"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202730009-6

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UDC 547.341:547.52/59,023

KHARRASOVA, F. M., ZYKOVA, T. V., SALAKHUTDINOV, R. A., and RAKHIMOVA, G. I., Kazan' Chemical Technological Institute imeni S. M. Kirov

"Data of ^{31}P NMR Spectroscopy of the Acid Chlorides and Esters of Some Arylphosphonic Acids"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 12, Dec 73, pp 2642-2644

Abstract: The NMR ^{31}P spectra of the acid chlorides and esters of phenylphosphonic acid and its p-substituted derivatives were studied showing that the effect of conjugation between the aromatic nucleus and tetracoordinated phosphorus atom exceeds considerably the inductive effects. This leads to increased shielding of the phosphorus atom nucleus as compared to alkylphosphonic esters of analogous structures.

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UDC 547.241 + 546.185.131

MOSKVA, V. V., ISMAILOV, V. M., NOVRUZOV, S. A., RAZUMOV, A. I., ZYKOVA, T. V., AKHMEDOV, Sh. T., and SALAKHUTDINOV, R. A., Kazan' Chemical Technological Institute imeni S. M. Kirov and Azerbaydzhan State University imeni S. M. Kirov

"Phosphorylation of α,α-Dichlorodiethyl Ether With Phosphorus Pentachloride"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 9, Sep 73, pp 2085-2086

Abstract: The reaction of α,α-dichlorodiethyl ether with PCl_5 leads to the formation of a complex which upon decomposition yields dichlorophosphoneacetic acid trichloride, and β-chloro-β-ethoxyvinylphosphonic acid dichloride in two geometric isomers.

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USSR

UDC 547.341.07

FRIDLAND, S. V., DMITRIYEVA, N. V., VIGALYUK, I. V., ZYKOVA, T. V., and SALAKHUTDINOV, R. A.

"Phosphorylation of Olefins With Phosphorus Trichloride in Presence of Perchloryl Fluoride"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 7, Jul 73, pp 1494-1497

Abstract: The reaction of phosphorus trichloride with phenylacetylene, styrene, vinyl ethers, vinyl formate, and hexene-1 was studied in presence of perchloryl fluoride. Only hexene-1 yielded identifiable products: 2-chlorohexylphosphonic acid fluoridechloride and 2-chlorohexylphosphonic acid dichloride.

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UDC 547.341

KHARRASOVA, F. M., RAKHIMOVA, G. I., ZYKOVA, T. V., and SALAKHUTDINOV, R. A., Kazan' Chemical Technological Institute imeni S. M. Kirov

"The Action of Carbon Tetrachloride and Chloral on Some β-Chloroethyl Esters of Arylphosphonous Acids"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 9, Sep 73, pp 1930-1934

Abstract: The reaction of some arylphosphonous acid bis-β-chloroethyl esters with carbon tetrachloride and chloral was investigated, showing that with chloral the β-chloroethyl-β', β'-dichlorovinyl esters of arylphosphonous acids are obtained. The formation of β-chloroethyl esters of aryltrichloromethylphosphinous acids in the reaction of bis-β-chloroethylphosphonites with carbon tetrachloride is accompanied by the oxidation of these esters to arylphosphonates. The NMR ^{31}P spectra of the products obtained have been studied.

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USSR UDC 547.341

NURTDINOV, S. KH., ISMAGILOVA, N. M., NAZAROV, V. S., ZYKOVA, T. V., SALAKHUTDINOV, R. A., SULTANOVA, R. B., and TSIVUNIN, V. S., Kazan' Chemical-Technological Institute Imeni S. M. Kirov

"Reaction of Aryl- and Diarylchlorophosphites With Cyclic Ketones"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 6, Jun 73, pp 1251-1254

Abstract: Phenyl- and diphenylchlorophosphites react with equimolar quantities of cyclohexanone and cyclopentanone upon heating to 130-150° for 17-20 hrs in a closed system, yielding the respective esters of cyclohexen-1-yl(cyclopenten-1-yl)phosphonic acids. The diphenyl ester of cyclohexen-1-ylphosphonic acid (I) reacts with phosphorus pentasulfide converting to the thiophosphonic acid derivative. Bromine adds across the double bond of (I) producing a dibromide which can be dehydrobrominated to diphenyl ester of 2,6-cyclohexadiene-1-ylphosphonic acid.

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UDC 547.341 + 546.185'131

ISMAILOV, V. M., ZYKOVA, T. V., MOSKVA, V. V., NOVRUZOV, S. A., RAZUMOV, A. I., AKHMEDOV, SH. T., and SALAKHUTDINOV, R. A., Kazan' Chemical-Technological Institute Imeni S. M. Kirov, and Azerbaydzhan State University Imeni S. M. Kirov

"Derivatives of Substituted Vinylphosphonic Acids. XVI. Schematic for the Phosphorylation of Alkylacetates With Phosphorus Pentachloride"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 6, Jun 73, pp 1247-1250

Abstract: Reactions of phosphorus pentachloride with ethylacetate have been investigated using different reagent ratios. It has been established that the reaction products consist of β-chloro-β-ethoxyvinylphosphonic acid dichlorides and phosphonodichloroacetic acid trichlorides. The first step in this reaction is the replacement of the carbonyl oxygen atom with two chlorine atoms yielding α, α-dichloroethylalkyl ether, which upon dehydrochlorination yields α-chlorovinylalkyl ether. The latter reacts with PCl_5 yielding the final products. On the basis of NMR data, it has been shown that the β-chloro-β-ethoxyvinylphosphonic acid dichloride forms in two geometric isomers.

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USSR

UDC: 519.2

BATIROV, Kh., SALAKHUTDINOV, R.

