernaphthoic, peracetic and phenylperacetic [illegible] show that the reaction between org. peroxides and [illegible] at 25° in the main follows the bimol. law [illegible] as a const. of the 2nd order, is a function of the [illegible] of peroxide, but does not depend upon the [illegible] of cyclohexene. The nature of the solvent [illegible] greatly the speed of reaction of peroxide with cyclo[illegible] the ratio [illegible] (K in xylene) being const. [illegible] value 1.76. The reactivities of acyl radicals [illegible] per acids are in the same order as for the cor[illegible] acyl halides. The values of K at 25° = 0.1[illegible] in the same order and are for the per acid in [illegible] at 25° and in xylene at 0° and 25°, resp., as [illegible] peracetic [illegible], 0.0[illegible], 0.072), perbenzoic 0.594, [illegible] phenylperacetic [illegible], 0.103, p-methoxy[illegible] [illegible], 0.212, α-pernaphthoic 0.877, [illegible] β-pernaphthoic [illegible], 0.540; p-nitro[illegible] [illegible] 0.200, 2.24; m-nitroperbenzoic [illegible], 0.243

2.10. The energy of activation is fairly const. and equal to 14,000 cal., while the Arrhenius coeff. β varies from 2 × 10⁶ for p-methoxybenzoic to 4 × 10⁶ for p-nitrobenzoic acid. F. H. R.

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

10

Hydrolysis of halo methanes A. D. Abkin and S. S. Medvedev. Russ. 34,551, Feb. 28, 1934. Halomethanes are hydrolyzed at elevated temps. and in the vapor phase in the presence of catalyst of phosphates or borates of Sn, Ti, Zr or Pb or their mixts. in substance or pptd. on carriers.

METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

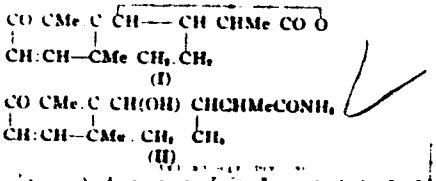
The vapor phase catalytic hydrolysis of alkyl halides. II. The preparation of methanol, formaldehyde and benzoyl chloride from methyl chloride, dichloromethane and benzotrichloride. A. Abkin and S. Medvedev. *J. Chem. Ind.* (Moscow) 1934, No. 1, 30-4; cf. *J. Phys. Chem.* (U. S. S. R.) 4, 731 (1933). MeCl and CH_2Cl_2 may be hydrolyzed by passing them with steam over Sn phosphate deposited on pumice. TiO_2 and mixts. of Sn and Fe phosphates are unsatisfactory. When hydrolyzed at 400°, MeCl gives 16% MeOH and 18% CH_2O. CH_2Cl_2 gives 75.5% CH_2O. If mixts. of MeCl and CH_2Cl_2 are run at 460°, CH_2Cl_2 gives 60% CH_2O and the MeCl is 30% hydrolyzed. The residual MeCl may be recirculated, in which case 3-4 cycles are required for its complete hydrolysis, or it may be further chlorinated to CH_2Cl_2. The ratio of chlorides to H_2O for hydrolysis should be 1:10. $PhCCl_3$ and H_2O in the ratio 1:1 at 340° give 90% BzCl. H. M. Leicester

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

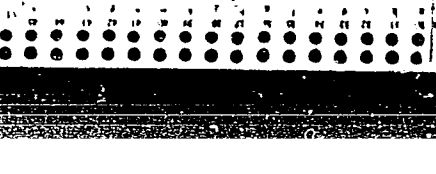
APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

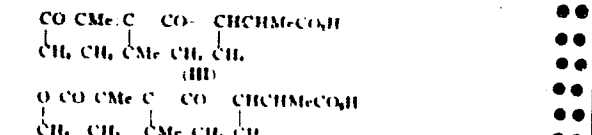
The structure of santonin and santonic acid. A. Abkin and S. Medvedev. *J. Gen. Chem.* (U. S. S. R.) 4, 1407-14(1934).—Santonin (I) dissolved in liquid NH_3 in a sealed tube at room temp. within 3 days. Evapn. of the NH_3 and purification of the residue with dry boiling PhH gave in quant. yield the *amide* (II) of *santonic acid*, m. 102-3° (decompn.). II with hot alkali soln., alc. and H_2O readily gave I, although dry II is stable. II crystd. from $CHCl_3$ with 1 mol. of $CHCl_3$ removed completely only by heating *in vacuo*. In the presence of moisture both NH_3 and $CHCl_3$ were evolved while the cryst. form was retained. It was not possible to convert II to the lactam analog of I. Additl. evidence was obtained for the structure III for *santonic acid*. An improved method for prepg. III consists in refluxing 250 g. $Ba(OH)_2$ with 250 cc. H_2O for 1 hr. in the absence of CO_2, then adding 50 g. of I and boiling for 12 hrs. Cooling, shaking in portions with concd. HCl, extg. with Et_2O, evapg. the Et_2O, purifying by dissolving in Na_2CO_3 soln. and repptg. with HCl, and finally recrystg. twice from 60% alc. gave colorless III, m. 102-3°, in 55% yield. III with H_2SO_4 gave a lactone (IV), which could be isomerized to another lactone (V). IV gave the amide (VI) with liquid NH_3. VI gave the lactam (VII) but could not be converted to VIII. III (15 g.) in 200 cc. AcOH



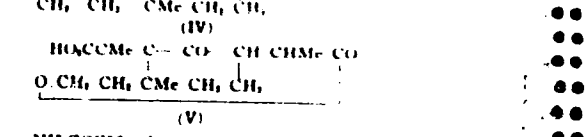
(I)



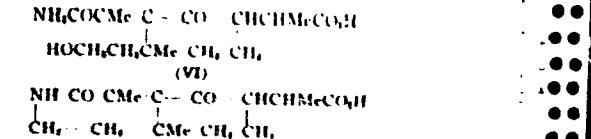
(II)



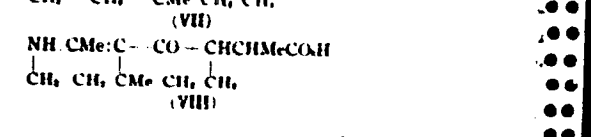
(III)



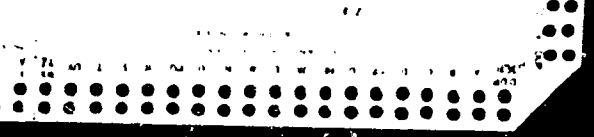
(IV)



(V)



(VI)



(VII)

(VIII)

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

PROCESSES AND PROPERTIES INDEX

30

Polymerizing Chloroprene A. D. Abkin, S. S. Medvedev and V. S. Klimenkov. Russ. 45,066, Nov. 30, 1935. The polymerization is effected in the presence of tetralin peroxide as catalyst.

METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

PROCESSES AND PROPERTIES INDEX

10

CN

Thermal decomposition of methyl hydrogen peroxide. S. Medvedev and A. Podyapolskaya. *Acta Physicochim. U. R. S. S.* 2, 487-504(1935)(in German).—A stream of pure N was passed through MeOOH, b_{10} 29-31°, n_D^{20} = 1.3041, and then through a reaction tube of supremex glass heated to 200-600°. The products of reaction are MeOH, Me_2O, HCHO, HCO_2H, O_2, CO, CO_2 and H_2O but no H_2 or CH_4. MeOOH was detd. by reaction with 1 cc. 25% H_2SO_4 and 1.5 cc. 10% KI, left standing for 1 hr. and then titrated with $Na_2S_2O_3$ soln. The value so found is then 78.9%, 80.2% and 90.8% of the true concn. of MeOOH for 0.2, 0.1 and 0.05% solns., resp. (cf. Riesche and Hitz, *C. A.* 24, 1078). HCHO was detd. iodometrically in alkali. A correction for MeOOH was made. HCO_2H was converted to the Na salt, and then detd. by the $KMnO_4$-KI-$Na_2S_2O_3$ method, and a 4% correction factor applied. Gases were detd. in a Schmidt app. The C-H balance was always good for the sum of the products. The compn. of the products of the reaction for various times of contact at temps. from 200° to 300° indicates that the amt. of MeOH rises to 62%, then slowly falls to 40% and less, CO rises to 23%, Me_2O very slowly rises to at least 25%, HCHO rises to 10%, HCO_2H to 5% and CO_2 appears late, rises to 5% and then slowly decreases again. The sum of MeOH and Me_2O after the max. of MeOH is const. With increasing temp. of decompn. the amt. of Me_2O increases and MeOH decreases but the sum increases; O_2 increases. HCO_2H decreases to 5%, CO is const., CO_2 increases. These results indicate 2 processes, viz., MeOOH = CH_2O + H_2O, MeOOH + HCHO = $MeOOCH_2OH$ = HCO_2H + MeOH, and HCO_2H = CO + H_2O with an over-all activation energy of 10,950 cal. and k_1 0.0108 at 200°, 0.0812 at 300° and 2MeOOH = 2MeOH + O_2, 2MeOH = Me_2O + H_2O, 2CO + O_2 = $2CO_2$, with E = 25,330 cal. and k_0 = 7.60 at 200° and 812 at 300°. F. H. R.

METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

Kinetics and mechanism of (organic) polymerization processes. S. S. Medvedev. *Eng. Chem. Ind.* (U. S. S. R.) 2, 472-81(1937). A discussion based chiefly on literature with 20 references. Chas. Blanc

METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

PROCESSES AND PROPERTIES INDEX

Role of peroxides in the oxidation of hydrocarbons.
S. S. Medvedev. *Acta Physicochim. U. R. S. S.* 8, 396-[illegible](1938).—Two stable chain processes are evident in the oxidation of hydrocarbons. The first is due to the thermal activation of the original substances and the second to the utilization of the energy liberated during the decompn. of peroxides. For the first process, the energy of activation, E_1, depends on the nature of the initial hydrocarbon, and the rate, w_1, depends strongly on the temp. For the second process E_2 differs little from the energy of activation of the decompn. reactions of alkyl peroxides. w_2 is proportional to c^2 (c = hydrocarbon concn.); w_2 increases and w_1 decreases with increase in the concn. of peroxide and carbonyl compds. w_1 is also decreased and, during the first stages, w_2 is increased by an increase in the surface of the reaction chamber. During the oxidation of tetralin (I), I H peroxide (II) and tetralone (III) are formed. The addn. of II increases the oxidation rate of I, the increase being greater when the III content of the original I is high. III decreases the total oxidation rate.
B. C. P. A.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

New debarking machine at the Balakhninskii paper mill. I. V. Khovanskii and S. S. Moiseev. *Bumazhnaya Prom.* **16**, No. 7, 67-73(1939). **Performance of the BTS debarking machine.** B. [illegible] Zalegalier. *Ibid.* 74-7. **Knives of the BTS debarking machine.** E. V. Zoteva. *Ibid.* 78-80. —Construction and operation details.

