"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5

PAVLINCHENKO, N. M.

Pavlinchenko, M. M. and Sokolov, M. M., Oxidation of pinene and carene by molecular oxygen. P. 1168.

It is established that the oxidation reactions of pinene and carene are autocatalytic. The reaction proceeds in the border of division liquid - gas as well as in the volume of the liquid phase with dissolved oxygen. It is established that the reaction products are the photosensitizers of these reactions.

Chemistry Institute of the Acad. of Sci. of the Belorussian SSR.
May 7, 1948.

SO: Journal of Applied Chemistry (USSR) 21, No. 11.

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5

C. Nonferrous + Refining

PAVLINCHENKO, M.M.

64-C. **The Reduction of Copper Oxide by Hydrogen.** (In Russian.) M. M. Pavlinchenko and Ia. S. Rubanchik. Zhurnal Prikladnoi Khimii v 24 June 1951 p 666-670

Experiments were made to study the dependence of the rate of reduction of copper oxide on temperature and the presence of other materials. Results are charted. 11 ref (C2 Cu)

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5

L 9106-65 ESD(t)/AFWL/RAEM(t)/SSD

ACCESSION NR: AT4049278 S/0000/64/000/000/0001/0004

AUTHORS: Bondarenko, I. I.; Kuznetsov, V. F.; Nesterov, V. G.; Pavlinchuk, V. A.; Prokhorova, L. I.; Rabotnov, N. S.; Smirenkin, G. N.; Usachev, L. N.

TITLE: Effect of the energy gap in the channel spectrum on the fission process

SOURCE: Vliyaniye energeticheskoy shcheli v spektre kanalov na protsess deleniya, 1964, 01-04 *

TOPIC TAGS: nuclear fission, fission cross section, fission product, fission neutron, angular distribution, uranium, plutonium

ABSTRACT: The experiments reported constitute a later stage of a study of the fission process (Yu. A. Blyumkina et al., Atomnaya energiya, v. 15, 64, 250, 1963), and are intended to clarify further the nature of the previously observed correlation between the irreg-

*[No source given.]

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L 9106-65

ACCESSION NR: AT4048278

ularities in the energy dependences of the fission characteristics. The angular distribution of the cross section $\sigma_f(\theta)$ of the fission of U^{233}, U^{235}, and Pu^{239} by neutrons with energies between 0.08 and 1.25 MeV was measured by a procedure described elsewhere (V. G. Nesterov et al., Atomnaya energiya 16, no. 6, 1964). The data obtained on $\sigma_f(\theta)$ confirm the earlier results of the authors (V. G. Nesterov et al., Atomnaya energiya 10, 620, 1961 and 11, 248, 1961) and show that the correlated increases and decreases in the asymmetry $\sigma_f(0°)/\sigma_f(90°)$ correspond to abrupt changes in the angular distributions of the fission fragments. The various irregularities in the angular distributions at different fissioning-neutron energies are interpreted as being connected with the opening up of new fission channels. In particular, the change in the character of $\sigma_f(\theta)$ when U^{235} is fissioned by neutrons with $E_n \lesssim 0.3$ MeV is due to the opening up of fission channels with $k = 2$ (k -- projection of total angular momentum of the compound nucleus on the fission axis). It is also shown that, in contrast to earlier notions, new

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L 9106-65

ACCESSION NR: AT4048278

fission channels can open up at energies up to the excitation energy at the saddle point ($E^* = 2.5$ MeV), where the energy gap of even-even nuclei is noticeable larger (~2.7 MeV) than in the equilibrium state. The presence of an energy gap in the level spectrum of the transition nucleus U^{236} can likewise explain the observed decrease in the number of secondary fission neutrons near 2.2 MeV. Other experimental data are interpreted in light of these results. Orig. art. has: 3 figures.

ASSOCIATION: None

SUBMITTED: 00 ENCL: 00

SUB CODE: NP NR REF SOV: 004 OTHER: 007

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5

L 13635-63 EWT(m)/BDS AFFTC/ASD

ACCESSION NR: AP3003125 S/0056/63/044/006/1950/1952

52

AUTHOR: Usachev, L. N.; Pavlinchuk, V. A.; Rabotnov, N. S.

TITLE: Determination of the fission threshold from experiments on the (d, pf) and (Gamma, f) reactions

SOURCE: Zhurnal eksper. i teor. fiziki, v. 44, no. 6, 1963, 1950-1952

TOPIC TAGS: fission thresholds, deuteron induced fission, gamma induced fission

ABSTRACT: The experimental data on the energy dependence of the cross sections of the reaction (d, pf) on the nuclei U sup 233, U sup 35, and Pu sup 239, at excitation energies lower than the neutron binding energy in the compound nucleus, are interpreted under the assumption that when the fission channel is fully open the fission width is much larger than the radiation width, in agreement with estimates made by the Bohr-Wheeler formula. It is shown that the converse assumption (fission width much smaller than radiation width), which was actually used previously in such an analysis, leads to fission threshold values that are lower than the true ones by several hundred keV. It is noted that to determine the threshold it is necessary to know much more accurately the energy dependence of the barrier penetrability, which furthermore can be different for different thresholds. All the considerations advanced in the article should also be applied to thresholds determined from the results.

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5

USACHEV, I. N.; PAVLINCHUK, V. A.; RABOTNOV, N. S.

Analysis of the observable distributions of resonance widths in U^{233} and Pu^{239}. Atom. energ. 17 no.1:22-27 Jl '64. (MIRA 17:7)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5

L 20046-65 EWT(m) SSD/AFWL/ESD(t)/DIAAP EM
ACCESSION NR: AP5001270 S/0089/64/017/006/0479/0485

AUTHOR: Usachev, L. N.; Pavlinchuk, V. A.; Rabotnov, N. S.

TITLE: Channeling effects during fission of even-even compound nuclei 19

SOURCE: Atomnaya energiya, v. 17, no. 6, 1964, 479-485

TOPIC TAGS: channeling effect, compound nucleus fission, even parity nucleus, fission width, fission, compound nucleus, even even nucleus

ABSTRACT: The experimental data on fission of even-even compound nuclei in (d,pf), (r,f), and (n,f) reactions in the neighborhood of the threshold were analyzed. It was assumed that the average fission width is described by the Bohr-Wheeler formula. When analyzing the data of the (d,pf) reaction from this assumption, it unambiguously follows that, first, there are at least two sets of spins and parities of fission nucleus for which the fission thresholds differ by 0.6—0.8 Mev and, second, these thresholds are higher than formerly supposed. The data of the (γ ,f) reaction were analyzed with the supplementary assumption that the photoabsorption cross section depends very little

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L 20046-65

ACCESSION NR: AP5001270

on the energy in the range of the order of 1 Mev as compared with the exponential growth of fission width in the region $E\gamma = 5 - 7$ Mev. Investigation also led to considerably higher values of photofission thresholds than those accepted heretofore; furthermore, the fission barrier at quadrupole photoabsorption is 0.6—1.0 Mev lower than the barrier of dipole photofission. On comparing the results of the (d,pf) and (γ,f) reactions, it can be said that the first rise in fission in the (d,pf) reaction corresponds to channeling of even parity while the second corresponds to channeling at odd parity. All these results are in agreement with the structure of fission channeling presented by O. Bohr if the distance between the rotational bands of even and odd parity $\Delta_1 \approx 0.6$—1.0 Mev. With such an arrangement of fission channeling, the Bohr-Wheeler formula describes quantitatively the experimental data for average fission widths of reaction (n,f) resonances, except data for the P^{239} nucleus. To explain the sharp deviation in the case of P^{239}, one must assume that the ground state of this nucleus has odd parity. Orig. art. has: 3 figures and 16 formulas.

ASSOCIATION: none

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5

L 20046-65
ACCESSION NR: AP5001270

SUBMITTED: 12Dec63 ENCL: 00 SUB CODE: NP

NO REF SOV: 004 OTHER: 014 ATD PRESS: 3161

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5

23775

S/[illegible]/003/006/[illegible]

15 8102

AUTHORS: Lazar, M., [illegible], Manasek, Z., Mi[illegible]ko, M., Berek, D.