"A Uniform Local Theorem for the Densities of Symmetric Distributions"

Uch. zap. Tashkent. gos. ped. in-t (Scientific Notes. Tashkent State Pedagogical Institute), 1972, 100, pp 32-39 (from RZh-Kibernetika, No 5, May 73, abstract No 5V33 by the authors)

Translation: Uniform local theorems are considered for the densities of symmetric distributions. One of the proved theorems is extended to sums of a random number of terms. The estimate is improved by an order of magnitude compared with asymmetric distribution.

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UDC: 519.2

SALAKHUTDINOV, R.

"On Approximating Distributions of Sums of a Random Number of Differently Distributed Terms by Infinitely Divisible Laws"

Uch. zap. Tashkent. gos. ped. in-t (Scientific Notes. Tashkent State Pedagogical Institute), 1972, 100, pp 79-89 (from RZh-Kibernetika, No 5, May 73, abstract No 5V34 by the author)

Translation: An estimate is made of the rate of convergence to a set of infinitely divisible laws for distributions of sums of a random number of differently distributed mutually independent random quantities which satisfy Cramer's condition "C" on the average.

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UDC 547.241+546.185'131

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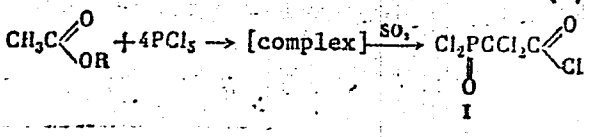
ISMAILOV, V. M., MOSKVA, V. V., NOVRUZOV, S. A., RAZUMOV, A. I., AKHMEDOV, SH. T., ZYKOVA, T. V., and SALAKHUTDINOV, R. A.

"Interaction of Phosphorus Pentachloride with Alkyl Acetates"

Leningrad, Zhurnal Obshchey Khimii, Vol XLIII (CV), No 1, 1973, p 212

Abstract: Under mild conditions (neutral solvent, 15-20°), the interaction of phosphorus pentachloride with alkyl acetates takes place with the formation of phosphorylation products, the nature of which depends on the reagent ratio. With a quadruple excess of phosphorus pentachloride, depending on the alkyl radical in the initial esters (R = Me, Et), the basic product can be the trichloranhydride of chlorophosphonacetic acid (I)



With smaller amounts of phosphorus pentachloride, more complex mixtures of products of phosphorylation are formed in which the proportion of the pro-

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ISMAILOV, V. M., et al., Zhurnal Obshchey Khimii, Vol XLIII (CV), No 1, 1973, p 212

duct (I) decreases with a decrease in the phosphorus pentachloride taken. This indicates that product (I) is the final product of the presented interaction. The experimental procedure for obtaining the product and infrared and other data confirming its structure are presented.

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USSR

UDC 547.26'118 + 547.292.6

GAZIZOV, M. B., SULTANOVA, D. B., RAZUMOV, A. I., OSTANINA, L. P., SHAKIROV, I. Kh., ZYKOVA, T. V., and SALAKHUTDINOV, R. A., Kazan' Chemical-Technological Institute Imeni S. M. Kirov

"Reaction of Dialkyl Chlorophosphites With Acetic Acid Acylals"

Leningrad, Zhurnal Obshchey Khimii, Vol 42 (104), No 12, Dec 72, pp 2634-2638

Abstract: It was shown that alpha-chloroethers formed in the reaction of dialkyl chlorophosphites with acetic acid acylals undergo secondary reactions with dialkyl chlorophosphites forming ester-acid chlorides of α-alkoxyethylphosphonic acids. It was shown by IR spectroscopy that the ester-acid chlorides of α-alkoxyethylphosphonic acids exist in two conformations resulting from different orientation of the polar bonds P:O and C-O: conformation A with parallel (cis) or nearly parallel (gauche) orientation of P:O and C-O, and the conformation B with the antiparallel trans orientation of these bonds. Purification methods were proposed for α-chloroethers and dialkyl chlorophosphites by treatment with cateehol chlorophosphite and with acetyl chloride respectively to remove the acetal and trialkyl phosphite impurities.

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USSR

UDC 547.341.07

FRIDLAND, S. V., DMITRIYEVA, N. V., VIGALOK, I. V., ZYKOVA, T. V., and SALAKHUTDINOV, R. A.

"Phosphorylation of Olefines With Phosphorus Trichloride in Presence of Perchloryl Fluoride. I. Phosphorylation of Cyclohexene"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 3, Mar 73, pp 572-577

Abstract: It has been shown that the reaction of phosphorus trichloride with cyclohexene in presence of perchloryl fluoride yields the fluorochloro- and dichloroanhydrides of 2-chlorocyclohexylphosphonic acid (I). The fluorochloro anhydride is a new compound with following properties: b.p. 72°/0.1 mm, d_4^{20} 1.3693, n_D^{20} 1.5050. By means of alcohol esterification a series of esterfluoroanhydrides of (I) has been obtained. Dehydrochlorination of fluorochloro and of the dichloro anhydrides of (I) yields fluorochloro and dichloro anhydrides of cyclohexen-1-yl phosphonic acid which can be then converted to a series of esters. It has been shown that bromination of the chloro anhydride of 2-chlorocyclohexylfluorophosphonic acid occurs with a substitution of the hydrogen.

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USSR UDC 547.26'118 + 546.185'131

MOSKVA, V. V., BASHIROVA, L. A., RAZUMOV, A. I., ZYKOVA, T. V., and SALAKHUTDINOV, R. A., Kazan' Chemical-Technological Institute Imeni S. M. Kirov

"Reaction of Phosphorus Pentachloride With Aldehydes"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 3, Mar 73, pp 677-678

Abstract: It has been shown that a prolonged mixing (5 days) of the acetaldehyde with phosphorus pentachloride in benzene solution at room temperature yields α-chloroalkylphosphoric acid dichloride, b.p. 53°/12 mm, d_4^{20} 1.4810, n_D^{20} 1.4570. Using chloral in an analogous reaction gives the dichloroanhydride of α,β,β,β-tetrachloroethylphosphonic acid, b.p. 107°/12 mm, d_4^{20} 1.7730, n_D^{20} 1.5006.