Chas. Blanc

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

CA

5

Kinetics and mechanism of polymerization processes. S. Medvedev. *Trudy Sessii Akad. Nauk Ord. Khim.* 1939, 41-55.—See *C. A.* 34, 3159[1]. Bruno C. Metzler

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

CA

2

The polymerization of chloroprene. I. Influence of tetralin hydroperoxide on the kinetics of the polymerization of chloroprene in the condensed phase. S. Medvedev, E. Chilikina and V. Klimenkov. *Acta Physicochim. U. R. S. S.* 11, 751-66(1939)(in English).—Exptl. data on the rate, extent and compn. of the product of polymerization at 30-50° with 0-8% hydroperoxide added are given. The total amt. of polymerized chloroprene is given by $x = [(k_1C + k)/k_2](e^{\alpha t} - 1)$, where k is the const. for the thermal, uncatalyzed reaction, k_1 that for linear and k_2 that for lateral polymerization. C is the concn. of tetralin hydroperoxide. Addn. of tetralin hydroperoxide increases only the rate of linear polymerization. The activation energies α_1, α_2, α_3 and the reaction consts. k, k_1, k_2 at 30° are 20.2, 10.5, 20.2 Cal., and 0.03, 0.17, 0.017, resp. The reaction is autocatalytic. The side-chain process can set in only after linear polymerization (thermal or catalytic) has already begun and amounts to a rupture of the chain reaction of the activated linear process. The insol., elastic μ form results only when polymerization is far progressed, and is due to a considerable development of the side-chain process, at the same time leading to an increased rate of reaction. F. H. R.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

600

MEDVEDEV4S8

1. MEDVEDEV, S.; CHILIKINA, Ye.; KLIMENKOV, V.

2. USSR (600)

"The Polymerization of Chlorophrene" Part I. "The Kinetics of the Polymerization of Chlorophrene in the Condensed Phase Under the Influence of Hydrogen Peroxide of Tetralin," Zhur. Fiz. Khim, 13, No. 9, 1939. Moscow, Physico-Chemical Institute imeni Karpov, Laboratory of Polymerization Processes. Received 21 April 1939.

Report U-1615, 3 Jan. 1952.

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

MEDVEDEV4S8

600

1. CHILIKINA, Ye.; MEDVEDEV, S.

2. USSR (600)

"The Joint Action of Hydrogen Peroxide of Tetralin and Nitro Compound on the Polymerization of Chlorophrene" Part II, Zhur. Fiz. Khim, 13, No. 9, 1939. Moscow, Physico-Chemical Institute imeni Karpov, Laboratory of Polymerization Processes. Received 21 April 1939.

Report U-1615, 3 Jan. 1952

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

BC

Kinetics of polymerisation of butadiene in presence of metallic sodium. A. ARKIN and S. MANVEDEV (J. Phys. Chem. Russ., 1939, 13, 705—718).—An earlier paper (A., 1936, 296) is amplified. Polymerisation is not confined to the surface of the polymeride but proceeds throughout it. The sorption of butadiene by the polymeride has been examined at 30—60°; the order of the polymerisation reaction varies with temp. between 1 and 2, corresponding with variations in the index of the sorption isotherm. The relation between the rate of polymerisation and the rate of diffusion of the monomeride in the polymeride has been established, and vals. of the diffusion coeff. and energy of activation have been calc.

R. C.

COMMON ELEMENTS

MATERIALS INDEX

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

BC

Oxidation of tetrahydronaphthalene in condensed phase. S. Mamrasev and A. Podjapolskaja (J. Phys. Chem. Russ., 1939, 13, 710—737; cf. A., 1939, I, 149).—Oxidation by O_2 at 65—95° yields chiefly tetralin H peroxide (I) and tetralone (II); no acids or aldehydes are formed. (I) accelerates the reaction, whilst (II), which is formed by the decomp. of (I), retards, by an amount which rises and then becomes const. as the concn. of (II) increases. The oxidation can be resolved into two independent stationary chain reactions. One arises from the thermal activation of tetralin, is retarded by (II), and proceeds by a mechanism similar to that of the oxidation of MeCHO (A., 1931, 572), and the second depends on the decomp. of a compound formed on the wall by collision of a (I) mol. with an adsorbed (II) mol., and is accelerated by (II). Both reactions lead to the accumulation in the system of (I), which gives the oxidation an autocatalytic character. R. C.

ASM SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

MEDVEDEV, S.S.

PROCESSES AND PROPERTIES INDEX

2

Ca

Kinetics of the polymerization of 2-chloro-1,3-butadiene catalyzed by benzoyl peroxide in dibutyl phthalate solutions. S. S. Medvedev, L. Gladin and M. Lazareva. *J. Phys. Chem.* (U. S. S. R.) 13, 1389-1402(1939).—The kinetics of the polymerization of chloroprene (I) and the distribution of I in the gas and liquid phases were detd. by a manometric method. The soly. of I in dibutyl phthalate is given by $P/C^n = K$ with $n = 0.730$, $K = 2.15$ at 30°; $n = 0.822$, $K = 3.93$ at 60°. The polymerization process is heterogeneous; the rate increases with increasing concn. of I and benzoyl peroxide (II) only up to a certain max. and then remains const. This max. is greater the greater the surface available, varying from 2 to 8% II. With 4% II, the energy of activation between 30 and 60° is 12.5 Cal. On the basis of an analysis of the kinetic data, it is concluded that the initial active centers form as the result of reaction between I and ionized II radicals adsorbed on the walls. These reaction nuclei then leave the wall and the polymerization process takes place in the soln. vol. Deactivation may occur either by reaction with un-ionized II or by collision with adsorbed mols. of I. F. H. Rathmann

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

2

Combined action of tetralin hydroperoxide and nitro compounds on the polymerization of chloroprene. E. Chilikina and S. Medvedev. *Acta Physicochim. U. R. S. S.* 12, 292-302(1940)(in English).—The rate of polymerization of chloroprene in the presence of tetralin hydroperoxide is further increased by the addn. of 0-6% of o-, m- or p-dinitrobenzene or p-nitroaniline (13-fold for 0.20% p-nitroaniline). The catalytic effect of the nitro compds. is independent of their dipole moments. Only the primary process of linear polymerization (sol. polymers) is affected; whereas the rate of the secondary branching process is unchanged. When the nitro compds. act alone in the absence of tetralin hydroperoxide, the rate of chloroprene polymerization is decreased. Similar results were obtained for catalysis by nitro compd.-benzoyl peroxide mixts., but although in the first case insol. μ-polymer appears only after 70% polymerization to sol. α-polymer, in the latter case μ-polymer appears suddenly after formation of 20% α-polymer. F. H. Rathmann

COMMON ELEMENTS

COMMON VARIABLES INDEX

MATERIALS INDEX

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

AUTHOR INDEX

1ST AND 2ND LETTER

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

CA

2

Kinetics of the polymerization of vinyl acetate in the presence of benzoyl peroxide in benzene solution. S. Kamenskaya and S. Medvedev. *Acta Physicochim. U. R. S. S.* 13, 565-[illegible](1940) (in German).—Exptl. data on the polymerization of vinyl acetate in concns. from 1 to 4 *M*, in the presence of 0.04 to 0.40 *M* benzoyl peroxide in benzene [illegible] at temps. from 5° to 85° and the effect

th[illegible]on of the surface are given in 11 tables and 1 fig. The primary reaction is formation of a vinyl acetate-benzoyl peroxide complex which on reaction with the monomer initiates the primary active centers. The reaction is completely homogeneous. The energy of activation 25.5 Cal. The reaction const. is given by $[A]/dt = K_A[A]^{1/2}.[B]^{1/2}$ with $K_A \times 10^3 = 22.5$ at 85°, 7.66 at 75°, 1.46 at 60°, 0.423 at 50°. The av. reaction chain length and the degree of polymerization are not the same, because the latter depends also upon reactions between growing radicals and the solvent mols.; it varies with the solvent, and in a purely thermal reaction is independent of the chain length. Benzoyl peroxide in benzene soln. decomposes with an energy of activation of 29.6 Cal. In the polymerization of vinyl acetate this decompn. does not obey the Arrhenius equation. The equation $\eta_{sp}/c = h[A]/(1 + g[A][B]^{1/2})$ is derived for the change of the degree of polymerization with the concn. of the soln., where $h = 2.44$ $g = 4.8$. The equation is well satisfied by the exptl. data. F. H. R.

ASM-SLA METALLURGICAL LITE

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

MAMONTOVA, O.: ABKIN, A.: MEDVEDEV, S.

Polymerization Processes Laboratory, Moscow Physico-Chemical Institute im. L. Ya. Karpov, (-1939-)

"The Kinetics of Polymerization of Butadiene - 1.3 in the Presence of Potassium Phenylisopropyl (Fenilizopropilkaliya)."

Zhur. Fiz. Khim., Vol. 14, No 1, 1940.

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

KAMENSKAYA, S.; MENDELEEV, S.

Moscow

La oratory of Polymerization Processes, Physico-Chemical Institute Imeni L. Ya. Karpov, (-194 -).

"The Kinetics of Polymerization of Vinyl Acetat in the Presence of Benzoyl Peroxide in a Benzene Solution."

Zhur. Fiz. Khim., vol. 1[illegible], No. [illegible], 194[illegible].

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

Change in Raman spectra of chloroprene and isoprene in the polymerisation process. A. Gantrachec and S. Medvedev (*Acta Physicochim. U.R.S.S.*, 1942, 16, 1—11).—Raman data are given for chloroprene (I), a 30% solution of polymerised (I) in the monomeride, a solution of the polymeride in C_6H_6 or CCl_4, and the pure polymeride; corresponding data are also given for isoprene (II). In each case polymerisation gives rise to a non-conjugate double bond line (1660 cm.$^{-1}$ in (I) and 1665 cm.$^{-1}$ in (II)) not given by the monomeride; a conjugate double-bond line (1630, 1640 cm.$^{-1}$) decreases in intensity as polymerisation proceeds, but remains much stronger than the 1660—1665 cm.$^{-1}$ line when ~80% of polymeride is present. The 1020 cm.$^{-1}$ C–H line given by (I) is displaced to 1003 cm.$^{-1}$ on polymerisation, and its intensity increases considerably. Changes in C–C and C–Cl lines are discussed. Polymerisation does not increase the background intensity of the spectrograms. A. J. E. W.