TITLE: Oz[illegible] polypropylene

PERIODICAL: Vysokomolekulyarnyye [illegible]yedineniya, v. 3, no. 6, 196[illegible], 94[illegible] - 94[illegible]

TEXT: One type of polymer m[illegible] an incorporation of functional groups which [illegible] the principal chain. The peroxides or hydrogenper x[illegible] may be important for the production of graft [illegible] studied the accumulation of functional hydrogenper x[illegible] polypropylene by means of ozonization carried [illegible] temperature. After five-fold precipitation of polypr[illegible] by methanol, it dissolved colorless in iso[illegible] sity was [illegible] g (decaline, 25°C). To attain a [illegible] the films were mounted on cylindrical glass frames. At a [illegible] mixture [illegible] low-boiling benzine [illegible] was poured onto

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5

[illegible]

S [illegible]
B [illegible]

Ozonization [illegible]

the water in the frame [illegible] were evaporated. [illegible] mg ozone were formed [illegible] and a flow rate of O_2 of [illegible] determined [illegible], the viscosities [illegible] Samples of different thickness were [illegible] depending [illegible] their thickness [illegible] mm thick films were [illegible] required mechanical strength. Fig.2 shows the [illegible] per oxide accumulation. Fig. 3 illustrates [illegible] between [illegible] C. Viscosity tests [illegible] indicate a partial destruction of the [illegible] samples were found to be incompletely soluble. Fig. 4 [illegible] viscosities and the peroxide concentration during [illegible] oxidation. The content of insoluble components depends on time and temperature of ozonization. Ozone acts as an initiator. The increased reaction rate as compared with those of air or oxygen at low temperatures increases the difference between oxidation- and diffusion rate [illegible] film. Surface and thickness considerably affect [illegible] accumulation. As it is approximately proportional [illegible] the increase of the portions

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5

insoluble after ozonization; the latter represent the oxidation initiator. Their oxidation rate is higher from the beginning of the reaction. They are probably formed by cross linking of polymer chains by peroxide groups, hydrogen peroxides and polymeric peroxides which are formed particularly on the film surface. At a certain temperature a maximum concentration of peroxide oxygen cannot be exceeded at arbitrary oxidation time. (Fig.3). Contrary to atmospheric oxidation, it does not decrease in the case of ozonization, the peroxide decomposition rate being equal to the formation rate. This maximum concentration approximately corresponds to the peroxide concentration in the insoluble part of the film. A dynamic equilibrium is assumed to be present in the system because of the destruction of the macromolecules. At a larger sample thickness the maximum peroxide concentration is attained more slowly. A 10 % content of insoluble fractions corresponds to a surface layer of 0.[illegible] mm in a 0.[illegible] mm thick sample. As in this case the formation of insoluble fractions sets in at once at beginning ozonization, the maximum concentration in small samples is attained more rapidly. At higher oxidation temperatures (39°C, 50°C) the insoluble fractions decrease. Presumably hydroperoxides are formed at the expense

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5

23775

S/190/61/003/006/018/019
B110/B205

Ozonization of atactic polypropylene

of the formation of unstable peroxides at equal total amount of peroxide oxygen, as the latter are exposed to a higher thermal stress. After 1000 hr at room temperature the hydrogenperoxide content decreases by 20 %, all peroxides, however, are already decomposed. There are 5 figures and 6 references: 2 Soviet-bloc and 4 non-Soviet-bloc. The reference to the English-language publication reads as follows: Ref. 1: Natta, J. Polymer Sci., 34, 696, 1959.

ASSOCIATION: Chemical Institute of the Slovakian AS, Bratislava

SUBMITTED: December 16, 1960

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5

S/190/61/003/007/018/021
B101/B230

158061

AUTHORS: Maňásek, Z., Berek, D., Mičko, M., Lazar, M., Pavlinec, J.

TITLE: Formation and decomposition of hydroperoxides of atactic polypropylene

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 3, no. 7, 1961, 1104 - 1109

TEXT: Reference is made to the fact that grafting of side chains and thus modification of polymers is possible by formation of macroradicals. Such macroradicals may be formed by decomposition of peroxides formed in the oxidation of polymers. The target of the present paper was therefore to study the conditions of the formation and decomposition of peroxides on the example of atactic polypropylene. Polypropylene was purified by repeated precipitation from an alcohol and isooctane solution by methanol and heating to 160°C in a nitrogen atmosphere. From a 1% solution of polypropylene in isooctane, films 0.1 mm thick were produced on glass plates and oxidized by heating in air at 90 - 120°C. Determination of peroxides took place in nitrogen atmosphere. To the polymer dissolved in chloroform a saturated acetic acid KI solution was added

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and the iodine released titrated with hyposulfite. The change in molecular weight caused by oxidation was determined viscosimetrically in a decalin solution. Decomposition of peroxides took place at 90 - 120°C in nitrogen atmosphere in sealed ampuls. A study of the oxidation showed that the same was depending on the diffusion of oxygen in the film, herewith on the thickness of the film. At rising temperature oxidation was faster than the rate of diffusion of O_2 in the film. Optimum film thickness was found to be [illegible] mm. Fig. [illegible] shows the kinetic course of oxidation as a function of reaction time. For the initial phase of the reaction the equation $d[ROOH]/dt = [illegible]ROOH$ [illegible] is put down, where [illegible] is the autocatalytic factor, $[ROOH]$ is the concentration of peroxides determined experimentally after termination of time t. In the subsequent phases of oxidation α is not constant any longer. The empirical equation: $[ROOH]_t = [illegible]/([illegible]) \exp(-[illegible]) \exp(-[illegible]) + [ROOH]_{init} \exp([illegible]t)$ [illegible] is quoted α, β, γ are constants. For 100°C, and assuming $\alpha = 1.078$, $\beta = 0.11$, $\gamma = 0.038$, $[ROOH]_{init} = 0.385$, the curve was calculated and drawn into Fig 2 as a dash line. From the linear dependences $\log \alpha = f(1/T)$; $\log \alpha = f(1/T)$,

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where w is the rate of oxidation, the activation energy of the accumulation of peroxides in the polymer was calculated to be 24 - 25 kcal per mole. The induction period observed may be reduced or entirely eliminated by previous accumulation of peroxides, e. g., by treating the polymer with ozone. It was found that the intrinsic viscosity (and therefore also the molecular weight) decreases with increasing concentration of peroxides, regardless to temperature, following the same rules. Decomposition of the peroxides in inert atmosphere takes place as a reaction of second order (Fig. 5). Dependence 1/ ROOH = f(T) is a linear function. Activation energy calculated from the constant of destruction rate amounts to 27 kcal per mole. The same value results from the function log $1/t_{max}$ = f(1/T), where t_{max} is the time in which maximum concentration of peroxides is attained. V. B. Miller and M. B. Neyman are mentioned. There are 7 figures and 5 references: 2 Soviet-bloc and 3 non-Soviet-bloc. The reference to English-language publication reads as follows: G. Natta, E. Beati, F. Severini, J. Polymer Sci., 34, 685, 1959.

ASSOCIATION: Chemical Institutes of the Slovakian Academy of Sciences, Bratislava

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LAZAR, Milan, inz., C.Sc. (Bratislava, Kollarovo namesti 2, Chemicky pavilon, Slovenska vysoka skola technicka); PAVLINEC, Jiri, inz. (Bratislava, Kollarovo namesti 2, Chemicky pavilon, Slovenska vysoka skola technicka)

Transfer reactions of polymethylmethacrylate radical with some solvents. Chem zvesti 15 no.6:428-434 Je '61.

1. Ustav dreva, celulozy a chemickych vlakien, Slovenska akademia vied, Bratislava.

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PAVLINEC, J.

Symposium on macromolecular chemistry in Paris. Chem zvesti 17 no.12:920-92[illegible] '63.