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USSR UDC 547.241

RAZUMOV, A. I., LIORBER, B. G., SOKOLOV, M. P., MOSKVA, V. V., NAZVANOVA, G. F., ZYKOVA, T. V., CHEMODANOVA, L. A., and SALAKHUTDINOV, R. A., Kazan' Chemical-Technological Institute Imeni S. M. Kirov

"Reactivity and Structures of Phosphorylated Carbonyl Compounds. XI. Study of the Aldol-Enol Equilibrium of Phosphorylated Aldehydes as a Function of Temperature"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 3, Mar 73, pp 568-572

Abstract: The aldol-enol equilibrium of a series of alkyl substituted and non-substituted phosphorylated aldehydes has been investigated as a function of temperature using IR, NMR-^{1}H and NMR-^{31}P spectroscopical analyses. With increasing temperature the nonsubstituted compounds go from the trans-enol form through the aldol form into the cis-enol form. In case of the alkyl substituted phosphorylated aldehyde only the conversion from trans-enol form into the aldol form has been observed. Quantitative determination of the ratios of aldol to trans-enol form has been made.

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UDC 547.241

KRUTSKIY, L. N., ZYKOVA, T. V., SALAKHUTDINOV, R. A., TSIVUNIN, V. S., Kazan' Institute of Chemical Technology imeni S. M. Kirov; Kuzbass Polytechnical Institute

"reaction of Diethylaminoethylchlorophosphine with Allyl Iodide"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), No 7, Jul 72, pp 1493-1496

Abstract: Equimolar quantities of diethylaminoethylchlorophosphine and allyl iodide were mixed, and the resultant adduct was decomposed with hydrogen sulfide in ether. The solid adduct changed into a liquid (insoluble in ether) which was then dissolved with simultaneous formation of an ammonium salt. After removing the salt from the filtrate, ethylallylthiophosphonyl chloride was obtained, yield: 42%. Reaction of the acid chloride with alkoxides gives ethylallylthiophosphinates. Sulfur dioxide treatment of the adduct in ether produces a liquid which is insoluble in ether. The liquid dissolves upon hydrochlorination with simultaneous formation of diethylamine hydrochloride and liberation of elemental iodine. Ethylallylphosphonyl chloride heavily contaminated with iodine is isolated from the filtrate in 25% yield. Chemical shifts of a series of trivalent phosphorus chlorides are examined, and the π-contributions to the shielding constant of the phosphorus nucleus are calculated. The results of the study indicate an increase in the positive

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KRUTSKIY, L. N., et al., Zhurnal Obshchey Khimii, Vol 42(104), No 7, Jul 72, pp 1493-1496

charge on the phosphorus atom and a reduction of donor properties with corres - ponding substitution of the alkyl radical by electronegative nitrogen and chlorine atoms.

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UDC 547.241

RAZUMOV, A. I., SAVICHEVA, G. A., ZYKOVA, T. V., SOKOLOV, M. P., SMIRNOVA, G. G., LIORBER, B. G., SALAKHUTDINOV, R. A., Kazan' Institute of Chemical Technology imeni S. M. Kirov

"Reactivity and Structure of Phosphorylated Carbonyl Compounds. 8. NMR and IR Spectra of Arylalkoxyphosphinylacetaldehydes"

Leningrad, Zhurnal Obshchey Khimii, Vol 41, No 10, 1971, pp 2164-2167

Abstract: In a continuation of the previous study of dialkoxyphosphorylacetaldehydes, tautomerism in alkoxyarylphosphorylacetaldehydes (I) was studied on the theory that an aryl substituent at the P atom may affect the aldol-enol equilibrium. Measurements of the P-31 chemical shift in compounds I hinted at a shift in equilibrium toward the enol form. This was confirmed by NMR spectra of 20% I solutions in carbon tetrachloride: the NMR band of α-ethylenic proton revealed the presence of the enol form. The IR spectra of nondiluted I compounds indicated simultaneous existence of two enol forms: B with intermolecular and 1/2

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RAZUMOV, A. I., et al, Zhurnal Obshchey Khimii, Vol 41, No 10, 1971, pp 2164-2167

C with strong intramolecular hydrogen bonds in addition to aldol form. The IR spectra of 5-20% I solutions in carbon tetrachloride reflected a sequential shift toward the aldol form with increasing dilution, so that practically only the aldol form existed in the 5% solutions. The IR spectral data showed that in triethylamine solutions of I, in contrast to carbon tetrachloride solutions, the equilibrium shifts toward the B chelated enol form which incorporates triethylamine.

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USSR UDC 547.241

NURTDINOV, S. KH., KHAYRULLIN, R. S., BURMAKINA, T. V., ZYKOVA, T. V., SALAKHUTDINOV, R. A., TSIVUNIN, V. S., and KAMAY, G. KH. (DECEASED), Kazan' Institute of Chemical Technology

"Reaction of Aryldichlorophosphines with Ketones"

Leningrad, Zhurnal Obshchey Khimii, Vol 41, No 8, Aug 71, pp 1685-1688

Abstract: Continuing their study of the condensation of primary chlorophosphines with ketones, the authors investigated the reaction of phenyl- and tolyldichlorophosphine with saturated ketones. It was found that these components react on heating for 10-20 hours at 90-130° to give cyclic oxaphospholenes, which react with alcohols to give corresponding esters of aryl-γ-ketophosphinic acids. IR, NMR, and PMR spectroscopy methods were used to study the mechanism of the interaction of aryldichlorophosphines with ketones. The results confirm that at one of the stages of the reaction γ-ketophosphinic acid chlorides are formed.