Karpov Inst. Phys. Chem., Moscow

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

GAL'MAKHER, A. R.; MEDVEDEV, S. S.

Physico-Chemical Institute imeni L. Ya. Karpov, Moscow (-1941-)

"The Change of the Raman Spectrum of Chloroprene and Isoprene in the Polymerization Process." Zhur. Fiz. Khim. Vol 17, No 1, 1943

BR-52059019

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

Ca

10

Free radicals in the polymerization process. S. Medvedev, O. Keritskaya and E. Alekseeva. *J. Phys. Chem.* (U. S. S. R.) 17, 391-407(1943).—It is shown that the free radicals formed during the "liquid-phase" polymerization of 2-chlorobutadiene under the influence of radicals of Bz_2O_2 or tetralin hydroperoxide can be detected by 2 methods: (1) by liberation of iodine from HI and (2) by union with iodine. The 2nd method gives satisfactory quant. results. The increase in the no. of free radicals during the polymerization of chloroprene is due to an increase in the viscosity of the medium, thus hindering interaction of the radicals with one another, and to the branching of the polymerization chain. Branching is due to activation of double bonds of the growing particles at the cost of energy liberated during the successive acts of growth. The kinetics of the liquid-phase polymerization of chloroprene is detd. by the no. of free radicals in the system. The directly linear relationship between the no. of chloroprene mols. polymerized and the number of free benzoyl peroxide radicals shows that the process involves a stationary regime. The kinetic equation derived for the reaction process in the presence of Bz_2O_2, Bz_2O_2 + $C_4H_5Cl \rightarrow [Bz_2O_2.C_4H_5Cl] \xrightarrow{C_4H_5Cl} CO_2 + BzOCH_2CCl{:}CHCH_2- + PhCH_2CCl{:}CHCH_2-$, is in good greement with the exptl. data. A no. of consequences of the concept of the radical nature of macropolymerization, such as chain propagation, the interrelation between oxidation and polymerization and the formation of structurally branched polymers, are discussed. Six tables and 6 figs. illustrate the exptl. data on the polymerization of chloroprene, butadiene and $CH_2{:}CHCN$ in the presence of Bz_2O_2, tetralin hydroperoxide and NH_3, as well as on the polymerization of polystyrenes in benzene homologs and in cyclohexane.

F. H. Rathmann

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

AI-8

BC

Oxidation and polymerisation of styrene. S. Medvedev and P. Zeitlin (J. Phys. Chem. Russ., 1944, 18, 13-32).--Not too prolonged bubbling of O through styrene (I) at 70-90° yields in addition to polystyrene (II) peroxides, roughly equiv. amounts of PhCHO and CH_2O, and small amounts of CH_2Ph OH and OH CHPh CHO; BzOH is obtained in presence of much PhCHO. ν of solution of (II) in $CHCl_3$ is independent of the duration of polymerisation and is the lower the higher is the polymerisation temp; the calc. mol. wt, is 56,000--84,000. The rate ν of oxidation (i.e., of O_2 absorption) the rate of polymerisation whatever the duration of experiment, temp., or compositon of the solution; 2.5 mols. of O_2 are absorbed for 1 mol. of (I) polymerised. In one experiment ν first increased and then remained const The increase if ν with temp. does not conform to Arrhenius rule. CH_2O and (II) do not affect ν. Bz_2O and PhCHO raise ν, especially the beginning of oxidation, without changing the final ν. Glass wool depresses the initial and raises the final ν. The behaviour of ν is explained by assuming two chain reactions involving peroxides and free radicals. J. J. B.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

28

B

Free Radicals in Polymerization Processes. (In English.) S. Medvedev, O. Koritzkaya, and E. Alexeyeva. *Acta Physicochimica U.R.S.S.*, v. 19, no. 6, '44, p. 457-482.

Procedure of iodometric determination of free radicals in polymerization products of chloroprene; experimental results; mechanism and kinetics of the liquid-phase polymerization of chloroprene.

28

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

CA

2

Oxidation and polymerization of styrene. S. Medvedev and P. Tsetlin. *Acta Physicochim. U.R.S.S.* 20, 3-30 (1945).—See *C.A.* 39, 3196[illegible]. R. L. Messler

COMMON ELEMENTS

COMMON VARIABLES INDEX

MATERIALS INDEX

OPEN

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

AUTHOR INDEX

1ST AND 2ND LETTER

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

MEDVEDEV, S. S.

Kinetics of polymerization of hydrocarbons with a conjugated bond. P. S. Shantarovich and S. S. Medvedev (Inst. Chem. Phys., Acad. Sci. U.S.S.R., Moscow). *J. Phys. Chem.* (U.S.S.R.) 21, 1163-70(1947)(in Russian).—2-Chloro-1,3-butadiene was irradiated with 3030-3130 A., and the rate v of its polymerization det'd. from the vol. contraction. The v first rapidly increases, is then (e.g., for 8 hrs.) const., and increases again; the 2nd increase is assocd. with formation of a dense film at the irradiated wall. When the irradiation is continued for 5 or more hrs. and then stopped, polymerization goes on. Its v first decreases, then gradually increases, and starts to increase rapidly when 10% of the original chloroprene is polymerized. The v is greater the longer the preceding irradiation time, but the sharp rise of v occurs always at 10% transformation. The ω polymer is the final product. When the irradiation time is 2 hrs., the rise of v at 10% transformation is less steep, and the μ polymer is the final product. When the μ polymer forms, polymer chains grow and join to produce a net, and formation of links between chains in this net leads to the ω polymer. The kinetics of these processes is calcd. and is shown to agree with the expt. data. Irradiation of the com. polychloroprene (which is a mixt. of α and μ forms) sepd. from the monomer has no effect, but polychloroprene soaked in monomer is transformed into ω polymer by light. The μ polymer introduced into monomer causes polymerization of the latter to the μ form, and this polymerization continues also when chloroprene which was in contact with μ is run off the polymer. On the contrary, chloroprene induced to polymerize (to ω) by introduction of some ω ceases to polymerize when sepd. from the polymer. Polymers can be kept in a vacuum for months without losing their ability of inducing further polymerization. I. J. R.

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

MEDVEDEV, S.

The mechanism of the simultaneous polymerization of butadiene with vinyl cyanide and 1-methylvinyl cyanide under the action of benzoyl peroxide. L. Gindin, A. Abkin, and S. Medvedev (Karpov Inst. Phys. Chem., Moscow). *J. Phys. Chem.* (U.S.S.R.) 21, 1209-37 (1947)(in Russian).—Mixts. of butadiene (I) (x wt. %) with CH_2:CHCN (II) (100 − x %) or CH_2:CMeCN (III) (100 − x %) and $(BzO)_2$ (y%) were prepd. in N, heated 1 hrs., and distd. at room temp. in a high vacuum 20 hrs. The distn. residue (= polymer) was analyzed for N (i.e. nitrile) and active O (i.e. Bz_2O_2). For the detn. of active O the polymer must be dissolved in $CHCl_3$, not in acetone. The rate v of formation of polymer decreases when x increases; e.g. at 60° for the system I + II (y being 0.6%) the initial rate is 0.26% per hr. at x = 90% and 8.9% per hr. at x = 20%. During one expt. v is almost const. at small x and increases with time at large x. The v increases with temp.; e.g. 42% polymer is attained at 50° within 63 hrs. and at 70° within 11 hrs. The v is proportional to $\sqrt{y}$ between y = 0.3 and y = 10 wt.%. These results are discussed from the viewpoint of Abkin and Medvedev, *C.A.* 34, 7709[4]. The polymerization ceases when one of the components is used up. The highest yield of polymer (over 98%) is observed at x = 50% for the I + II and near x = 70% for the I + III system. The compn. of the polymer depends little on the time of polymerization and temp., but varies according to x. In the I + II system, the polymer contains more I than the original mixt. at x < 53% and less than the original mixt. at x > 53%. In the I + III system, the "azeotropic" mixt. has x = 60%. The concn. of $(BzO)_2$ in the polymer decreases when y increases. However, polymerization continues also after this concn. becomes zero. Monomer, distd. from the polymer and again mixed with it, polymerizes at the same v as if no distn. occurred, but soln. and reppt. of polymer remove its catalytic activity. The compn. of a copolymer depends on the consts. α and β expressing the relative rates of reaction of 2 free radicals with the 2 components of the monomeric mixt. A simple method for computing α and β from exptl. data is shown. From the values for α and β the distribution of monomer groups within the copolymer can be calcd. (cf. *C.A.* 42, 804*b*). In the copolymer I + II, 67% II is present as one nitrile group between 2 butadiene groups; and in I + III 80% III is in this alternate pattern. The cessation of polymerization when 1 of the components is used up shows that both components are needed for the branching of the reaction chain.

J. J. Bikerman

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

GINDIN, L. M., ABKIN, A. D., and MEDVEDEV, S. S.

"Problems in Binary Co-Polymerization I. "Azeotropic' Mixtures," Dok. AN, 56, No. 2, 1947

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

MEDVEDEV, S.

P. Khomikovskii and S. Medvedev, The mechanism of emulsion polymerization. I. The polymerization of vinyl cyanide in water solutions. P. 1027.

The problem of this work is the investigation of polymerization in water solutions, in solutions of emulsifiers (in the region of colloid solubility) and in emulsions in order to clear up the role of the processes going on in the separate parts of the emulsion system in the general process of emulsion polymerization. Vinyl cyanide, a monomer, was studied first because it is easily soluble in water. Potassium persulfate served as initiator of the polymerization.

The Karpov Physical Chemical Inst.
Laboratory of Polymerization Processes,
Moscow
January 9, 1948

SO: Journal of Physical Chemistry (USSR) 22, No. 9, 1948

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

MEDVEDEV, S. S.

24213 MEDVEDEV, S. S. Vakuumirovaniye betona pristroitel'stve tsemento-betonnykh dorozhnykh pokrytiy. Sbornik dokladov studentov Mosk. avtomob.-dor. IN-TA na 2-Y Nauch. konf-tsii studentov vyssh. Ucheb. zavedeniy g. Moskvy. M., 1949, S. 37-42.

SO: Letopis, No. 32, 1949.

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

MEDVEDEV, S. S.

Khomikovskiy, P. M., Zabolotskaya, Ye. V. and Medvedev, S. S.
"The polymerization of vinyl cyanide and methyl metacrylate in soap solutions and emulsions," In the symposium: Investigations in the field of complex-molecular compounds, Moscow-Leningrad, 1949, P. 45-55, - Bibliog: 6 items

SO:U-5241, 17 December 1953, (Letopis'Zhurnal 'nykh Statey, No. 25, 1949)

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

Medvedev S.S.