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5

COUNTRY : Czechoslovakia I
CATEGORY :

ABS. JOUR. : RZKhim., No. 1959, No. 88952

AUTHOR : Mikulasova, D.; Pavlinec, J.; Simek, I.; *
INST. :
TITLE : Polymerization of Tetrasubstituted Allyl Methyl Silanes. IV. Copolymerization of Methyl Methacrylate with Triallylmethyl Silane **
ORIG. PUB. : Chem. zvesti, 1959, 13, No 4, 228-233

ABSTRACT : On polymerization of methyl methacrylate with 1-10% triallyl methyl silane or tetrallyl silane (initiator -- benzoyl peroxide) up to a degree of conversion of 10-15% a soluble polymer is formed. Allyl silanes can act as inhibitors or retarders. Communication III see RZhKhim, 1958, No 24, 83994.

Authors' summary

CARD:

* Hrivik, A.
** and with Tetrallyl Silane

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21876

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D229/D302

Transfer reactions of the...

agent. The equation expressing this dependence for a polymerization system in which M is the monomer, S the solvent, and I the initiator, reads: $\frac{1}{\bar{P}} = C_M + C_s \frac{S}{\bar{M}} + C_i \frac{I}{\bar{M}} + \delta^2 \frac{R}{\bar{M}^2}$. The expression $C_M + C_i \frac{I}{\bar{M}} + \delta^2 \frac{R}{\bar{M}^2}$ will be replaced by the symbol X; magnitudes C_M, C_s and C_i are transfer constants for the pertinent agents, expressing the ratio of velocity constants of the transfer reaction to the velocity constant of the macroradical growth; δ^2 is the ratio of the velocity constant of the termination to the square of the velocity constant of the growth; and R is the polymerization rate. Values for $C_M = 0.6 \cdot 10^5$ and for $\delta^2 = 141.5$ were taken from literature. To prepare pure methylmethacrylate for the tests, the stabilizer was extracted by gradual shaking with 10% solutions of NaOH, H_2SO_4, K_2CO_3 and distilled water, and by distillation of the monomer directly before starting the tests. The polymerization was performed in an 8 ml sealed glass ampoule in nitrogen atmosphere

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at 50°C. It was carried on to a maximum conversion of 7.5% (only in the case of n-heptane, isooctane, and monomer concentration of less than 7.5 mol/l, the conversion exceeded 10%). The polymer was isolated by mixing the ampoule content with chloroform and precipitation with an excess of methanol. The flaky polymer precipitate was dried in vacuum. The average polymerization degree of the unfractionated polymer in chloroform solution was $\log \bar{P} = 4.24 + 1.257 \cdot \log [\eta]$. The intrinsic viscosity $[\eta]$ (expressed in $l \cdot gr^{-1}$) was determined by measuring the viscosity of the polymer solution at 25°C in an Ubbelohde viscosimeter with a flow-time of 304.8 sec for the pure solvent. Transfer constants of the methylmethacrylate - hydrocarbon reaction are difficult to determine due to the limited solubility of the polymer in non-polar solvents. At ξ_S values greater than 0.2, anomalities originate in the course of the $\frac{1}{\bar{P}} - X$ function, and the transfer constant C_s can only be determined from the initial course of the function, where the trend is still positive. In this way, transfer constants $C_s = 1.8 \cdot 10^{-4}$ were obtained for n-heptane and $C_s = 1.2 \cdot 10^{-4}$ for isooctane. The

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Transfer reactions of the...

change of the initial course of the polymerization function in non-polar solvents can visually be observed with the aid of polymer precipitation and the increase in the polymerization rate to approximately 4-times the block-polymerization rate, while the polymerization rate in other solvents remains equal. An increase of $\bar{P}$ and R by increasing the concentration of the solvent, is connected with a considerable decrease in the velocity constant k_t for termination. The influence of the solvent on the change of k_t can also be used at lower concentrations of the transfer agent, even when the polymer precipitation cannot be visually observed, and can influence the determination of C_s with other solvents than hydrocarbons. Experimentally obtained $\frac{1}{\bar{P}}$ values for higher $\frac{S}{\bar{M}}$ ratios are lower than those calculated by the function $\frac{1}{\bar{P}} - X = C_s \cdot \frac{S}{\bar{M}}$, an effect which could be observed for all solvents at $\frac{S}{\bar{M}}$ ratios nearing 1. Values for $\frac{1}{\bar{P}}$ at various $\frac{S}{\bar{M}}$ ratios and calculated transfer constants for

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Transfer reactions of the...

various solvents are listed in Table 1.

Table 1: Transfer constants C_s for methylmethacrylate polymerization in various solvents at 50°C and an initiator concentration of $2.06 \cdot 10^{-2}$ mol/l. (1) ethyl acetate, (2) n-propyl acetate, (3) isopropyl acetate, (4) n-butyl acetate, (5) isobutyl acetate, (6) secondary-butyl acetate, (7) tertiary-butyl acetate, (8) isooctane, (9) n-heptane. (a) graphically determined values, (b) constant $\frac{1}{\bar{M}} = 2.17 \cdot 10^{-3}$ moles/mol.

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Transfer reactions of the...

Rozpúšťadlo	$\frac{S}{M}$	$\frac{1}{\bar{P}} \cdot 10^4$	$\left(\frac{1}{\bar{P}} - X\right) \cdot 10^4$	$C_s \cdot 10^4$
① etylacetát	0	2,36	0,00	0,8
	0,044	2,46	0,07	
	0,11	2,66	0,18	
	0,183	2,82	0,18	
	0,266	3,10	0,32	
	0,457	3,58	0,45	
	1,19	5,39	1,06	
② n-propylacetát	0	2,39	0,09	0,5
	0,035	2,44	0,05	
	0,093	2,57	0,09	
	0,161	2,80	0,10	
	1,02	4,88	0,55	
③ izopropylacetát	0	2,43	0,13	0,8
	0,092	2,52	0,04	
	0,151	2,76	0,12	
	0,220	2,87	0,09	

Table 1

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Transfer reactions of the ...

Table 1 cont'd.

	0,37 0,98	3,44 5,12	0,31 0,79	
④ n-butylacetát)	0 0 0 0,006 0,02 0,032 0,046 0,050 0,091 0,158 0,191 0,2 0,24 0,283 0,355 0,447 0,563	2,30 2,32 2,33 2,305 2,348 2,378 2,335 2,378 2,482 2,570 2,635 2,585 2,695 2,818 2,925 2,830 3,035	— — — — — — — — — — — — — — — — —	1,3
⑤ izobutylacetát	0,03 0,08 0,134 0,194 0,335 0,86	2,59 2,71 2,89 2,94 3,4 4,93	0,20 0,23 0,25 0,16 0,27 0,60	0,5

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D229/D302

Transfer reactions of the ...

Table 1 cont'd.

Pokračovanie tab. 1

Rozpúšťadlo	$\frac{S}{M}$	$\frac{1}{\bar{P}} \cdot 10^4$	$\left(\frac{1}{\bar{P}} - X\right) \cdot 10^4$	$C_s \cdot 10^4$
(6) *sek*-butylacetát	0 0,031 0,080 0,134 0,194 0,335 0,86	2,51 2,53 2,65 2,87 2,94 3,40 4,70	0,21 0,14 0,17 0,23 0,16 0,27 0,37	0,2
(7) *terc*-butylacetát	0,03 0,08 0,191 0,320 0,840	2,41 2,53 2,99 3,35 4,78	0,02 0,05 0,21 0,22 0,45	0,5
(8) izooktán[a])	—	—	—	1,2
(9) *n*-heptán[a])	—	—	—	1,8

Card 8/10

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22976

Z/043/61/000/006/001/002
D229/D302

Transfer reactions of the...