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UDC 547.476.053

NURTDINOV, S. Kh., ISMAGILOVA, N. M., ZYKOVA, T. V., SALAKHUDINOV, R. A., TSIVUNIN, V. S., and KAMAY, G. Kh., Kazan' Chemico-Technological Institute imeni S. M. Kirov

"Reaction of Alkyldichlorophosphines With Chlorides of Carboxylic Acids"

Leningrad, Zhurnal Obshchey Khimii, Vol 41, No 11, Nov 1971, pp 2,486-2,490

Abstract: The reactions of phosphines and other phosphorus derivatives with various acids and acid derivatives have been studied, but no information on alkyldichlorophosphines has thus far been published. The authors studied six members of this group in reactions with acyl chlorides of carboxylic acids. Products in the case of acetyl and benzoyl chlorides, following treatment with the adducts with alcohols, consisted of the esters of the alkylketo-phosphinic acids; in the case of di- and trichloracetyl chlorides, they consisted of vinyl esters of pentavalent phosphorus acids. Procedural details of tests and physical constants of end-products are given.

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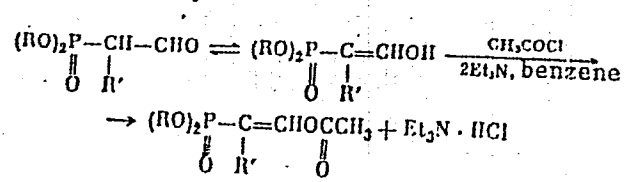
UDC 547.341

MOSKVA, V. V., NAZVANOVA, G. F., ZYKOVA, T. V., RAZUMOV, A. I., REMIZOV, A. B., and SALAKHUTDINOV, R. A., Kazan' Institute of Chemical Technology imeni S. M. Kirov

"Derivatives of Substituted Vinylphosphonic Acids. XII. Acylation of Phosphorylated Aldehydes"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), No 3, Mar 72, pp 498-501

Abstract: In an attempt to prove keto-enol equilibrium in phosphorylated aldehydes by chemical methods, the authors studied the aldehyde acylation with acetyl chloride in benzene in the presence of triethyl amine, resulting in the synthesis of α-alkyl-β-acyloxyvinylphosphonates from α-phosphorylated propionaldehyde and butyraldehyde.



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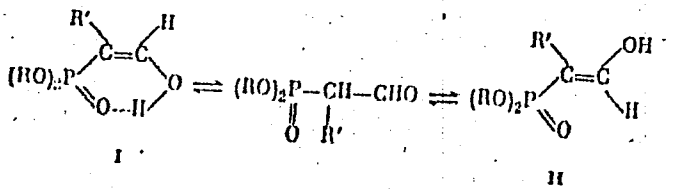
MOSKVA, V. V., et al., Zhurnal Obshchey Khimii, Vol 42(104), No 3, Mar 72, pp 498-501

It was found that keto-enol equilibrium with a high concentration of the cis-enol form (I) stabilized by the hydrogen bond between the phosphoryl oxygen and the enol hydroxyl is typical of the starting phosphorylated aldehydes. Spectral data gave no direct proof of the presence of the trans-enol form (II) in the mixture, thus it is only assumed to be present, but in low concentration.



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In the products of acylation, nmr spectra show that the phosphorus atom and the alkoxy group are in trans-position relative to the double bond. Since only acylation of the trans-enol form (II) could yield products of such structure, this constitutes chemical proof of its presence. Spectral analysis shows rotational isomerism in α-alkyl-β-acyloxyvinyl phosphonates.

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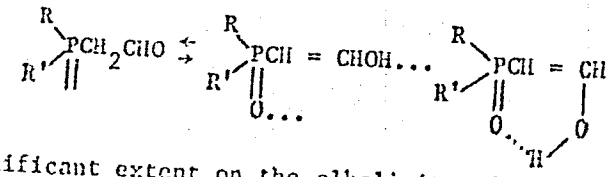
UDC 547.241

RAZUMOV, A. I., SOKOLOV, M. P., ZYKOVA, T. V., LJORBER, B. G., SAVICHEVA, G. A., SALAKHUTDINOV, R. A.

"Reactivity and Structure of Phosphorylated Carbonyl Compounds. IX. Ketoenol Equilibrium of Phosphorylated Acetaldehydes"

Leningrad, Zhurnal Obshchey Khimii, Vol XLII (CIV), No 1, 1972, pp 47-51

Abstract: Tautomeric conversions of dialkoxyphosphonyl and arylalkoxyphosphinyl acetaldehydes have been described previously (A. I. Razumov, et al., ZhOKh, No 41, 1954, 1971; No 41, 2164, 71]. The study of alkylalkoxyphosphinyl acetaldehydes from this point of view is a logical development of this pervious work. The methods of infrared and nuclear magnetic resonance ^{1}H and ^{31}P spectroscopy has been used to show that the ketoenol equilibrium of phosphorylated acetaldehydes



depends to a significant extent on the alkalinity of the P=O radical, spatial

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RAZUMOV, A. I., et al., Zhurnal Obshchey Khimii, Vol XLII (CIV), No 1, 1972, pp 47-51

effects and the effects of solvents. The calculated ketoenol equilibrium constants of both the undeveloped substances and 20, 10 and 5 percent molar solutions of them in carbon tetrachloride and the free energy ΔF are tabulated. In the aliphatic series, with an increase in the alkalinity, successive shifting of the equilibrium toward the enol form is observed. The values of ΔF found correlate satisfactorily with the Kabachnik constants [T. A. Mastryukova, M. I. Kabachnik, Usp. Khim., No 38, 1751, 1969]. On dissolving the investigated substances in carbon tetrachloride (20, 10 and 5% molar solutions) a gradual shift in the aldo direction takes place.