Catalytic polymerization of unsaturated compounds. Catalytic polymerization of styrene. A. R. Gantmakher and S. S. Medvedev. *Issledovaniya v Oblasti Vysokomolekul. Soedinenii; Doklady 6-oi Konf. Vysokomolekul. Soedineniyam, Akad. Nauk S.S.S.R.* 1949, 56-68; cf. *C.A.* 43, 7295f; 47, 8480c.—Dilatometric and viscometric study of polymerization of PhCH:CH$_2$ was made at 0°, 10°, 20°, and 30° in EtCl soln. with SnCl$_4$ as catalyst. The rate is well defined by the equation: $-d[A]/dt = K_2K_1[B_0][A]^2/K_2 + K_1[A]$, where B_0 is initial catalyst concn., K_1 is the rate const. of initiation of chains (about 2.092×10^{-3} mole/l. min.), K_2 is chain growth rate const. (1.6×10^{-1} mole/l. min.), K_3 is chain rupture rate const. (1.016×10^{-6} min.$^{-1}$). This is derived on the assumption that catalyst units remain bound to the growing chain. In this process the recombination mechanism of chain rupture is absent. Characteristic viscosity is proportional to the square root of initial concn. of monomer and changes from 2.75 at 0° to 1.8 at 30°. HCl and H_2O accelerate the reaction; the former also accelerates chain rupture. At high concn. of monomer there was observed an acceleration of the polymerization rate as the process proceeded; this is attributed to branched chain mechanism and is absent in peroxide-catalyzed reactions.

G. M. Kosolapoff

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

10

CA

Polymerization of allyl acrylate. I. Determining the structure and molecular weight of soluble forms of polyallyl acrylate. L. Gindin, S. Medvedev, and E. Fleshler. *J. Gen. Chem.* (U.S.S.R.) 19, No. 6, 1127-35(1949) (English translation). —See *C.A.* 44, 1020a. E. J. C.

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

Polymerization of allyl acrylate. I. Determination of the structure and molecular weight of the soluble forms of polyallyl acrylate. I. Gindin, S. Medvedev, and E. Fleshler. *Zhur. Obshchei Khim.* (J. Gen. Chem.) 19, 1694-1701(1949). Polymerization of allyl acrylate, b_{750} 119.5-21.5°, n_D^{20} 1.4330, d_4^{20} 0.888 (?), in 2.5 and 5.7% solns. in C_6H_6 with 1% Bz_2O_2 catalyst at 60° gives low-mol. products, sol. in org. solvents, with the main chain linkage formed substantially from the "acrylic" double bond. The process, followed dilatometrically to 80% polymerization, gave 35.9% total unsatn. of the product, which was almost identical with the "allyl" unsatn. (by the bromide-bromate method in CCl_4-AcOH); the total unsatn. was detd. by the bromide-bromate method in the presence of $HgSO_4$; the procedures were successfully tested on the monomer. G. M. Kosolapoff

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

2

C A

Catalytic polymerization of unsaturated compounds. A. R. Gantmakher and S. S. Medvedev. *Zhur. Fiz. Khim.* 23, 510-20(1949). Polymerization of styrene (I) at 20° in the presence of $SnCl_4$ in EtCl was detd. in a dilatometer. If A was the variable concn. of monomer I and B the const. concn. of $SnCl_4$, $-dA/dt = kk_1B.A^2/(k_2 - k_1A)$, when the starting A (A_0) varied between 0.4 and 1.4 mol./l. and B was 0.02-0.06 mol./l. The const. k_1 of the formation of the first active center was 0.0021./mol. min. and k_2 of the rate of chain breaking was 0.001 min.$^{-1}$. k is the const. of formation of the complex of I and $SnCl_4$. The equation allows that addn. of this complex to another mol. of I is the rate-detg. process. The temp. coeff. of the reaction was 1.37 between 0 and 30°. When A_0 was M, $(-dA/dt)$ increased "auto-catalytically" showing branching of reaction chains; this effect was absent in the presence of $SnCl_4$ + HCl or of $(H_2O)_2$. From the viscosity of polymer solns. in CCl_4 at 20°, $[\eta] = \lim (\eta_{sp}/c)$ was calcd. It was independent of B, almost independent of the degree of polymerization, and was 2.1 $\sqrt{A_0}$ for polymers produced at 20°; after polymerization at 0° $[\eta]$ was 1.5 times that after polymerization at 30°. As $[\eta]$ was independent of B, chains are not broken by recombination. HCl added to $SnCl_4$ accelerated the polymerization more the more HCl was added until the mol. ratio 1:1 was reached. The $[\eta]$ of the polymer obtained in the presence of $SnCl_4$ + HCl was about 1/3 that in the presence of $SnCl_4$. H_2O acts similarly to HCl. Presumably H ions are the active components of HCl.

J. J. Bikerman

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

CA

Kinetics of the simple vinyl polymerization. I. Polymerization of vinyl acetate. P. S. Shantarovich and S. S. Medvedev (Karpov Inst. Phys. Chem., Moscow). Zhur. Fiz. Khi. 23, 1426-41(1949); cf. C.A. 43, 2405a. —When $CH_2:CHOAc$ (I) was irradiated to remove the inhibitors present, its further polymerization in ultraviolet occurred without any induction period; hence, contrary to Cuthbertson, et al. (C.A. 33, 4960a), the induction period was due to impurities. In the radiation of 3030-3130 A., the rate of polymerization v (detd. dilatometrically) was const. during an expt. for at least 90 min. In I solns. in EtOAc, v was proportional to the mole fraction n of I between 0.02 and 1.00. After the irradiation was interrupted, v decreased in 100 sec. to 0.04 of its value. For pure I, v at 60° was 4 times that at 10°; hence, the energy of activation was 5000 cal. The rate v_i of polymerization of I induced by $(BzO)_2$ is, according to the literature, proportional to $B^{1/2}C^{3/2}$, where B = concn. of $(BzO)_2$. Polymerization of I is a chain reaction without branching.

J. J. Bikerman

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

LA

3/

Kinetics of polymerization of vinyl compounds. II. Photopolymerization of allyl chloride. P. S. Shantarovich and S. S. Medvedev (Acad. Sci. U.S.S.R., Moscow). *Zhur. Fiz. Khim.* 24, 10-20(1950); cf. *C.A.* 44, 2833i. Allyl chloride (I) in BtOAc polymerized in light of 3000-3130 A. at a rate r independent of diln. (2.6-10.2 *M*) and proportional to light intensity *I*, at $I = 6 \times 10^{-9}$ (units?) r was 7.8×10^{-9}, 5.4×10^{-9}, 3.7×10^{-9}, and 2.8×10^{-9} mole sec. cc. at 75°, 60°, 45°, and 30°, resp. Polymerization in the dark, also after illumination, was negligible. The mol. wt. *M*, detd. cryoscopically, of the final product was 1000-1200, 850, 570, and 410 at 75°, 60°, 45°, and 30°, resp.; it was independent of diln. The apparent energy of activation was 4100-4400 cal. The active radical (II) of the growing chain reacts with a mol. of I forming (with reaction const. k_3) a radical $CH_2{:}CH.CH_2$— (III) which is not active enough to react with I but adds to II thus interrupting the chain. This mechanism yields the equation $r = ak_1k_2I/2k_3k_4$; these consts. are for the reactions "excited monomer + normal monomer → 2 normal monomers" (k_1), "excited monomer → radical" (k_2), and "radical + monomer → dimer" (k_4). The equation shows that r is independent of diln. and proportional to *I*. In this instance the length of the "kinetic chain" (ν = the no. of monomers involved in a chain initiated by one radical) is equal to that of the "mol. chain" (λ = the no. of monomers in the mol. of polymer); if III were as active as II, ν would be much greater than λ. The kinetics of polymerization depends on the relation between λ and ν.

J. J. Bikerman

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

MEDVEDEV, S. S.

Jul 51

USSR/Chemistry - Plastics

"Kinetics of the Polymerization of V nyl Chloride in Solutions Under the Action of Benzoyl Peroxide," G. V. Tkache ko, P. M. Khomikovskiy, S. S. Medvedev, Moscow

"Zhur Fiz Khim" Vol XXV, No 7, pp 823-836

PA 206T24

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

MEDVEDEV, S. S.

PA 196T17

USSR/Chemistry - Plastics Nov 51

"Catalytic Polymerization of Unsaturated Compounds. II. Effect of the Dielectric Constant of the Medium on the Catalytic Polymerization of Styrene," A. R. Gantmakher, S. S. Medvedev, Phys Chem Inst imeni L. Ya. Karpov, Moscow

"Zhur Fiz Khim" Vol XXV, No 11, pp 1328-1334

Ionic character of processes of styrene polymerization with $SnCl_4$ was shown by investigation of processes in solvents with different dielec consts (i.e., higher dielec const increases reaction rate HCl admixts have different effects in different

196T17

USSR/Chemistry - Plastics (Contd) Nov 51

solvents, accelerating reaction in ethylchloride, dichloroethane, and o-nitrotoluene, lowering reaction rate in cyclohexane, and lowering mol wt when solvent has different dielec const than HCl) Found that reaction rate is proportional to square of concn of styrene in ethyl chloride with uniform dielec const. Proposes eq for dependence.

(CA 47 no.17: 8489 '53)

196T17

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

Medvedev, S. S., ed.

KONFERENTSIIA po vysokomolekuliarnym soedineniiam. 7th Moscow. Chemistry and physics-chemistry of polymers; report Moskva, Izd-vo Akademii nauk SSSR, 1952. 312 p. (53-18332)

QD281.P6K6

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

USSR/Chemistry - Elastomers; Plastics Feb 52

"Catalytic Polymerization of Unsaturated Hydrocarbons. III. Catalytic Polymerization of Isoprene," A. R. Gantmakher, S. S. Medvedev, Phys Chem Inst imeni L. Ya. Karpov, Moscow

"Zhur Fiz Khim" Vol XXVI, No 2, pp 173-179

Results on the catalytic polymerization of isoprene with $SnCl_4$ in an EtCl soln agree with those obtained on styrene. The rate of reaction increases with time, because there is an autocatalytic increase of the number of active centers in the branched chain reaction. Branching of reaction chains occurs under

211T45

participation of $SnCl_4$. In agreement with the proposed mechanism, HCl inhibits acceleration of reaction and lowers mol wt of products. At -80°, the branched chain polymerization of isoprene does not occur even with a 100% monomer. Interaction of growing chains with double bonds of polymer mols proceeds under reduction of deg of unsatn. Reduction of the concn of monomer results in decrease of deg of unsatn and increase of the temp of gelation.