Applying the assumption made by M. Lazár, J. Pavlinec and Z. Manásek (Ref. 5: Collection, v tlači (now printing)) that the resulting C_s is the sum of partial C_s values of individual groups in the molecule, partial constants for transfer to CH_3, CH_2 and CH groups obtain values of $0.05 \cdot 10^{-4}$, $0.3 \cdot 10^{-4}$ and $0.65 \cdot 10^{-4}$. The ratio of reactivities of these C-H bindings (0.1 : 1 : 4) and C_s values estimated according to the assumption made in Ref. 5; (Op. cit.) coincide well with actually measured values, considering that not very effective transfer agents of the polymethylmethacrylate chain are involved and that relative errors inherent in differential calculations are always rather large. In conclusion, the authors state that the anomaly observed in the dependence of the polymerization degree ($\bar{P}$) on changing ratios of solvent to monomer($\frac{S}{M}$), indicates a decrease of the termination constant due to the increasing solvent concentration. There are 2 figures, 1 table and 5 references: 2 Soviet-bloc and 3 non-Soviet-bloc.

Card 9/10

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5

21876

Z/043/61/000/006/001/002
D229/D302

Transfer reactions of the...

ASSOCIATION: Ústav dreva, celulózy a chemických vlákien Slovenskej akadémie vied v Bratislave (Institute for Wood, Cellulosis and Chemical Fibers, Slovak AS, Bratislava).

SUBMITTED: July 4, 1961

Card 10/10

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5

Polymerization of tetrasubstituted allylmethylsilanes. IV. Copolymerization of methyl methacrylate with triallylmethylsilane and tetraallylsilane. D. Mikulášová, J. Pavlinec, I. Šimek, and A. Hrivík (Slovenská vysoká škola tech., Bratislava, Czech.). *Chem. zvesti* 13, 228-33(1959) (German summary); cf. *C.A.* 52, 13016b.—The copolymerization of Me methacrylate with 1-10% of triallylmethylsilane or of tetraallylsilane with B_2O_3 as an initiator is described. Up to 10-15% conversion, a fully sol. polymer is formed. The polymerization of Me methacrylate is retarded or inhibited by the action of allylsilanes.

Jan Mička

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5

PAVLINEC Miroslav, inz.

Photographic method of representing liquid flow. Jemna mech opt 9 no.5:145-146 My '64.

"Practical principles of optical methods in chemistry" by [inz. CSc.] Eduard Plako. Reviewed by M.Pavlinec. Ibid.:160

"Principles of reproduction photography" by [inz.] Frantisek Jarusek. Reviewed by M.Pavlinec. Ibid.:160

"Design of the instruments of precision mechanics" by Jeno Ferenczy. Reviewed by M.Pavlinec. Ibid.:3 of cover

"Technology of mold production." Pt.1. Reviewed by M.Pavlinec. Ibid.:3 of cover

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5

PAVLINEC Miroslav, inz.

Photographic method of representing liquid flow. Jemna mech op' 9 no.5:145-146 My '64.

"Practical principles of optical methods in chemistry" by [inz. Dr.] Eduard Plako. Reviewed by M.Pavlinec. Ibid.:160

"Principles of reproduction photography" by [inz.] Frantisek Jarusek. Reviewed by M.Pavlinec. Ibid.:160

"Design of the instruments of precision mechanics" by Jeno Ferenczy. Reviewed by M.Pavlinec. Ibid.:3 of cover

"Technology of mold production." Pt.1. Reviewed by M.Pavlinec. Ibid.:3 of cover

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5

SAVINEC, M., inz.

"Handbook of length measurement technique" by [illegible] K. Lehmann. Reviewed by M. Savinec. Jemna mech. opt. no.4:2 of cover '64.

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5

PAVLINEC, M., inz.

"Function, operation and maintenance of hydraulic drive of machine tools" by Josef Pivonka. Reviewed by M.Pavlinec. Jemna mech opt 7 no.9:273 S '62.

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5

PAVLINEC, M., inz.

"Atlas of measuring instruments" by Fritz Henze. Reviewed by M. Pavlinec. Jemna mech opt 8 no. 12: 407 D '63.

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5

PAVLINEC, M., inz.

"Optics in length measuring technology" by Fritz Hodam. Reviewed by M. Pavlinec. Jemna mech opt 8 no. 12: 407 D '63.

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5

PAVLINEC, M., inz.

"Clamping of workpieces on machine tools in piece production" by Josef Poch. Reviewed by M.Pavlinec. Jemna mech opt 7 no.9:273 S '62.

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5

PAVLINEC, M., inz.

"Measurement in industries" by [dr.] Vaclav Sindelar. Reviewed by M. Pavlinec. Jemna mech opt 7 no.12:388 D '62.

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5

PAVLINEC, M., inz. (Bratislava)

Diaphragms in pressure gauges. Jemna mech opt 6 no.2:46-49 F '61.

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5

PAVLINEC, M., inz.

"Handbook for milling machine operators" by [inz.] Jan Strabl and others. Reviewed by M. Pavlinec. Jemna mech opt 7 no.11:360 N '62.

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5

PAVLINEC, M., ing.

Determining the stresses in glass. Jemna mech opt 8 no.1:20-26 Ja '63.

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5

PAVLINEC, M., inz.

"Principles of metal working" by Jiri Outrata. Reviewed by M.Pavlinec. Jemna mech opt 7 no.11:360 N '62.

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5

PAVLINEC, M., inz.

"Glass technological practice" by Joseph Herbst. Reviewed by M. Pavlinec. Jemna mech opt 8 no.10:327 O '63.

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5

PAVLINEC, M., inz. (Bratislava)

Measuring the angles and cones with gauge blocks, measuring rollers and balls. Jemna mech opt 7 no.4:116-119. Ap '62.

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5

PAVLINEC, M., inz.

"Welding; questions and answers" by J. Jedlicka and M. Hauner. Reviewed by M. Pavlinec. Jemna mech opt 6 no.4:132 Ap '61.

(Welding) (Jedlicka, J.) (Hauner, M.)

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5

PAVLINEC, M., inz. (Bratislava)

Bellows in pressure gauges. Jemna mech opt 6 no. 6:169-172. Je '61

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5

PAVLINEC, V.

"Photoelasticimetric constant and optical response of model materials."

JEMNA MECHANIKA A OPTIKA, Praha, Czechoslovakia, Vol. [illegible], No. [illegible], April [illegible].

Monthly List of East European Accessions (EEAI [illegible]), Vol. [illegible], No. [illegible] September [illegible].

Unclassified.

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5

PAVLINEC, M.

An instrument for controlling glass stresses. p.320. (Technika Praca. Bratislava. Vol. 8, no. 7, July 1956.)

SO: Monthly List of East European Accessions (EEAL) LC., Vol. 6, no. 7, July 1957. unc1.

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5

Category : CZECHOSLOVAKIA/Optics Physical Optics

Abs Jour : Ref Zhur - Fizika, No 2, 1957 No 4991

Author : Pavlinec, M

Title : Use of Polarizers in the Measurement of Photoelasticity

Orig Pub : Jemna mech. a opt., 1956, 1, No 1, 11-14

Abstract : No abstract

Card : 1/1

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5

PAVLINEC MIROSLAV

Czechoslovakia /Chemical Technology. Chemical Products and Their Application I-12

Silicates. Glass. Ceramics. Binders.

Abs Jour: Referat Zhur - Khimiya, No 9, 1957, 31502

Author : Pavlinec Miroslav

Title : Apparatus for Inspecting Internal Stresses in Glass

Orig Pub: Techn. praca, 1956, 8, No 7, 320

Abstract: The apparatus consists of an illumination chamber with 7 (220 v, 60 w) light bulbs, the light of which passes through a panel of opal glass, over which is placed a polarizing sheet protected by a cover glass. The object under study is placed between polarizer and analyzer; internal stresses therein are revealed by double refraction

Card 1/2

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5

PAVLINEC, Oldrich

Treatment of peritonsillar abscess by tonsillectomy in children.
Cesk. otolar. 5 no.6:359-364 Dec 56.