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USSR UDC 547.241+547.26'118

RAZUMOV, A. I., SAVICHEVA, G. A., ZYKOVA, T. V., SOKOLOV, M. P., LIORBER, B. G., and SALAKHUTDINOV, R. A., Kazan' Institute of Chemical Technology imeni S. M. Kirov

"Reactivity and Structure of Phosphorylated Carbonyl Compounds. Part VII. NMR and IR Spectra of Dialkoxyphosphonylacetaldehydes"

Leningrad, Zhurnal Obshchey Khimii, Sep 71, Vol 41, No 9, pp 1954-1957

Abstract: The considerable value of phosphorylated carbonyl compounds lies in the fact that they, like β-carbonyl compounds, exhibit keto-enolic tautomerism. The application of polarography and IR spectroscopy (in earlier studies) indicates that some β-phosphorylated aldehydes are mixtures of keto- and cis-enolic forms whose equilibrium depends on both the solvents and the pH of the aqueous solutions. This paper reports on tautomeric transformations of diethoxy- (I) and diisopropoxyphosphonylacetaldehydes (II) using NMR and IR spectroscopy. The tautomerism of both compounds was studied from the NMR spectra of (I) and its 5, 10 and 20% solutions in carbon tetrachloride, 30 and 50% solutions in triethylamine and from the NMR spectra of aldehyde (II) and its 10% solution in triethylamine at 20°C.

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RAZUMOV, A. I., et al., Zhurnal Obshchey Khimii, Sep 71, Vol 41, No 9, pp 1954-1957

Readings of the NMR spectra were made on a YaMR-5535 spectrometer, the P^{31} NMR spectra were read on the RYa-2303 spectrometer and the IR spectra were read on UR-10 and UR-20 units. Both NMR and IR spectra indicate that dialkoxyphosphenylacetaldehydes and their solutions in CCl_4 are an aldo-form with a small admixture of the enolic structure. In triethylamine, the chelated enolic structure is predominant.

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USSR

UDC 547.26'118+547.29'26

GAZIZOV, M. B., SULTANOVA, D. B., OSTANINA, L. P., ZYKOVA, T. V., SALAKHEDDINOV, R. A., RAKHOV, A. I., Kazan' Institute of Chemical Technology imeni S. M. Kirov

"Reaction of Monochlorophosphites With Acylals of Acetic Acid"

Leningrad, Zhurnal Obshchey Khimii, Vol 41, No 10, 1971, pp 2167-2171

Abstract: The mechanism of the reactions of aromatic chlorophosphites with α-alkoxyalkyl acetates was studied by physicochemical analysis of the high-boiling fraction of the reaction products. Heating o-phenylene- or o-benzoylene chlorophosphites with α-ethoxyethyl acetate at 50° gave α-ethoxyethylphosphonates which were identified by their IR, ESR, and NMR spectra. Analogous reactions of the cited cyclic chlorophosphites with α-chloroethyl ether or diethyl acetal gave the same products with a phosphonate structure. Thus, the cited reactions proceed by a stepwide mechanism leading to formation of phosphonate and not a phosphite structure. The reaction mechanism involving an intercyclic

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.ZIZOV, M. B., et al, Zhurnal Obshchey Khimii, Vol 41, No 10, .971, pp 2167-2171

electron transfer is outlined. Analysis of the ESR spectrum of one of the products, 2-(α-ethoxyethyl)-2,4-dioxobenzo-1,3,2-dioxaphosphorene, revealed the existence of two stable conformational isomers of the compound, which differ in orientation of methyl protons in relation to the benzene ring and the oxygen of the carbonyl. The ESR spectra of the two compounds are shown and their physical constants are tabulated.

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MOSKVA, V. V., NAZVANOVA, G. F., ZYKOVA, T. V., RAZUMOV, A. I., and SALAKHUTDINOV, F. A., Kazan' Institute of Chemical Technology imeni S. M. Kirov

UDC 547.341

"Derivatives of Substituted Vinylphosphonic Acids. XII. nmr Spectra of P^{31} and H^1 in Substituted Vinylthionophosphonic and Vinylthionophosphonous Acid Dichlorides"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(103), No 2, Feb 72, pp 314-317

Abstract: The acid dichlorides of β-ethoxyvinyl- and 1-ethoxy-1-buten-2-ylthionophosphonic acids were subjected to reductive desulfurization by tributylphosphine to produce the corresponding phosphonous acid dichlorides. Addition of sulfur to these acid dichlorides gives pure substituted vinylthionophosphonic acid chlorides suitable for spectral studies. The nmr spectra of the P^{31} and H^1 in the given substituted vinylphosphonous and vinylthionophosphonic acid dichlorides were studied. The geometric structure of the compounds is determined from nmr data, and the mutual influence of the tri- and tetracoordination atom of phosphorus with the substituents is discussed.
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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202730009-6

USSR

UDC 543.422.25:546.19

ZYKOVA, T. V., KAMAY, GIL'M (deceased), CHERNOKAL'SKII, E. D., SALAKHUTDINOV, R. A. and ABALONIN, B. Ye., Kazan Chemical-Technological Institute imeni S. M. Kirov

"PMR Spectra and Structures of Arsonium Salts"

Leningrad, Zhurnal Obshchey Khimii, Vol 41, No 5, May 1971, pp 1044-1047

Abstract: PMR spectrum analysis was used to study the structures of alkylarsonium salts. The chemical shifts as caused by the nature of the arsenic atom environment, an anion, and the nature of the solvent and the concentration of the salts were examined. Thus, a change in the magnitude of the chemical shift of the methyl or methylene groups at the arsenic atom increases the positive charge on the latter in arsonium salts under the action of iodine, the phenyl group, and the possibility of the salt to ionize.

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Organophosphorous Compounds

USSR

UDC: 547.241'26'118

RAZUMOV, A. I., KRASIL'NIKOV, Ye. A., ZYKOVA, T. V., SINITSYNA, N. I., SALAKHUTDINOV, R. A., BAIKOVSKAYA, E. N.