211T45

MEDVEDEV, S. S.

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

PA 234T25

USSR/Chemistry - Elastomers, Polymerization 21 Oct 52

"Initiation Mechanism in the Catalytic Polymerization of Unsaturated Compounds," A. P. Gantmakher, S. S. Medvedev, Corr Mem, Acad Sci USSR, T. E. Lipatova

"Dok Ak Nauk SSSR" Vol 86, No 6, pp 1109-1111

A conclusion drawn by P. H. Plesch, M. Polanyi, H. A. Skinner, A. S. Evans, and G. W. Meadows is found to be incorrect. These authors claim that in the catalytic polymerization of isobutene in the liquid state or in hexane solus with $TiCl_4$ and BF_3 catalysts at

234T25

low temps, the addn of H_2O, CCl_3COOH, etc., is necessary in order that the reaction may proceed. This is disputed in the present work: It is shown that by raising either the temp or the dielec const of the solvent, catalytic polymerization of unsatd compds can be made to proceed in the presence of aprotonic acids ($SnCl_4$, $AlCl_3$, BF_3, $TiCl_4$, and others) without the addn of H_2O, CCl_3COOH or other substances acting on the catalyst under formation of protonic acids.

234T25

MEDVEDEV, S. S.

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

MEDVEDEV, S. S.

USSR

Kinetics and mechanism of copolymerization of vinyl chloride and vinylidene chloride. A. D. Abkin, S. S. Medvedev, P. M. Khomikovskii, and E. V. Zabolotskaya (L. Ya. Karpov Phys.-Chem. Inst., Moscow). Zhur. Fiz. Khim. 27, 1511-24(1953). cf. C.A. 45, 3227e.—The copolymerization of vinyl chloride (I) and vinylidene chloride (II) in the presence of benzoyl peroxide (III) in an aq. emulsion stabilized with Na oleate at temps. from 60 to 70° was studied in a described and illustrated vacuum app. The initial mole fractions (f) of I, II, and III, the reaction time (t), and the temp. (θ) were varied; the yield of copolymer and the mole fractions (F) of I and II in the latter are tabulated and graphed as joint functions of f_I, f_{II}, f_{III}, t, and θ. For any value of f_I, F_{II} is greater than f_{II}. The III is continuously consumed; when it is used up, the reaction stops. The rate of copolymerization of I and II is less than the rate of polymerization of I or II alone. II is more reactive than I; the radical of I is more reactive than that of II. J. W. Lowelberg, Jr.

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

MEDVEDEV, S.S.

6

USSR

V. Nature of branching reactions in the radical polymerization of dienes. A. D. Abkin, S. N. Kamenskaya, and S. S. Medvedev (L. Ya. Karpov Phys. Chem. Inst., Moscow). Zhur. Fiz. Khim. 27, 1004-9(1953); cf. C.A. 45, 3227e.—The initial rates of copolymerization (r) of vinyl acetate (I) with 1-pentene (II) and 2-pentene (III), and those of polymerization of I, II, and III separately, all in the presence of benzoyl peroxide at 60°, were studied by means of a dilatometer. The units of copolymers formed, as well as values of r are tabulated as functions of the initial mole fraction of I. The rate consts. for copolymerization of I-II and I-III are about 2100 and 5000 l./mole sec., resp. The reaction is inhibited by pentenes; this is due to the formation of allyl-type radicals. The polymerization of 1,3-butadiene is discussed. The most probable course of this reaction is through chain transmission of H atoms between mols.

J. W. Loweberg, Jr.

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

MEDVEDEV, S. S.

USSR/Chemistry - Plastics, Polymers 11 Jan 53

"The Nature of the Branching Reaction During Radical Polymerization of Dienes," A. D. Abkin, S. N. Kamenskaya, S. S. Medvedev, Corr Mem Acad Sci USSR, Sci-Res Phsiochem Inst imeni L. Ya. Karpov

DAN SSSR, Vol 88, No 2, pp 269-271

A quant appraisal is made of the specific rates of the reaction between the polybutadiene radical and polybutadiene particles at the mono- and di-substituted double bond.

PA 250T15

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

MEDVEDEV S.S.

USSR/Physics - Physical chemistry

Card 1/1 Pub. 43 - 57/62

Authors : Sheynker, A. P., and Medvedev, S. S.

Title : Polymerization temperature and its effect on the formation of butadiene styrene copolymers

Periodical : Izv. AN SSSR. Ser. fiz. 18/6, 736-737, Nov-Dec 1954

Abstract : The composition of butadiene-styrene copolymers obtained at various temperatures (-15 to + 38°C) in emulsions was investigated by means of absorption spectra (2 - 15 μ). The content of various configurations of butadiene links in polymer chains was also investigated and established. Glycerin was used as the antifreeze when the polymerization was carried out at below-zero temperatures. Polymer solutions in carbon bisulfide were utilized for photographing the spectra. Results are described.

Institution : The L. Ya. Karpov Phys. Chem. Inst.

Submitted : .....

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

MEDVEDEV, S. S.

5

2 May

The mechanism of emulsion polymerization. E. V. Zabolotskaya, I. G. Soboleva, N. V. Makletsova, and S. S. Medvedev. *Doklady Akad. Nauk S.S.S.R.* 94, 81-4 (1954).—The relations are illustrated among av. mol. wt., no. of polymer particles, the amt. of isoprene absorbed, time, and the av. diam. for the emulsion-polymerization of isoprene (2 to 14 g./100 ml. soln.) at 50°, emulsified by hexadecylpyridinium bromide with H_2O_2 as initiator.

Polymerization begins only in particular micelles in which a free radical or initiator mol. is present, then continues so that almost all the micelles participate, and the no. of polymer particles increases very rapidly without much change in particle size. Marked increase in particle size occurs only after uncombined soap [illegible]

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

particles increases very rapidly without much change in particle size. Marked increase in particle size occurs only after uncombined soap mols. disappear. E. H. R.

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

MEDVEDEV, S. S.

62

The structure of polyacrylic esters by the method of light scattering. I. G. Soboleva, N. V. Makletsova, and S. S. Medvedev. *Doklady Akad. Nauk S.S.S.R.* 94, 281-92 (1954).—Polyvinyl acrylate (I) and polymethyl acrylate (II) were prepd. by polymerizing the esters at 50° in the presence of 0.01 mole/l. BaO_2 and at varying concns. Under these conditions II is nonlinear, but the branching is not great enough to influence the viscosity of the solns. The presence in I of short side chains does not alter the properties characteristic of linear polymers. H. M. Leicester

(2)

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

MEDVEDEV, S. S.

USSR/Physical Chemistry

Card 1/1

Authors : Kargin, V. A. Academician; Malinskiy, Yu. M., and Medvedev, S. S. Memb. corresp. of the Acad. of Sc. USSR.

Title : Investigation of monomolecular polyacrylate films

Periodical : Dokl. AN SSSR, 96, Ed. 2. 307 - 309, May 1954

Abstract : The chain molecules of polyacrylates (as well as many other high polymers) are oriented flatwise over an aqueous surface, whereby the carbonyl atoms of oxygen are the "anchors" binding the macromolecule with the surface of the water and the side paraffinic chains "project" into the air. A solid mono-layer of the polycetylacrylate has a greater thickness than a mono-layer of polymethylacrylate and a smaller specific area. During compression of the solid mono-layer takes place the ejection of individual chain links. Three references; 2 USSR, Table.

Institution : .....

Submitted : March 18, 1954

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

MEDVEDEV, S.S.

USSR/ Chemistry - Conferences

Card: 1/1 Pub. 124 - 15/45

Authors : Medvedev, S. S., Memb. Corresp. of Acad. of Sc. USSR

Title : Conference on macromolecular chemistry in Milan and Turin

Periodical : Vest. AN SSSR 2, 71-74, Feb 1955

Abstract : An account is presented of special scientific conferences held during September 27 through October 2, 1954 in two of the largest industrial cities of northern Italy, Milan and Turin. The convention was arranged by the Commission on Macromolecular Chemistry at the International Society of Pure and Applied Chemistry and the main topics of the conference are listed.

Institution : .....

Submitted : .....

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

MEDVEDEV, S. S.

4002

2 may

✓ 966. Investigation of polymerization kinetics of isoprene in aqueous solutions of the emulsifier and in emulsions. A. P. SHEINKER and S. S. MEDVEDEV. CH

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

Zhur. fiz. Khim., 1955, 29, 250-[illegible]; *Gummi u. Asbest.*, 1955, 8, 702. It was desired to study the mechanism of emulsion polymerisation stage by stage, and isoprene was selected for study with a cation-active emulsifier and a water-soluble initiator. Polymerisation does not begin until the introduction of the emulsifier. It appears that the entire sequence of polymerisation takes place within the emulsifier or on the adsorption layer on polymeric particles and emulsion droplets, the part played by the latter process being small. Polymerisation within the polymeric particles practically does not occur on account of the very weak concentration of the initiator in the polymeric particles. The constant amount of emulsifier means constancy of the total surface of the polymeric particles and a steady rate of polymerisation. The formulae developed from these concepts agree well with test results.

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

of polymerization. The formulas developed from these concepts agree well with test results.

SECRET 22.123

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

Formation of free radicals in photopolymerization and radiochemical polymerization processes. S. S. Medvedev (Inst. Phys. Chem., Moscow). *J. chim. phys.* 52, 677-88 (1955). A study has been made on the radiochem. and photochem. initiating of polymerization of vinylic substances. The initiating process is considered to be a conversion of excited mols. into biradicals which are rapidly transformed into monoradicals. The quantum yield is low, varying from 0.12 for Me methacrylate to 0.0001 for isoprene. In the polymerization of styrene, the presence of CCl_4 increases the quantum yield. In such a case the free radicals are produced following a reaction between the monomeric excited mol. and CCl_4. James R. Oliver

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

MEDVEDEV, S.S.

USSR/ Catalytic polymerization

Card 1/2 Pub. - 21/52

Authors : Gantmakher, A. R., and Medvedev, S. S. Act. Memb. of Acad. of Sc. USSR

Title : Some peculiarities of the kinetics of combined catalytic polymerization

Periodical : Dok. AN SSSR, 100/2, 275-278, Jan 11, 1955

Abstract : Investigation was made to determine the kinetics of combined and separate catalytic polymerization of isoprene-butadiene and styrene-butadiene systems. The polymerization was carried out in EtCl with $SnCl_4$ as catalyst at 0° by the dilatometric method. Results indicate that the butadiene polymerization does not take place at temperatures of from 0 to 20°; the polymerization with this less active catalyst requires much higher temperatures. Isoprene with $SnCl_4$ was observed to ploymerize at temperatures ranging from 0 to -80°.