1. ORL oddeleni KDN v Brne, Cernych polich, prednosta prim.
MUDr. Miroslav Kucera.
(TONSILS, abscess
peritonsillar, surg., tonsillectomy in child. (Cz))

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5

ILDRICH PAVLINEC

The quesrion of anesthesia in tonsillectomy and adenotomy. Cas. lek. cesk. 98 no.29-30:930-932 17 July 59

1. Usni, nosni a krcni oddeleni Krajske detske nemocnice v Brne, prednosta primar MUDr. Miroslav Kucera.
(TONSILLECTOMY, anesth. & analgesia)
(ADENOIDECTOMY, anesth. & analgesia)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5

PAVLINEC, Oldrich, MUDr.

Two cases of severe cutaneous staphylococcal infection of the ear, nose and throat area in children. Cesk. pediat. 11 no.2-3: 189-194 Mar 56.

1. Krajska detska nemocnice v Brne, Cernych Polich, usni, nosni a krcni oddeleni, prednosta prim. MUDr Miroslav Kucera.

(MICROCOCCUS PYOGENES, infections
skin of face & neck, case reports)
(SKIN, dis.
Micrococcal infect. of face & neck in child., case reports)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5

PAVLINEC

The question of anesthesia in tonsillectomy and adenotomy. Cas. lek. cesk. 98 no.29-30:930-932 17 July 59

1. Usni, nosni a krcni oddeleni Krajske detske nemocnice v Brne, prednosta primar MUDr. Miroslav Kucera.
(TONSILLECTOMY, anesth. & analgesia)
(ADENOIDECTOMY, anesth. & analgesia)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5

LAZAR, M.; PAVLINETS, I.; MANYASEK, Z.; MICHKO, M.; BEREK, D.

Ozonization of atactic polypropylene. Vysokom.soed. 3 no.6:943-947 Je '61. (MIRA 14:6)

1. Khimicheskiye instituty Slovatskoy Akademii nauk, Bratislava.
(Propene) (Ozone)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5

PAVLINETS, I.; LAZAR, M.; MANYASEK, Z.

Chemical modification of polypropylene fibers brought about by grafting methyl methacrylate. Khim.volok. no.5:21-25 '62. (MIRA 15:11)

1. Khimicheskiy institut Slovatskoy Akademii nauk, Bratislava, Chekhoslovatskaya Sotsialisticheskaya Respublika.

(Textile fibers, Synthetic)
(Propene)
(Methacrylic acid)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5

MANYASEK, Z.[Manasek, Z.]; MICHKO, M.[Micko, M.]; PAVLINETS, Y. [Pavlinec, J.]; LAZAR, M.

Modification of polypropylene fibers by the grafting of acrylonitrile. Khim. volok. no.3:20-24 '63. (MIRA 16:7)

1. Institut drevesiny, tsellyulozy i khimicheskikh volokon Slovatskoy Akademii nauk, Bratislava, Chekhoslovatskaya Sotsialisticheskaya Respublika.
(Textile fibers, Synthetic)
(Polypropylene) (Acrylonitrile)

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5

MANYASEK, Z.; BEREK, D.; MICHKO, M.; LAZAR, M.; PAVLINETS, Yu.

Formation and decomposition of hydroperoxides of atactic propylene. Vysokom.soed. 3 no.7:1104-1109 Jl '61. (MIRA 14:6)

1. Khimicheskiye instituty Slovatskoy akademii nauk, Bratislava.
(Propene) (Peroxides)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5

PAVLINETS, YU.

PHASE I BOOK EXPLOITATION SOV/4984

International symposium on macromolecular chemistry. Moscow, 1960.

Mezhdunarodnyy simpozium po makromolekulyarnoy khimii SSSR, Moskva, 14-18 iyunya 1960 g.; doklady i avtoreferaty. Sektsiya III. (International Symposium on Macromolecular Chemistry Held in Moscow, June 14-18, 1960; Papers and Summaries) Section III. [Moscow, Izd-vo AN SSSR, 1960] 469 p. 55,000 copies printed.

Tech. Ed.: F. S. Kashina.

Sponsoring Agency: The International Union of Pure and Applied Chemistry. Commission on Macromolecular Chemistry.

PURPOSE: This book is intended for chemists interested in polymerization reactions and the synthesis of high molecular compounds.

COVERAGE: This is Section III of a multivolume work containing papers on macromolecular chemistry. The articles in general deal with the kinetics of polymerization reactions, the synthesis of special-purpose polymers, e.g., ion exchange resins, semiconductor materials, etc., methods of catalyzing polymerization reactions, properties and chemical interactions of high molecular materials, and the effects of various factors on polymerization and the degradation of high molecular compounds. No personalities are mentioned. References given follow the articles.

Usmanov, Kh. U., U. N. Musayev, and R. S. Tillayev (USSR). The Radiation Method of Copolymerizing Acrylonitrile with Polystyrene and Perchlorovinyl 170

Rafikov, S. R., G. M. Chelnokova, I. V. Zhuravleva, and P. N. Gribkova (USSR). Oxyethylation of Carbochain and Hetero-Chain Polyamides 184

Santo, I., and K. Gal (Hungary). Grafting Methyl Methacrylate Onto Films of Polyvinyl Alcohol Under the Action of X-Rays 207

Lazar, M., R. Rado, and Yu. Pavlinets (Czechoslovakia). Grafting Methyl Methacrylate Onto Polypropylene and Polyethylene 214

Tutorskiy, I. A., Z. I. Smelyy, and V. M. Bystrov (USSR). The Interaction of Carboxyl-Containing Butadiene-Styrene Rubbers With Polyamides and ε-Caprolactam 224

Kolesnikov, G. S., and Ts'eng Han-ming (USSR). Synthesis

Rado, R., and M. Lazar (Czechoslovakia). The Role of the Source of Free Radicals on Crosslinking in Polyethylene 250

Mladenov, I., I. A. Tutorskiy, and B. A. Dogadkin (USSR). On the Transformations of Carboxyl-Containing Butadiene-Styrene Rubbers and Their Mixtures with ε-Caprolactam Under the Action of Gamma Radiation 293

Rogovin, Z. A., V. A. Derevitskaya, Sun T'ung, Chang Wei-kang, and L. S. Gal'braykh (USSR). Synthesis of New Cellulose Derivatives and Other Polysaccharides 302

Yermolenko, I. N., and F. N. Kaputskiy (USSR). Initiation of the Controlled Synthesis of Modified Celluloses with Oxides of Nitrogen 310

Ivanov, V. I., M. Ya. Lenshina, V. S. Ivanova (USSR). Oxidational Transformations in Chains of Cellulose Molecules 321

Berlin, A. A., Ye. A. Penskaya, and G. I. Volkova (USSR). Mechanicochemical Transformations and Block Copolymerization During the Freezing of Starch Solutions 334

Usmanov, Kh. U., B. I. Arkhodzhayev, and U. Aliyev (USSR). Modification of the Properties of Cellulose by Grafting 344

33

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5

PAVLININ, V. M. Cand Tech Sci -- (diss) "Study of single-machine asynchronous and synchronous frequency converters." Sverdlovsk, 1959. 15 pp (Min of Higher and Secondary Specialized Education RSFSR. Ural Polytechnic Inst im S. M. Kirov. Chair of Electrical Machines), 150 copies (KL, 50-59, 127)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5

PAVLINICH, E.A.

Change in the distribution of reserves in the postwar period. (MIRA 13:2)
Trudy MINKHIGI no.49:41-46 '60.

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5

[illegible], M.P.; [illegible], V.I.; PAVLINICH, E.A.

[illegible] (MIRA 18:2)

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5

L 12816-63 EWT(1)/EWG(k)/EWP(q)/EWT(m)/BDS/T-2/KEC(b)-2/ES(t)-2
AFFTC/ASD/ESD-3 Pz-4/Pm-4 JD/LJP(C)
ACCESSION NR: AT3003012 S/2927/62/000/000/0243/0248

78

AUTHOR: Pavlinov, A. B.; Sablikov, V. A.; Sinyukov, M. P.; Yurovskiy, A. V.