"Research in the Series of Phosphinic and Phosphinous Acid Derivatives. LXXXV. Electron Effects in Molecules of Certain Derivatives of Trivalent Phosphorus in the Ground State"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), No 6, Jun 72, pp 1250-1253

Abstract: It is shown that gradual introduction of the thioalkyl electron-acceptor radical in compounds of the R_2PSR', $RP(SR')_2$ and $P(SR)_3$ type leads to displacement of the resonance signal of the nucleus of the atom of tricoordinated phosphorus toward a weaker field, which is probably due to delocalization of an unshared electron pair in the phosphorus atom to the vacant d-orbitals of sulfur. It is found that nmr spectroscopy of the compounds studied can be used in discussing electron interactions between PIII and the aromatic nucleus in the ground state of the molecule.

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USSR

UDC 547.341

ZYKOVA, T. V., MOSKVA, V. V., RAZUMOV, A. I., NAZVANOVA, G. F., and SALAKHUTDINOV, R. A., Kazan' Chemical-Technological Institute Imeni S. M. Kirov

"Derivatives of Substituted Vinylphosphonic Acids. XIV. Study of the Derivatives of Substituted Vinylphosphonic Acids by the NMR-spectroscopic Methods"

Leningrad, Zhurnal Obshchey Khimii, Vol 42 (104), No 9, Sep 72, pp 1913-1916

Abstract: Compounds of the type $RR'P(O)C(X) = CHOC_2H_5$ were studied by high resolution NMR ^{31}P and ^{1}H method. The effects of individual atoms have been discussed and the geometric structures of the investigated compounds have been determined. In general, changes in chemical shifts of the phosphorus atom of various derivatives of vinylphosphonic acids are identical to the shifts observed with alkylphosphonic acids. The derivatives of β-alkoxyvinylphosphonic acids have the alkoxy group always in trans position with respect to the phosphorus atom.

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USSR

UDC 547.341 + 546.185'131

ISMAILOV, V. M., MOSKVA, V. V., BABAYEVA, T. A., RAZUMOV, A. I., AKHMEDOV, SH. T., ZYKOVA, T. V., and SALAKHUTDINOV, R. A., Kazan' Chemical-Technological Institute Imeni S. M. Kirov, and Azerbaydzhan State University Imeni S. M. Kirov

"Derivatives of Substituted Vinylphosphonic Acids. XV. Reaction of Phosphorus Pentachloride With α,β-Dichlorovinyl Alkyl Ethers"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 5, May 73, pp 1011-1113

Abstract: It was shown that α,β-dichlorovinyl alkyl ethers react with phosphorus pentachloride in an inert solvent such as benzene or carbon tetrachloride at 0-5° forming a complex which after decomposition with hydrogensulfide yields α,β-dichloro-β-alkoxyvinylphosphonic or thiophosphonic acid dichlorides. The reaction is sensitive to temperature; increased temperature lowers the phosphorylation products and increases the byproducts. Analogous derivatives may be obtained by high temperature chlorination of β-alkoxyvinylphosphonic acid dichlorides.

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USSR

UDC 621.382.3

GOLUBEV, A.P., SALAKHUTDINOV, V.KH.

"Low-Frequency Small-Signal Parameters Of Silicon Planar Transistors In A Regime Of Microcurrents"

Sb.nauch.tr. po probl.mikroelektron. Mosk.in-t elektron.tekhn. (Collection Of Scientific Works On Problems Of Microelectronics. Moscow Institute Of Electronics Technology), 1972, Issue 10, pp 169-174 (from RZh:Elektronika i yeye primeneniye, No 11, Nov 1972, Abstract No 11B254)

Translation: Theoretical dependences are obtained for calculation of the low-frequency small-signal parameters of silicon planar transistors in a regime of microcurrents, and the method of calculation is discussed. It is shown that the calculated values of the parameters agree well with the experimental. 3 ill. 5 ref. V.B.

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ELECTRONICS
Amplifiers

USSR

UDC 621.375.087.9.085.414

GORBUNOV, V. L., SALAKHUTDINOV, V. Kh.

"Logarithmic Amplifier With D-C Amplifier Circuit"

Sb. nauch. tr. po probl. mikroelektron. Mosk. in-t elektron. tekhn. (Collection of Works on the Problems of Miniature Electronics, Moscow Institute of Electronics Engineering) No 9, 1972 (Physics-Mathematics Series) pp 249-252 (from RZh--Radiotekhnika, No 10, 1972, Abstract No 10D89)

Translation: The application of semiconductor diodes and triodes as nonlinear elements performing logarithmic transformations is considered, with such elements usually wired as inputs or outputs of amplifiers or in feedback circuits. A logarithmic amplifier circuit is given in which the dependence of a transistor collector current in a feedback circuit on the emitter voltage at the p-n junction is used. N. S.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202730009-6

USSR

UDC 536.531:546.92

SALAMAKHA, V. A., Engineer, LAKH, V. I., KITS, A. I., POLISHCHUK, YE. S., Candidates of Technical Sciences

"Stability of Platinum Resistance Thermometers"

Moscow, Pribory i Sistemy Upravleniya, No 2, Feb 71, pp 49-51

Abstract: The variations in metrological parameters (R_0 and R_{100}/R_0) of platinum resistance thermometers during prolonged use at operating temperatures are investigated in this article. A special test unit and procedure were devised to run the tests. Presented are results of subjecting the resistance thermometers to cyclic tests under this procedure. Each cycle of the tests (whose over-all duration is 2,000 hours) has the following sequence:

In an oxidizing environment at a temperature of 400-600°C for 400 hours;

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USSR

SALAMAKHA, V. A., et al, Pribory i Sistemy Upravleniya, No 2, Feb 71, pp 49-51

At low temperature (-196°C) for 150 hours;

Under high-humidity conditions (98-100%) and at a temperature of 30-40°C for 120 hours;

With vibration in the frequency range to 60 hertz and acceleration to 1.5 g lasting 60 hours;

In an oxidizing environment at a temperature of 400-600°C for 450 hours;

At a temperature of -196°C for 150 hours;

Under conditions of impact vibration with acceleration to 1,000 g and a pulse length of 0.5-2 milliseconds lasting 10 hours;

In an oxidizing environment at a temperature of 400-600°C for 450 hours;

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USSR

SALAMAKHA, V. A., et al, Pribory i Sistemy Upravleniya, No 2, Feb 71, pp 49-51

At a temperature of -196°C for 200 hours.