Institution : The L. Y. Karpov Scientific Research Phys-Chem. Institute

Submitted : July 3, 1954

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

Periodical : Dok. AN SSSR, 100/2, 275-278, Jan 11, 1955

Card 2/2 Pub. 22 - 21/52

Abstract : Initial and maximum rate of polymerization were increasing after adding a relatively large amount of butadiene to the isoprene. An entirely different effect was observed during the addition of butadiene to styrene. Eight references: 2 English; 2 USA; 1 German and 3 USSR (1923-1951). Table; graph.

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

MEDVEDEV, S.S.

USSR/Chemistry - Catalytic polymerization

Card 1/1 Pub. 22 - 22/49

Authors : Lipatova, T. E.; Gantmakher, A. R.; and Medvedev, S. S. Memb. Corresp. of Acad. of Sc., USSR

Title : Catalytic copolymerization of unsaturated compounds

Periodical : Dok. AN SSSR 100/5, 925-928, Feb 11, 1955

Abstract : The kinetics of catalytic copolymerization of isoprene-styrene, isoprene-alpha-methylstyrene systems over $SnCl_4$ catalysts was investigated to determine the copolymerization constants for these systems. The dependence of the copolymerization rate upon the composition of the basic mixture and the molecular weights of the homologous copolymers were determined. The ion mechanism of catalytic polymerization in the presence of an $SnCl_4$ catalyst is explained. Eight references: 6 USA and 2 USSR (1944-1955). Table; graphs.

Institution : .....

Submitted : July 3, 1954

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

MEDVEDEV, S.S.

USSR/Chemistry Physical Chemistry

Card : 1/1

Authors : Sheynker, A. P., and Medvedev, S. S., Member Corresp. of Acad. of Sc. USSR

Title : Investigation of the kinetics of polymerization of isoprene in aqueous emulsifier solutions and emulsions

Periodical : Dokl. AN SSSR, 97, Ed. 1, 111 - 114, July 1954

Abstract : The kinetics of isoprene polymerization was investigated in water, in N-cetylpyridine bromide emulsifier solutions and in emulsions under the effect of a water-soluble initiator (H_2O_2) for the purpose of determining the mechanism of emulsion polymerization. The kinetic measurements in emulsifier solutions not saturated with isoprene and in emulsions were carried out by means of the dilatometric method. The results are presented in table and graphs. Four references: 2 USSR and 2 USA.

Institution : The L. Ya. Karpov Scientific-Research Physico-Chemical Institute

Submitted : March 20, 1954

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

Medvedev, S.S.

Effect of polymerization temperature on the structure of copolymers of butadiene with styrene. A. P. Shefnker and S. S. Medvedev. *Doklady Akad. Nauk S.S.S.R.* 102, 1143-5(1955).—Infrared examn. was made of copolymers of butadiene with $PhCH:CH_2$ at −15° to 38°. Kinetic data, shown graphically, for polymerizations which were run in aq. phase with Na sulfonate emulsifier, show that rise in temp. gave higher polymer yields, while introduction of glycerol into the mixt. (for antifreeze purposes) reduced the yield of polymer somewhat. The energy of activation was estd. at 9 cal./mole. The no. of styrene units was estd. from intensity of differential infrared absorption at 700 cm.$^{-1}$ (Ph ring), while the butadiene content was estd. from 967 and 909 bands. (For calcn. techniques, cf. Hart and Meyer, *C.A.* 43, 7822*f*; M., *C.A.* 43, 8725*e*; Cross, *et al.*, *C.A.* 46, 3405*i*). Polymers prepd. in the absence of glycerol showed the content of trans structure increased by 17% when the temp. was raised from 0° to 38°. No polym. comptn. change was observed. Unsatn. of the polymer prepd. in the presence of glycerol was decidedly smaller than that found in specimens prepd. in the presence of glycerol, if calcd. on the wt. of the polymer; calcd. on the basis of butadiene links, the unsatn. was the same in both cases. Products formed at −15° in the presence of glycerol had the same comptn. as those formed at 20°, in respect to cis-trans components. G. M. Kosolapoff

62

1

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

MEDVEDEV, S. S.

Polymerization of chloroprene in presence of ω-polymer. A. N. Pravednikov and S. S. Medvedev (*Dokl. Akad. Nauk SSSR*, 1955, 103, 461—464). — Between 0 and 25° the rate of polymerization of chloroprene to vitreous ω-polymer is expressed by $dW/dt = kW$, where W is the wt. of polymer. Strains arising in the polymerizing mass lead to rupture of polymer chains, with formation of free radicals, the no. of which (n) is proportional to W, whence $dn/dt = k'n$. At temp. exceeding the vitrification point, the rate of extinction of free-radical reaction chains rises, owing to lowered η of the mass, and the rate of formation of active centres of initiation of chains is expressed by $dn/dt = k'n - k_1n^2/V$, where V is vol. of polymer.

R. Truscoe.

M. A. YOUTZ
2 copies

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

MEDVEDEV, S.S. (Chkalov).

Regularities in the operator's performance [with English summary in insert]. Avtom.i telem. 17 no.11:985-1000 N '56. (MLRA 9:12)
(Labor productivity)

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

MEDVEDEV, S.S.

Relation of seismic action to the natural vibration periods of structures. Trudy Geofiz.inst. no.36:80-113 '56. (MLRA 9:8)
(Earthquakes and building)

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

Medvedev, S. S.

86-1-27/30

AUTHOR: Aronin, G.S., Engr Col, Docent, Candidate of Technical Sciences; and Medvedev, S.S., Engr Lt Col, Candidate of Technical Sciences.

TITLE: Estimating the Combat Capacities of Fighters (O rashchete boyevykh vozmozhnostey istrebiteley).

PERIODICAL: Vestnik Vozdushnogo Flota, 1958, Nr 1, pp. 84-86 (USSR)

ABSTRACT: Under this title appear two articles under the following subtitles: 1. "Unjustified Method" by Engr Col G.S. Aronin and 2. "To Continue the Research for a More Acceptable Method", by Engr Lt Col S.S. Medvedev. The authors discuss the article "Combat Capacities of Fighters and the Method of Determining Them" by Col B.Ya. Kudryashov and Lt Col P.G. Nikitin, which was published in the No. 8 issue of this periodical in 1957. Both, Aronin and Medvedev, raised

Card 1/2

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

86-1-27/30

Estimating the Combat Capacities of Fighters (Cont.)

some objections to the method suggested by Kudryashow and Nikitin. Particular attention is drawn to the inadequacy of the new concept of "determining the degree of superiority of the figher-plane over the enemy", which is expressed by coefficient C in the final formula of the computations.

AVAILABLE: Library of Congress

Card 2/2

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

SOV/86-58-8-13/37

AUTHOR: Medvedev, S.S., Engr Col, Candidate of Technical Sciences

TITLE: Calculation of Dynamic Characteristics of a Gunsight While Firing (Uchet dinamicheskikh kharakteristik pritsela pri strel'be)

PERIODICAL: Vestnik vozdushnogo flota, 1958, Nr 8, pp 37-39 (USSR)

ABSTRACT: The author states that a knowledge of the dynamic characteristics of a gunsight is of great importance in modern air battle, because this helps to improve the accuracy of firing and reduces the time of tracking a target. The author describes how the main component of total corrections, the lead angle, is plotted during the aiming procedure with the ASP-3 gunsight. Four graphs.

Card 1/1

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

MEDVEDEV, S. S., and SHEYNKER, A. P.

"Study of the Kinetics of Polymerization in Colloid Solutions of Soaps and Emulsions" (Issledovaniye kinetiki polimerizatsii v kolloidnykh rastvorakh myl i emul'siyakh) from the book Trudy of the Third All-Union Conference on Colloid Chemistry, pp. 450-457, Iz. AN SSSR, Moscow, 1956

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

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

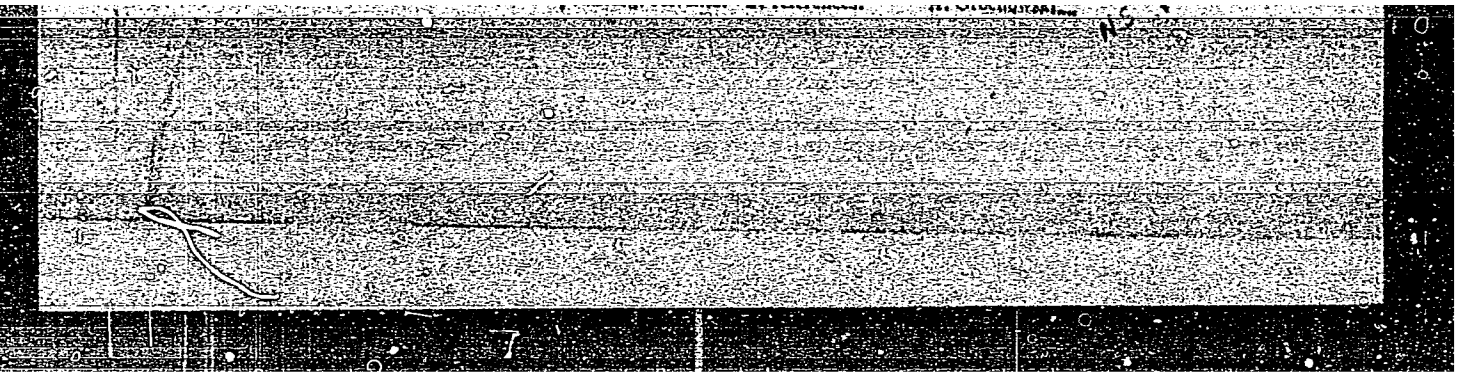
"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

MEDVEDEV, S.S.