TITLE: Investigation of thermal effects in high-power germanium transistors [Report at the All-Union Conference on Semiconductor Devices, Tashkent, 2-7 October, 1961]

SOURCE: Elektronno-dy*rochny*ye perekhody*v poluprovodnikakh. Tashkent, Izd-vo AN UzSSR, 1962, 243-248

TOPIC TAGS: Ge transistor heating, high-power Ge transistor, P209 transistor, P210A transistor

ABSTRACT: Nonisothermic current-voltage characteristics of junction transistors, under static conditions and for a common-base circuit, were theoretically studied by G. M. Avakyants (Phenomenological theory of semiconductors, Tashkent, AN UzSSR, 1960). The present article reports results of experimental verification of the above theory and results of investigation of the origin of drooping characteristics under transient conditions. Extended experimentation with the P209 and P210A transistors brought the authors to the following conclusions: (1) the current gain

Card 1/2

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L 12816-63

ACCESSION NR: AT3003012 2

depends but little on temperature; (2) the feedback factor largely depends on temperature; (3) the input-output characteristics show that the collector conductance at a certain critical point rises to infinity and then changes sign; (4) the emitter circuit has a drooping characteristic. The following characteristics were measured: (1) collector voltage vs. emitter voltage at I_{em} = 6 ma const.; (2) emitter voltage at E_{coll} = 7 v const; (3) collector current vs. collector voltage at E_{em} = 50 mv const. Orig. art. has: 8 figures and 7 formulas.

ASSOCIATION: none

SUBMITTED: 00 DATE ACQ: 15May63 ENCL: 00

SUB CODE: PH, GE NO REF SOV: 001 OTHER: 003

Card 2/2

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5

PAVLINOV, A.B.; SABLIKOV, V.A.

Some electrical properties of Ge and Si [illegible] diodes. [illegible] elektron. 10 no.10:1887-1892 O '65. (MIRA 18:11)

1. Tashkentskiy gosudarstvennyy universitet.

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5

SIUNOV, N.S., prof., doktor tekhn.nauk; PAVLININ, V.M., inzh.

Motor-generator frequency converter (50/200 c.p.s.) and its electromagnetic characteristics. Vest. elektroprom. 31 no.5:9-13 My '60. (MIRA 13:8)

(Rotary converters) (Frequency changers)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5

PAVLININ Viktor Mikhaylovich

S/144/60/000/01/010/019
E194/E155

AUTHORS: Pavlinin, V.M., Aspirant; and Siunov, N.S., Doctor of Technical Sciences, Professor, Head of the Chair

TITLE: The Properties and Efficiency of a Single-Machine Frequency-Changer

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Elektromekhanika, 1960, Nr 1, pp 84-92 (USSR)

ABSTRACT: In recent years considerable attention has been paid to the development of single-machine frequency-changers in order to reduce the weight and dimensions of the equipment. However, the complexity of the electromagnetic processes in these machines and the inadequate understanding of their properties have hindered their widespread introduction. The present article gives some results of an investigation of a machine of this kind converting from 50 to 200 c/s, the machine being in effect an induction motor and a synchronous alternator with a common magnetic system. The stator slots of the machine contain two three-phase windings without mutual inductance. The first (1), corresponding to the motor, has an appropriate number of poles, and the other (4) corresponding to the alternator, has a different number

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of poles. The rotor carries a squirrel-cage winding (2) and an alternator field winding (3) with an appropriate number of poles. The alternator field winding is energised through slip-rings from a rectifier (5) supplied from a voltage-stabilising device. The winding (1) is connected to a 50 c/s supply and by reaction with the rotor winding (2) drives the rotor. The complete circuit arrangement is shown in Fig 1. When the alternator is loaded, interaction between its windings (3) and (4) sets up a retarding or generator torque which reacts directly on the driving or motor torque, so that no surplus torque appears at the machine shaft. The process of power conversion is illustrated by the energy diagram of Fig 2. The influence of the one machine on the parameters and characteristics of the other when both have a common magnetic circuit is described by reference to an experimental frequency-changer type OPCh-3[28] built at the Kamensk-Ural'sk Electro-Mechanical Works by adaptation of an induction motor type MR-53-4.[28] Two further experimental machines have also been built and

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E194/E155

The Properties and Efficiency of a Single-Machine Frequency-Changer

tested with identical results. The most important data of the frequency-changer type OPCh-3 are given in Table 1. Calculated values of motor and alternator induction and of total induction are given in Table 2. Load tests showed that the temperature rise of the windings was within the limits permitted by the standard GOST 183-55. The temperature rise by resistance was 51 °C for the stator winding and 39 °C for the field winding. The external characteristics of the alternator with the voltage stabiliser in operation at unity and 0.75 power factors are plotted in Fig 3. Oscillogram charts of transient processes in the frequency-changer are seen in Fig 4. Here, chart 1 corresponds to starting the motor at full supply voltage with the stabilising device connected to the alternator. Chart 2 corresponds to a sudden three-phase short-circuit of the stabilised alternator. Corresponding oscillograms with the voltage stabiliser disconnected and constant current excitation are given in chart 3. The oscillogram charts 4 and 5 correspond to the sudden removal of full resistive and

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The Properties and Efficiency of a Single-Machine Frequency-Changer

rated load with the voltage stabiliser in use. It will be seen that the transient processes in a high-frequency alternator built in a common magnetic circuit with a motor, do not differ from those for normal alternators excited by semiconductor rectifiers. Analysis of oscillograms of steady-state and transient conditions with various degrees of saturation of the magnetic circuit indicate that under all conditions the combined machine behaves like the alternator and motor in a two-machine set. The motor currents and e.m.f.'s do not contain harmonics of the alternator frequency and its e.m.f. curve does not contain harmonics of the power frequency. Both current and voltage wave-shapes are satisfactory. Fig 5 gives oscillograms of phase-voltages and currents of the motor and alternator parts of the frequency changer on no-load and at rated load. The tooth harmonics occurring in the phase-voltage of the alternator can easily be prevented by a more suitable choice of winding pitch or by skewing the slots. The presence in a single core of two magnetic fields

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with different pole pitches gives rise to a number of effects associated with changes in permeability when the steel is magnetised simultaneously by fluxes of the different frequencies. This point is briefly discussed, and a formula is given for the change in reluctance of the magnetic circuit of one part of the machine due to the presence of the field of the other. The increases in reluctance of the magnetic circuit with increase in alternator flux and motor flux are plotted in Figs 6 and 7 respectively, both for different levels of saturation. Analysis of these figures and of the data given in Table 2 shows that the increase does not exceed 1.25 provided that the sum of the generator and motor induction in each section of the magnetic circuit does not exceed the normal values of induction for ordinary machines. The leakage reactance of the one part of the machine is little affected by the presence of the field of the other. The iron losses in the combined machine may be greater than the sum of the losses with separate magnetisation, as is illustrated by the graph plotted in Fig 8 for various

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values of generator and motor field. This graph and the data given in Table 2, and test results from other examples of frequency-changer, indicate that the iron-loss increase does not exceed 1.25 provided that the total induction of the alternator and motor in other parts of the magnetic circuit does not exceed normal values of induction for ordinary electrical machines. Operating characteristics of an experimental frequency-changer type OPCh-3 are plotted in Fig 9; the rated load efficiency of the set is 71%, allowing for field losses. The maximum efficiency of 72% is achieved at three-quarters rated load. At rated load the power factor is 0.92. The efficiency and power factor remain quite high down to half load. The performance of the experimental frequency-changer may be assessed by comparing it with a two-machine frequency-changer set using an induction motor type MU-72/2 with a single-machine synchronous frequency-changer type PSCh-5. All three have an induction motor component of the same speed (3000 r.p.m.), frequency

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two-machine set. It has two windings in a single slot, a disadvantage which it shares with multi-speed motors. On the basis of the investigations carried out the new type of frequency-changer is recommended for industrial use. The machine, partially dismantled, is depicted in Fig 10.
There are 10 figures, 3 tables and 7 references of which 5 are Soviet and 2 German.