Three batches of platinum resistance thermometers with calibrations 21 (R_0 = 46±0.046 ohms) and 22 (R_0 = 100±0.1 ohms) with a wire diameter of 0.05 mm and with 25 thermometers of each calibration were subjected to stability testing. The three batches included 1) series resistance thermometers with a sensitive element with a mica housing [6], 2) resistance thermometers with a sensitive element in a ceramic housing [2], and 3) resistance thermometers with an improved sensitive element in a ceramic housing using inhibitors to protect the platinum.

The first batch of thermometers demonstrated low resistance to mechanical and thermal loads and very low stability. The second batch demonstrated satisfactory resistance to mechanical and thermal loads at the same time as the metrological characteristics changed somewhat. The third batch were subjected to five

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USSR

SALAMAKHA, V. A., et al, Pribory i Sistemy Upravleniya, No 2, Feb 71, pp 49-51

cycles of testing (10,000 hours) with good results. The variations in R_0 and R_{100}/R_0 in 10,000 hours do not exceed the calibration tolerances provided by GOST 6651-59, and the thermometers have high resistance to the cyclic mechanical and thermal variations. The test results are presented graphically for the three batches of resistance thermometers.

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USSR

UDC 629.7.036.3:536.46

SALAMANDRA, G. D.

"State of a Medium in Front of a Leading Edge of a Flame in the Initial Stage of the Combustion Process"

Teplofiz. Svoystva i Gazodinamika Vysokotemperatur. Sred. [Heat-physical Properties and Gas Dynamics of High Temperature Media -- Collection of Works], Moscow, Nauka Press, 1972, pp 135-143 (Translated from Referativnyy Zhurnal, Aviatsionnye i Raketnye Dvigateli, No 12, 1972, Abstract No 12.34.103, from the Resume).

Translation: The initial stage in the process of combustion is studied in a circular cross-section channel, filled with a hydrogen-oxygen mixture. Combustible mixtures used were two-oxygen mixtures ($2H_2 + O_2$ and $H_2 + 2O_2$). Continuous photographic recording of the process of combustion was supplemented by visualization of the motion of the medium before the leading edge of the flame. The pictures were made by the Topler method. It is shown that the motion of the gas before the leading edge of the flame is described by a simple wave. The medium for the flame can be looked upon as an ideal gas with $\gamma = 1.4$. The distribution of the gas parameters before the leading edge of the flame is determined. The velocity of the gas before the leading edge of the flame is porportional to the surface of the flame. 8 Figures; 1 Table; 8 Biblio. Refs.

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USSR

UDC 536.46:533.6

SALAMANDRA, G. D., VENTTSEL', N. M., FEDOSEYEVA, I. K.

"Measurement of Gas Velocity in the Combustion of Highly Combustible Gas Mixtures in Tubes"

V sb. Goreniye i vzryv (Combustion and Explosion -- Collection of Works), Moscow, "Nauka", 1972, pp 370-373 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3B953)

Translation: The rate of a fresh mixture ahead of the combustion front in a tube of square cross section with glass windows was measured. The thermal heterogeneities produced with the aid of nichrome shelves of diameter 0.3 mm were used as a measure. High-speed photography of the Tepler picture of the gas flow was conducted. In preliminary experiments (where the gas was conducted in the motion of a shock wave) a discharge energy was selected under which the difference between the calculated and measured velocity of the gas did not exceed 1-2%. The accuracy of the measurement is higher as the density of the measure differs less from the density of the surrounding medium. The energy of the discharge should therefore be not too great (but not too small since otherwise the time over the course of which one must conduct the measurement will be insufficient).

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SALAMANDRA, G. D., et al, Goreniye i vzryv, Moscow, "Nauka", 1972, pp 370-373

Graphs show the profiles of the gas velocity ahead of the combustion front (moving with variable acceleration) in a stochiometric hydrogen-oxygen mixture at different points of time (in the interval 0.1-0.45 msec). The motion of the gas ahead of the flame front is described by a simple wave. In measuring the rate of motion of the combustion products, thermal measures were produced with the aid of a high-frequency spark discharge. Also measured was the velocity w of the contact discharge upon detonation of a stochiometric methane-oxygen mixture in a tube of square cross section 20 × 20 mm. The experimental value w was approximately 16% lower than the calculated value. It is proposed that this difference is associated with losses to friction and heat transfer to the wall. N. N. Bakhman.

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USSR

UDC 536.46

SALAMANDRA, G. D.

"Propagation of a Flame in a Transverse Electrical Field"

Teplofiz. Svoystva i Gazodinamika Vysokotemperatur. Sred. [Heat-physical Properties and Gas Dynamics of High Temperature Media -- Collection of Works], Moscow, Nauka Press, 1972, pp 135-143 (Translated from Referativnyy Zhurnal, Aviatsionnye i Raketnye Dvigateli, No 12, 1972, Abstract No 12.34.17, from the Resume).

Translation: The influence of a transverse electric field on the propagation of a flame in a channel filled with a methane-air mixture is studied. Experiments were performed both with ignition of the mixture at the open end, and at the closed end. The transverse electrical field was created between plates mounted in the walls of the channel. The maximum electric field intensity was 18 kv/cm. Optical heterogeneities of the burning medium were visualized by the Topler method. Both black and white Toplergrams and color Toplergrams of the flame front were produced. The process was recorded by a type SKS-1 high-speed camera operating at about 3,000 frames per second. It is demonstrated that the transverse electric field causes the propagation rate of the flame to increase. The increase in the rate of propagation of the flame in the electric field results from an increase

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UDC 536.46

SALAMANDRA, G. D., Teplofiz. Svoystva i Gazodinamika Vysokotemperatur. Sred., Moscow, Nauka Press, 1972, pp 135-143.

in the surface of the flame both due to the great extension of the leading edge of the flame and due to the appearance of traveling-wave-type perturbations on the surface of the flame. A critical potential difference exists. It is shown that the transverse electric field causes redistribution of the gradients of the index of refraction in the combustion zone. 9 Figures; 2 Biblio. Refs.