Chemical reactions in dispersed systems in connection with the mechanism of emulsion polymerization. P. M. Khomikovskii and S. S. Medvedev. *Trudy 3 Vsesoyuz. Konf. Kolloid. Khim., Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 1956, 440-9.—Elementary reactions taking place during emulsion polymerization are discussed and several sources, mostly Russian, are quoted. Examples given are polymerization of styrene and of Me methacrylate in water and in emulsifier solns. such as Na lauratc. The increase of the total velocity of the reaction during the emulsion-polymerization takes place not only because of the decrease in the velocity of the chain breaking reaction but also because

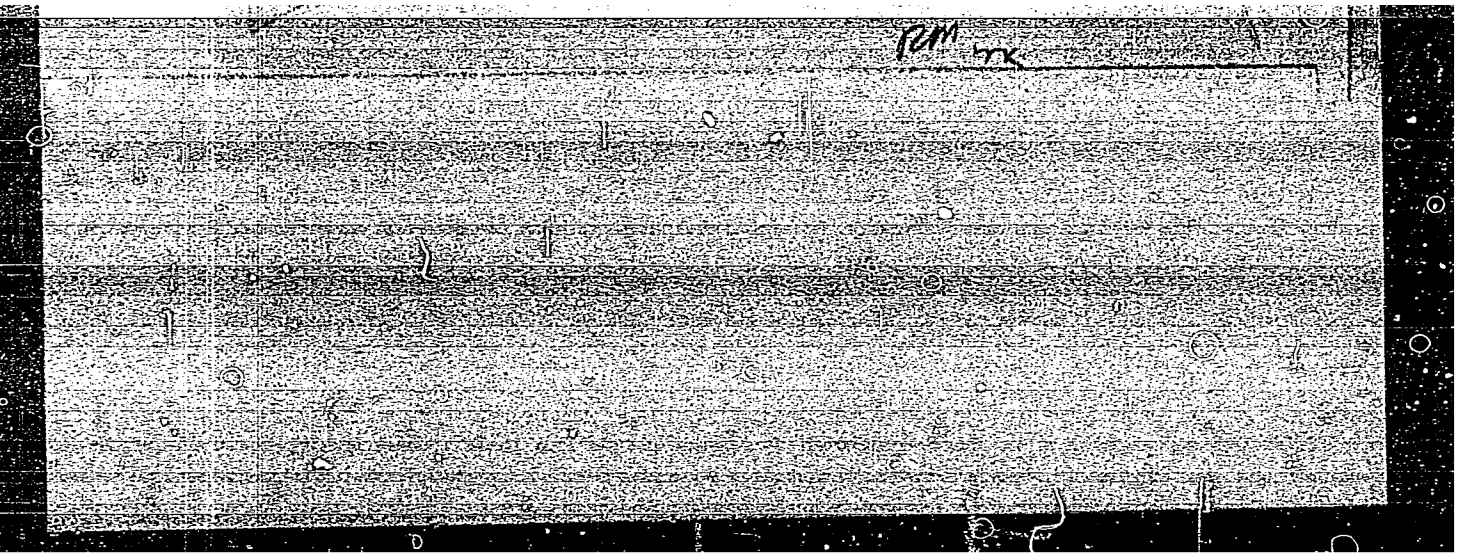
APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9



APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9



APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

USSR/Chemistry of High-Molecular Substances, F

Abst Journal: Referat Zhur - Khimiya, No 1, 1957, 1110

Author: Soboleva, I. G., Makletsov, N. V., Matveyeva, A. V., and Medvedev, S. S.

Institution: None

Title: Investigation of the Structure of Butadiene-Styrene Copolymers

Original Periodical: Kolloid. zh., 1956, Vol 18, No 3, 344-349 (published with a summary in English)

Abstract: Osmometric (osm) and light-scattering (list) methods have been applied to the determination of the molecular weight M of a number of butadiene-styrene copolymer fractions, prepared by carrying out polymerization until varying degrees of conversion were achieved, as well as of some unfractionated polymers; the dissymmetry factor and the intrinsic viscosity were also determined. The large differences between M (osm) and M (list) which were observed point to the presence of relatively large amounts of very large particles in the butadiene-styrene copolymer

Card 1/2

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

USSR/Chemistry of High-Molecular Substances, F

Abst Journal: Referat Zhur - Khimiya, No 1, 1957, 1110

Abstract: solution. The influence of these particles can be detected only by statistical averaging. The presence of such particles is also indicated by the large values of the dissymmetry factor and the turbidity factor. The authors assume that the macroparticles present in solution form the seeds of extended layers. The hypothesis postulating the formation of large molecules with extended chains during the polymerization of styrene with butadiene is also confirmed by the low rate of increase in the assymmetry of light dispersion and the reduction in intrinsic viscosity with increasing molecular weight. It is shown that the heterogeneity of the fractions and chain length of the copolymer molecules increase with conversion and reaction temperature.

Card 2/2

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

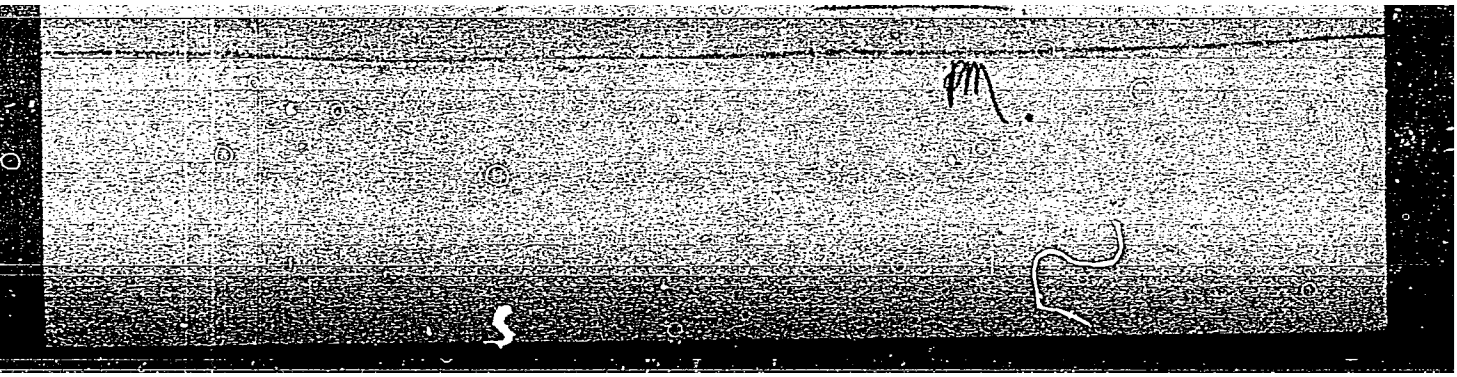
Medvedev, S.S.

4

Study of the mechanism of emulsion polymerization. E. V. Zabolotskaya, I. G. Soboleva, N. V. Makletsova, and S. S. Medvedev (L. Ya. Karpov Inst. Phys. Chem., Moscow). *Kolloid. Zhur.* 18, 420-8(1956); cf. *C.A.* 50, 16301h. —An aq. soln. of *N*-cetylpyridinium bromide (I) and H_2O_2 (0.45%) was continually satd. with isoprene (II) vapor at 50°. Except during a 1st period (of satn.), the rate of the uptake of II by the aq. phase (i.e. polymerization) was const. during each reaction; it was greater when the concn. of I was greater (5% instead of 2.5%). The total area of the latex globules in 1 cc. changed little during the reaction; it was about 4×10^3 in 5% I and 3.3×10^3 sq. cm. in 2.5% I; thus, the reaction occurred on the surface of the globules.

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9



APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

MEDVEDEV, S. S.

Kinetics and mechanism for polymerization processes initiated by oxidation-reduction systems. I. Different mechanisms for initiating polymerization processes in aqueous solutions by peroxide compounds. T. M. Gritsenko and S. S. Medvedev (L. Ya. Karpov Phys. Chem. Inst., Moscow). Zhur. Fiz. Khim. 30, 1238-46(1956).—The kinetics for the polymerization of methacrylic acid and acrylonitrile (I) in the presence of the hydroperoxide of cumene (C_6H_5C-Me_2OOH) (II) was studied by the dilatometric method in the temp. range 30-75°. Kinetic equations were derived on the basis of the following 2 mechanisms for the formation of the initial active centers: (a) unimol. decompn. of II and

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

GRITSENKO, T.M.; MEDVEDEV, S.S.

Kinetics and mechanism of polymerization initiated by redox systems. Part 2. Polymerization in aqueous solution of methacrylic acid and acrylonitrile in the presence of certain redox systems [with English summary in insert]. Zhur.fiz.khim. 30 no.7:1513-1520 Jl '56. (MLRA 9:11)

1. Fiziko-khimicheskiy institut imeni L.Ya.Karpova, Moskva.
(Methacrylic acid) (Acrylonitrile) (Polymerization)

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

MEDVEDEV, S. S.

The simultaneous carbonium polymerization of unsaturated compounds. I. Simultaneous polymerization of isoprene with styrene. T. E. Lindtova, A. R. Gantmakher, and S. S. Medvedev (L. Ya. Karpov Phys.-Chem. Inst., Moscow). *Zhur. Fiz. Khim.* 30, 1752-9(1956).—The rate of polymerization was studied in relation to the compn. of the starting mixt. The mol. wt. and the compn. of the polymers were detd. The data show that 3 components participate in the polymerization: isoprene, styrene, and the copolymer. The data on the compn. of the copolymer show

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

mer is enriched in its isoprene content. J. Rovtar Leach

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

MEDVEDEV, S.S.

[illegible]

Bull translation).—See C.A. 51, 1644a. R. M. R.

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

Medvedev, S. S.

USSR/ Chemistry - Physical chemistry

Card 1/1 Pub. 22 - 34/54

Authors : Soboleva, I. G.; Makletsova, N. V.; and Medvedev, S. S., Memb. Corr., Acad. of Sc., USSR

Title : Formation of polymers in solutions in presence of a precipitating agent

Periodical : Dok. AN SSSR 106/2, 303-306, Jan 11, 1956

Abstract : Linear polystyrene and butadienestyrene copolymers having a different degree of branching were investigating to determine the structure of polymers formed in solutions in the presence of a settling agent. Nephelometric molecule dimension measurements were made in a pure toluene solution of polystyrene and in solutions with different settling agent admixtures. The minimum molecule dimension observed near the point of settling was found to be the parameter characterizing the structure of the molecular polymer chain and the branching properties of polymers. Six references: 3 USSR, 1 Eng., 1 USA and 1 French (1950-1954). Tables; graphs.

Institution : Scient. Res. Physicochemical Inst. im. L. Ya. Karpov

Submitted : April 1, 1955

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

MEDVEDEV, S.S.