ASSOCIATION: Kafedra elektricheskikh mashin, Ural'skiy politekhnicheskiy institut
(Chair of Electrical Machinery, Ural Polytechnical Institute)

SUBMITTED: July 16, 1959

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L 32859-65 EWT(1)/EPA(s)-2

ACCESSION NR: AT5004611 S/2604/62/000/124/0047/0057

11
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B+1

AUTHOR: Pavlinin, V. M.

TITLE: Modulation of harmonics in the motor-current curve of a single-armature 50/200 cps converter

SOURCE: Sverdlovsk. Ural'skiy politekhnicheskiy institut. Trudy, no. 124, 1962. Issledovaniye tsepey vozbuzhdeniya i parametrov elektricheskikh mashin peremennogo toka (Investigation of circuits of excitation and parameters of alternating current electrical machines), 47-57

TOPIC TAGS: frequency converter, motor generator, rotary inverter, armature, dynamotor 29

ABSTRACT: The article deals with single-armature electromechanical frequency converters, in which the armature is simultaneously under the influence of two magnetic fields with different pole pitches.

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It is shown that the nonlinear dependence of the magnetic permeability on the induction gives rise to current harmonics, and an expression for the instantaneous value of the induction of the resultant field in different sections of the magnetic armature is written on this basis. If the induction has a sinusoidal distribution, in the case of a 50/200 cps converter where the pole-pair ratio (n) is equal to 4, only odd harmonics will appear in the magnetomotive force. The presence of the generator field in the magnetic circuit of the motor gives rise to modulated harmonics of the magnetomotive force and of the current, with order $(2n \pm 1)$, $(2n \pm 3)$, and $(4n \pm 1)$. The magnitude of all the harmonics of the magnetomotive force and of the magnetizing current of the motor depend on the saturation level produced simultaneously by the motor and generator fields, and increases with increase of the latter. All higher harmonics in the magnetizing current of the motor can be neglected. Orig. art. has: 5 figures, 13 formulas, and 1 table.

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L 32859-65

ACCESSION NR: AT5004611

ASSOCIATION: Ural'skiy politekhnicheskiy institut (Ural Polytechnical Institute)

SUBMITTED: 00 ENCL: 00 SUB CODE: EE

NR REF SOV: 004 OTHER: 001

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5

21474

S/144/61/000/002/003/004
E194/E184

9.3270 (also 1068, 1031)

AUTHORS: Pavlinin, V.M., Candidate of Technical Sciences, Acting Docent, and Siunov, N.S., Doctor of Technical Sciences, Professor, Head of Department

TITLE: The Magnetic Permeability of Electrical Steel Premagnetized at High Frequency

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Elektromekhanika, 1961, 4, No. 2, pp. 21-26

TEXT: The magnetic circuits of many electromagnetic devices such as frequency changers are magnetised simultaneously by two fluxes of different frequency. Design of such magnetic circuits must allow for changes in permeability with double magnetization. An analytical solution has been offered by V.S. Novokshenov (Ref.1: Izvestiya Tomskogo politekhnicheskogo instituta, Vol.94, GEI 1958). The present article considers calculated and experimental coefficients of change of permeability which permit the use of ordinary magnetization curves. The permeability depends on the frequency ratio of the field $n = f_2/f_1$ and on the magnitudes and wave shapes of the fields. The case here considered is when n

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is an even number, so that in a machine magnetic circuit the component fields coincide on one pole pitch if they are opposed on another. For analytical solution in the general form assume that the inductions are sinusoidal and consider two series and cross-connected toroids in which the resultant magnetic field is:

$$B = \pm B_1 \sin \psi + B_2 \sin (n\psi - \alpha) \quad (1)$$

where B_1 and B_2 are the maximum values of inductions of frequency f_1 and f_2; $n = f_2/f_1$ - defined as above; $\psi = \omega_1 t = 2\pi f_1 t$; α is the displacement angle between the fields expressed in electrical degrees relative to the high frequency field. The magnetization curve of the field is expressed by the equation:

$$H = aB + bB^3 + cB^5 \quad (2)$$

Hysteresis is neglected and it is considered that the magnetization curves are the same for different frequencies.

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Lengthy expressions are then derived for the resultant fields H_I and H_{II} in the steels of the first and second sections of the magnetic circuit (toroid). It is shown that the amplitude values of the harmonic components of field intensity are functions of the inductions B_1 and B_2 and it is shown that the field intensity due to the winding with frequency f_1 is:

$$H_1' = \frac{1}{2}(H_I - H_{II}) \quad (5)$$

By appropriate substitution it is shown that under conditions of simultaneous magnetization by fluxes of different frequency the field intensity of the primary field contains only odd harmonics The first, third and fifth harmonics are mainly due to the field of frequency f_1 and the remainder are the result of mutual modulations. The field intensity due to the high frequency winding is given by:

$$H_2' = \frac{1}{2}(H_I + H_{II}) \quad (7)$$

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E194/E184

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By appropriate substitution it is shown that in this case the high frequency field contains only even harmonics, and the harmonics of order n, $3n$, and $5n$ are mainly due to the field of frequency f_2 and the rest result from modulations. The change in magnetic condition of the steel with premagnetization at a different frequency is conveniently expressed by a coefficient equal to the ratio of the equivalent permeability $\mu_{0\ equiv}$ and the absence of premagnetization to the permeability μ_{equiv} in its presence;

$$\gamma_k = \frac{\mu_{0\ equiv}}{\mu_{equiv}} = \frac{H_{eff}}{H_{0\ eff}} \qquad (10)$$

Further equations are then derived from which it is shown that:
(a) the coefficients of change of magnetic permeability γ_{k1} and γ_{k2} when n is even do not depend on the phase angle α between the fields;
(b) the characteristics $\gamma_{k1} = f(B_1)$, for different values of B_2 coincide with the characteristics $\gamma_{k2} = f(B_2)$ for different

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values of B_1, if in the first expression the indices in the inductions 1 and 2 are interchangeable. Consequently, premagnetization by high frequency flux alters the magnetic permeability of the steel to the fundamental frequency flux by the same amount as the high frequency flux is altered with premagnetization by a field of fundamental frequency. The following expression is then derived for γ_k:

$$\gamma_k = \sqrt[4]{1 + \frac{1}{k_5}(k_1 B_2^{\,2} + k_2 B_2^{\,4} + k_3 B_2^{\,6} + k_4 B_2^{\,8})} \qquad (16)$$

The coefficients k_1, k_2 etc. are functions of B_1 which are given and data is presented from which these constants may be calculated for various grades of electrical steel. The accuracy with which the magnetization curve is then approximated is shown by the curves of Fig.1 in which the bold line corresponds to the steel grades Э11 (E11), Э12 (E12) and Э21 (E21) and the dotted line to the approximation. Eq.(16) was then used for these

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grades of steel to construct the curves given in Fig.2 of $\gamma_k = f(B_1)$ for various values of B_2. Analogous characteristics were determined experimentally with simultaneous magnetization of toroids with two fluxes of frequency 50 c/s and 200 c/s. Experimental curves are given in Fig.3 for steel grade E11 0.5 mm thick and in Fig.4 for steel E21 0.35 mm thick. It will be seen that the general character of the experimental and calculated curves is identical. The maximum values of calculated and experimental curves coincide approximately in the region where the sum of induction components does not exceed 16000-18000 gauss. At higher values of saturation there is greater disagreement between the maximum values of the experimental and calculated curves; this is because the induction becomes non-sinusoidal in the test toroids. The calculated curves for γ_k have shallower slope than the experimental. At low values of saturation both experimental and calculated values of coefficient of change of permeability may be less than 1, and consequently in weak magnetic

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E194/E184

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fields premagnetization at high frequency increases the permeability of the steel instead of reducing it. It is concluded that if due allowance is made for these remarks it may be considered that in the working region of induction values of the coefficient γ_k calculated by Eq. (16) are in satisfactory agreement with experiment.
There are 4 figures and 5 Soviet references.

ASSOCIATION: Kafedra elektricheskikh mashin, Ural'skogo politekhnicheskogo instituta (Department of Electrical Machines of the Ural Polytechnical Institute)

SUBMITTED: September 24, 1960

Card 7/10

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5

ANTIPOV, M.F.; GAVRILOV, B.K.; MILAYKIN, I.F.; PAVLININ, V.M.; REZIN, M.G.

"DC machinery design" by IA.S. Gurin and M.N. Kurochkin. Reviewed by M.F. Antipov and others. Elektrichestvo no.3:95-96 Mr '62. (MIRA 15:4)

(Electricity machinery--Direct current)
(Gurin, IA.S.) (Kurochkin, M.N.)

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5

L 01318-67 EWT(1)

ACC NR: AT6010474 SOURCE CODE: UR/2694/64/000/138/0074/0082

AUTHOR: Baryshnikov, Yu. V.; Pavlinin, V. M.

ORG: none

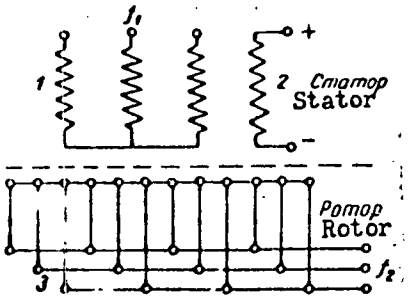
17
B+1

TITLE: Single-machine frequency changer with one jointly operated rotor winding

SOURCE: Sverdlovsk. Ural'skiy politekhnicheskiy institut, Trudy, no. 138, 1964. Issledovaniye elektromagnitnykh i elektromekhanicheskikh protsessov mashin peremennogo toka (Research on electromagnetic and electromechanical processes in a. c. machines), 74-82

TOPIC TAGS: frequency converter, frequency changer, electric machine

ABSTRACT: The results of a theoretical and experimental investigation of a single-machine frequency changer (quadrupler) are reported. A 3-phase motor stator winding 1 (see figure) with p_1 pole pairs is embedded jointly (in the same slots) with field winding 2 having p_2 pole pairs. Windings 1 and 2 are not coupled inductively. The rotor carries one winding that



Single-machine frequency changer

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L 01290-67 EWT(1)

ACC NR: AT6010473 SOURCE CODE: UR/2694/64/000/138/0055/0061

30
B+1

AUTHOR: Pavlinin, V. M.; Plastun, A. T.

ORG: none

TITLE: Schemes of brushless excitation for synchronous machines 29

SOURCE: Sverdlovsk. Ural'skiy politekhnicheskiy institut, Trudy, no. 138, 1964. Issledovaniye elektromagnitnykh i elektromekhanicheskikh protsessov mashin peremennogo toka (Research on electromagnetic and electromechanical processes in a. c. machines), 55-61

TOPIC TAGS: electric machine, electric generator, synchronous generator

ABSTRACT: On the basis of 2 Soviet and 12 Western published sources, classification and comparison of various schemes of brushless excitation systems are presented. All such systems include: (a) a set of semiconductor rectifiers, (b) an electrical machine supplying the rectifiers, and (c) an automatic voltage-regulation device. The excitation systems are broken up into three groups: (1) Those based on a commutatorless d-c generator; multiphase generator-armature currents are

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rectified and feed the field winding of the synchronous machine; disadvantages: current rectification in the exciter-field circuit, a rectifier in the automatic voltage regulator, and a large time constant; (2) Those based on an inverted synchronous machine with a multiphase armature; disadvantages, the same as above; (3) Those based on an induction frequency changer; this system has a higher control power, has no semiconductor rectifiers in the exciter-field-winding circuit, and seems to be more reliable. Systems 1 and 2 are suitable for large high-speed synchronous machines; system 3, for medium, small, and low-speed large machines. Rectifier failures, their consequences, and remedies are briefly discussed. Orig. art. has: 3 figures.

SUB CODE: 09 / SUBM DATE: none / ORIG REF: 003 / OTH REF: 011

Card 2/2 YC

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L 33596-66 EWT(1) IJP(c) WW/GG

ACC NR: AR6016204 SOURCE CODE: UR/0058/65/000/011/D036/D036

AUTHORS: Lubchenko, A. F.; Pavlik, V. M.

TITLE: Raman and Rayleigh scattering of light by impurity centers of a solid

SOURCE: Ref. zh. Fizika, Abs. 11D279

REF SOURCE: Tr. Komis. po spektroskopii. AN SSSR, t. 3, vyp. 1, 1964, 405-411

TOPIC TAGS: Raman scattering, Rayleigh scattering, impurity center, solid solution, absorption band, Raman spectrum

ABSTRACT: A theory of Raman and Rayleigh scattering of light by solid solutions of low concentration is developed. It is shown that in the case of phototransitions accompanied by small heat release the scattering spectrum comprises a system of bands with a clearly pronounced series of peaks. The integral scattering intensity increases sharply as the frequency of the scattered light approaches the region of impurity absorption, this being in agreement with the experimental results obtained by Shorygin. [Translation of abstract]

SUB CODE: 20

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5

PAVLENKO, V.M.; PLASTUN, A.T.

Networks for contactless excitation of synchronous machines.
Trudy Ural. politekh. inst. no. 138:55-61 '64 (MIRA 19:1)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5

BARYSHNIKOV, Yu.V.; PAVLINE, [illegible]

Single-machine frequency converter with one combined rotor winding. Trudy Ural. politekh. inst. no. 138:74-82 '64
(MIRA 19:1)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5

PAVLENKO, V.M.

Calculation of the magnetic circuits of electrical machines with different poles in one magnetic system. Trudy Ural. politekh. inst. no. 138:83-89 '64 (MIRA 19:1)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5

PAVLININ, Viktor Mikhaylovich, kand.tekhn.nauk, dotsent; SIUNOV, Nikolay Sergeyevich, doktor tekhn.nauk, prof.

Optimum dimensions and electromagnetic loads of a one-machine frequency converter. Izv. vys. ucheb. zav.; elektromekh. 5 no.12:1365-1371 '62. (MIRA 16:6)

1. Kafedra elektricheskikh mashin Ural'skogo politekhnicheskogo instituta (for Pavlinin). 2. Zaveduyushchiy kafedroy elektricheskikh mashin Ural'skogo politekhnicheskogo instituta (for Siunov).
(Frequency changers)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5

PAVLININ, V.M.

Modulated harmonics in the current curve of the motor of a 50/200 cycle single-machine converter. Trudy Ural. politekh. inst. no.124:47-57 '62. (MIRA 16:8)

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5

KONSON, Aron Solomonovich; PAVLININ, V.M., retsenzent; BATOV, B.I., retsenzent; CHERMUKHIN, A.A., retsenzent; VITEBSKIY, I.D., retsenzent; SABININ, Yu.A., red.; SOBOLEVA, Ye.M., tekhn. red.

[Economic principles of the design of electric machinery, apparatus, and devices] Ekonomicheskoe obosnovanie proektov elektricheskikh mashin, apparatov, priborov. Moskva, Gosenergoizdat, 1963. 218 p. (MIRA 16:8)

1. Ural'skiy politekhnicheskiy institut (for Pavlinin, Batov). 2. Vsesoyuznyy zaochniy energeticheskiy institut (for Chermukhin, Vitebskiy).

(Electronic apparatus and appliances)
(Electric machinery)

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5

PAVLININ, V.N.; SHVARTS, G.S.; SMIRNOV, V.S., starshiy nauchnyy sotrudnik, kand.biolog.nauk, otv.red.; SEREDKINA, N.F., tekhn.red.

[Long-range planning of acclimatization measures as exemplified in the Urals] Perspektivnoe planirovanie akklimatizatsionnykh meropriiatii. Sverdlovsk, 1961; na primere Urala. 41 p. (Akademiia nauk SSSR. Ural'skii filial, Sverdlovsk. Institut biologii. Trudy, no.24). (MIRA 16:8)

(Ural Mountain region--Animal introduction)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239530003-5"

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PAVLININ, V.N.

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(MIRA 18.12)

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(Zoology--Variation)

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