3

M.A. YOUTZ

2 copies

Investigation of copolymerization of hexadecyl and methyl acrylates in a toluene solution. S. N. Kamenskaya, A. D. Abkin, and S. S. Medvedev. *Doklady Akad. Nauk S.S.S.R.* 106, 855 [illegible]; *A. C.A.* 45, 3227e.—The relative reactivity of polymerization of 2 chemically similar monomers and their copolymerization was studied on the basis of the results reported before (*loc. cit.*). Me acrylate was purified by washing, drying, and distn. at 38-9° and 155 mm. Hg. Ether distd. from the monomer was used in its polymerization, doing away with the induction period. Hexadecyl acrylate was synthesized from hexadecanol and Me acrylate in the presence of *p*-toluenesulfonic acid. The ester was distd. *in vacuo* in the presence of metallic Cu, and the 155-60° fraction at 1.4 mm. Hg, m.p. 24°, n^{20} = 1.4509, d^{20} = 0.859, was collected. Pure Bz_2O_2 was used as the reaction initiator. For copolymerization, a toluene soln. with the monomer concn. of 1.5 moles/l. was used. The polymerization rate was observed dilatometrically, at 50 ± 0.05°. The hexadecyl acrylate polymerization rate was found to be 2.8 times greater than of Me acrylate, and this rate was found to be the same at lower concns. of monomers. The copolymerization rate was calcd. by using the previously derived formula, which involved the use of the individual polymerization rates of the monomers, and the coeff. λ which characterizes the ratio of the ratio of the constants of the individual monomers polymerization initiation. The value of λ was found to be 6 from the kinetic data, and nearly the same value from the av. of polymerization. By assuming the value for the Me acrylate chain growth rate $K_{A \cdot A} = 10^6 e^{-1000/RT}$ (Matheson, *et al.*; *C.A.* 46, 1852e), the values for $K_{A \cdot A}$ = 1558; $K_{B \cdot B}$ = 1507; $K_{A \cdot B}$ = 1731; and $K_{B \cdot A}$ = 1256.

W. M. Sternberg

7
0
0
0
2
9

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

MEDVEDEV, S.S.

3

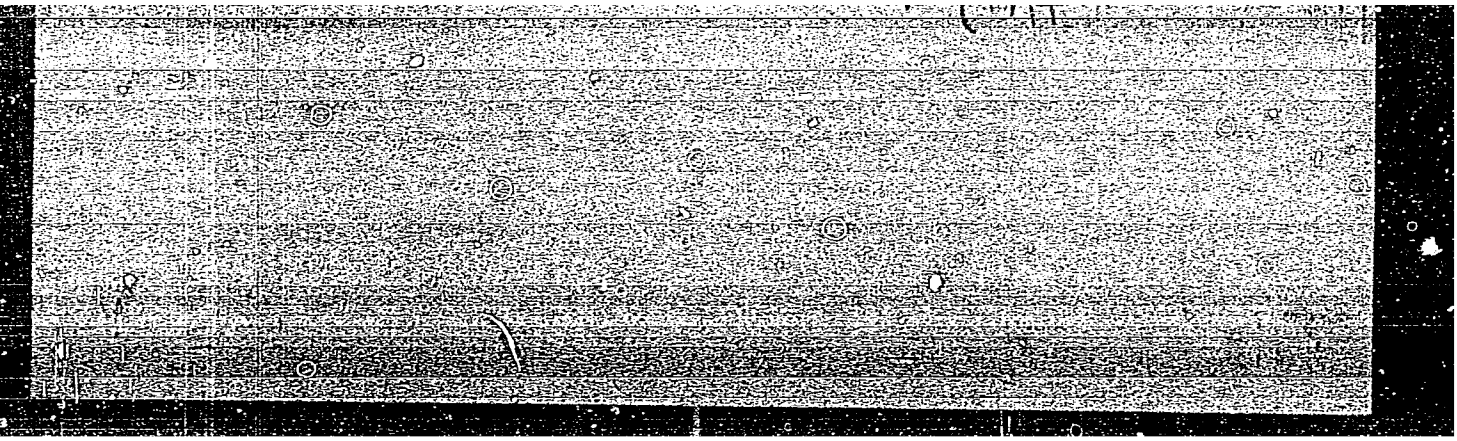
1 Pm

2 May

Mechanism of catalytic polymerization of unsaturated compounds. A. R. Gantmakher and S. S. Medvedev (Inst. Khim. Nauk, SSSR, [illegible]) [illegible] of vinyl alkyl ethers in [illegible] (initiation of chain): $M_1I^+ + M \rightarrow M_2I^+$ (growth of chain); $M_nI^+ + I^- \rightarrow M_nI + HI$ and $M_nI^+ + I^- \rightarrow M + IM_nI + MI_2$ (breaking of reaction chains), for which the velocity const. are k_1, k_2, k_3 and k_4, respectively. If $k_1 < k_2$, the velocity of polymerization is given by [illegible]

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9



APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

Medvedev, S. S.

1 — gum

Investigation of the ω-polymerization mechanism of chloroprene by the tagged atom method. A. N. Pravednikov and S. S. Medvedev. *Doklady Akad. Nauk S.S.S.R.* 109, 579-81(1956). — The ω-polymerization process which results in the rupture of C-C bond polymer chains was studied experimentally. To accomplish it C^{14}-contg. chloroprene was synthesized, in which the ω-polymer nucleus was produced in the usual way, and the radioactivity distribution in the polymer was investigated; its polymerization process without any C-C bond rupture would cause only the polymer outer part to be radioactive; if there is a rupture the whole polymer would be radioactive. These results, and the results given earlier (*C.A.* 50, 4543*f*) permit the description of the chloroprene polymerization process as proceeding by an anion mechanism and also with a ω-polymer formation by radical formation through the rupture of polymer mols.

W. M. Sternberg

RM aerf
RMS

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

MEDVEDEV, S.S.

Category: USSR/Chemistry of High-Molecular Substances F.

Abs Jour: Referat Zhur-Khimiya, No 9, 1957, 30897

Author : Gritsenko T.M., Medvedev S.S.
Inst : Academy of Sciences USSR
Title : Kinetics of Polymerization of Acrylic Acid and Methacryl nitril in Water Solution in the Presence of Cumene Hydroperoxide

Orig Pub: Dokl. AN SSSR, 1956, 110, No 2, 235-237

Abstract: Study of the kinetics of polymerization of acrylic acid (I) and nitril of methacrylic acid (II) in aqueous solutions in the presence of cumene hydroperoxide (III) at 30-70°. Summative energy of activation of I and II, respectively, is of 9.0 and 20.2 kcal/mole. Polymerization of II occurs with acceleration with lapse of time, which the authors attribute to the capacity of II-polymer to extract II and III from the solution. Order of reaction of the monomer is 3/2 in both instances. Dependence of initial rate of polymerization of I and II on the concentration of III, are analogous to those previously deter-

Card : 1/2 -9-

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

MEDVEDEV, S. S., and PRAVEDNIKOV, A. N.

"Kinetics and mechanism of chloroprene polymerization," a paper presented at the 9th Congress on the Chemistry and Physics of High Polymers, 28 Jan-2 Feb 57, Moscow, Karpov Inst.

B-3,084,395

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

MEDVEDEV, S. S., and GANTMAKHER, A. A.

"Kinetics of coplymerization," a paper presented at the 9th Congress on the Chemistry and Physics of High Polymers, 28 Jan-2 Feb 57, Moscow, Karpov Inst.

B-3,084,395

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

MEDVEDEV, S. S., and GRIZENKO, T. M.

"Initiation of emulsion copolymerization with cumylhydroperoxide," a paper presented at the 9th Congress on the Chemistry and Physics of High Polymers, 28 Jan-2 Feb 57, Moscow, Karpov Inst.

B-3,084,395

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

MEDVEDEV, S. S., and KHONYAKOVSKIY, P. M.

"Activation energy in emulsion polymerization," a paper presented at the 9th Congress on the Chemistry and Physics of High Polymers, 28 Jan-2 Feb 57, Moscow, Karpov Inst.

B-3,084,395

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

MEDVEDEV, S. S., and SABOLOTSKAYA, E. V.

"The role of absorbed layers in emulsion-polymerization," a paper presented at the 9th Congress on the Chemistry and Physics of High Polymers, 28 Jan-2 Feb 57, Moscow, Karpov Inst.

B-3,084,395

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

MEDVEDEV, S. S.

"Radiation polymerization," a paper submitted at the International Conference on Radioisotopes in Scientific Research, Paris, 9-20 Sep 57.

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

MEDVEDEV, S. S. Prof.

"Mechanism of Initiation," Section II, paper submitted at the International Symposium on Macromolecular Chemistry, Prague, 9-15 Sep 1957

C-3,800,271

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

MEDVEDEV S.S.
(Card 2)

AUTHOR: None Given 3-9-19/31

TITLE: Inter-vuz Scientific Conferences (Mezhvuzovskiye nauchnyye konferentsii)

PERIODICAL: Vestnik Vysshey Shkoly, 1957, # 9, pp 73 - 76 (USSR)

ABSTRACT: In January 1957, the Second All-Union Conference on Photosynthesis took place, organized by the Institute of Plant Physiology of the Academy of Sciences, USSR, and by the Faculty of Soil-Biology of the Moskva University. About 700 representatives of 130 scientific-research institutes, vuzes and ministries were present. The introductory report was made by Academician A.L. Kursanov who described the development of photosynthesis during the last ten years and invited the scientists to concentrate their work on the application of radioactive and stable isotopes. Nearly 100 reports were read: 13 on photochemistry, 9 on the investigation of chloroplast structure, 19 on the investigation of pigments, 9 on the photosynthesis of water plants, bacteria, etc.

Reports on the results reached in the field of photosynthesis were made by: Doctor G. Polster from the German Democratic Republic, Professor N. Seledzhanu from the Rumanian People's Republic, Professor K. Popov from the Bulgarian People's Republic. Finally the Conference stated the great role of Soviet scientists in the development of photosynthesis and gave some defi-

Card 1/7

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9

ciencies in the research organization, in particular, the insufficient participation of biologists in the solution of the problem in question.

The Ninth Conference on High-molecular Combinations took place from 28 January to 1 February. It was organized by the USSR Academy of Sciences and the MGU and concentrated on general matters of polymeric chemistry and physics. About 1500 scientists were present from 172 organizations and 37 towns of the Soviet Union, the representatives of 42 vuzes and 17 foreign scientists from China, East Germany, Poland, Rumania, Czechoslovakia, Yugoslavia, the German Federal Republic and Israel.

The introductory speech was made by Academician V.A. Kargin, who described the present state of science relating to polymers, and invited the scientists to concentrate their work on new methods of obtaining polymers, and new classes of high-molecular substances. In the section of polymeric synthesis 43 papers were read. The author enumerates the following reports: Academician A.N. Nesmeyanov on the reaction of ethylene polymerization and carbon tetrachloride.

S.S. Medvedev, Member-Correspondent of the USSR Academy of Sciences, on the kinetics of various types of polymerization.

Professor B. A. Dolgoploska (Leningrad) on the initiation of radical polymerization.

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033310001-9"