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USSR

UDC 632.95

SHCHEGLOV, YU. V., NIKISHIN, G. I., DYUSENOV, M. I., VOL'KENSHTEYN, YU. B., SALAMANDRA, L. K., and KOZINA, L. S., All-Union Research Institute of Plant Pathology and Institute of Organic Chemistry, Academy of Sciences USSR

"A Herbicide"

USSR Author's Certificate No 252757, filed 11 June 68, published 25 Feb 70 (From RZh-Khimiya, No 22, 25 Nov 70, Abstract No 22 N708 P by L. Shchelestenko)

Translation: It is suggested that bis-trichlorallyl esters of dicarboxylic acids be used as a herbicide. They have the general formula: $Cl_2C = CClCH_2OOC(CH_2)_n COOCH_2CCl = CCl_2$ where N = an integer from 0 to 2.

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USSR

UDC 533.6.011.35

PANFILOVICH, V. B., and SALAMASHKIN, V. A.

"Experimental Investigation of Gas Flow in a Curved Channel"

Kazan', Tr. Kazan. Aviats. In-ta (Works of Kazan' Aviation Institute), No 133, 1971, pp 57-61 (from Referativnyy Zhurnal-Aviatsionnyye i Raketnyye Dvigateli, No 2, Feb 72, Abstract No 2.34.5)

Translation: The article describes the experimental investigation of gas flow in a curved channel under chocking condition. Flow coefficients and pressure recovery are determined. Recommendations for increasing the efficiency of such channels are given. 5 illustrations. 3 references.

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Thin Films

UDC 547.1'13 + 621.793.1

USSR

GRIBOV, B. G., RUMYANTSEVA, V. P., TRAVKIN, N. N., PASHENKIN, A. S., KOZYRKIN, B. I., and SALAMATIN, B. A.

"Study of Metallic Films Obtained by Pyrolysis of Chromium and Molybdenum π-Complexes in the Gas Phase"

Moscow, Doklady Akademii Nauk SSSR, Vol 194, No 3, 1970, pp 580-582

Abstract: The article describes results of a study of the properties of metallic chromium and molybdenum films obtained by the pyrolysis of organic chromium and molybdenum compounds. The organometallics used were bis-benzene-, bis-toluene-, bis-ethylbenzene-, bis-xylene-, bis-mesitylene-, bis-diphenylchromium, their iodides, aniline-, dimethylaniline- and mesitylenechromium tricarbonyl, mesitylenemolybdenum tricarbonyl and bis-ethyl-benzenemolybdenum. The resultant metallic films possess considerable mechanical strength and hardness, elevated corrosion and acid resistance, and high adhesion. In order to study the properties of the pyrolytic chromium and molybdenum films, electro-

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GRIBOV, B. G., et al., Doklady Akademii Nauk SSSR, Vol 194, No 3, 1970, pp 580-582

physical parameters were measured and the structure and properties of the films determined by the electron diffraction method and electron microscopy. The results indicate that a number of peculiarities in metallic films obtained by the pyrolysis of organometallics are explained by the character of their formation during thermal decomposition, and their composition and properties depend on the conditions under which the thermal decomposition is carried out, as well as on the initial organometallics.

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UNCLASSIFIED

TITLE--STATISTICAL ANALYSIS OF THE SPIN DEPENDENCE OF THE NEUTRON STRENGTH FUNCTION OF THE NUCLEUS -U-

PROCESSING DATE--13NOV70

AUTHOR-(04)-MALETSKIY, KH., PIKELNER, L.B., SALAMATIN, I.M., SHAKAPOV, E.I.

COUNTRY OF INFO--USSR

SOURCE--(KFK-TR-3081), FROM REPORT JINR-P3-4484, 25P. DEP. CFSTI

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--NUCLEAR SPIN, NEUTRON, NUCLEUS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/1913

STEP NO--UR/0000/70/000/000/0001/0025

CIRC ACCESSION NO--AT0127314

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202730009-6"

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UNCLASSIFIED

CIRC ACCESSION NO--AT0127314 PROCESSING DATE--13NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE STATISTICAL PROPERTIES OF THE ESTIMATIONS OF THE STRENGTH FUNCTIONS ARE DERIVED, AND THE DISTRIBUTION OF THE DIFFERENCE OF THE STRENGTH FUNCTION FOR TWO SPIN STATES IS DETERMINED THEORETICALLY. THE THEORETICAL RESULTS ARE COMPARED WITH EXPERIMENTAL DATA FROM THE LITERATURE. THE RESULTS SHOWED THAT THE DIFFERENCE IN THE STRENGTH FUNCTIONS DOES NOT OCCUR IN ALL NUCLEI BUT ONLY IN INDIVIDUAL MASS NUMBER AREAS. WHERE THE STRENGTH FUNCTIONS VARY STRONGLY WITH A, THE CHARACTERISTICS OF THE DIFFERENCES ARE DIFFICULT TO DETERMINE WITHIN THE FRAMEWORK OF THE ANAYSIS MADE, ESPECIALLY AS THERE ARE NO THEORETICAL ASSUMPTION ON THE SIGN AND MAGNITUDE OF THE EFFECT TO EXPECTED. THERE IS NO BASIS FOR THE ASSUMPTION OF AN ESSENTIAL AND COMMON DEPENDENCE OF THE STRENGTH FUNCTION ON THE SPIN. FACILITY: JOINT INST. FOR NUCLEAR REASEARCH, DUBNA, USSR.

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202730009-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202730009-6

UNCLASSIFIED

TITLE--STATISTICAL ANALYSIS OF SPIN DEPENDENCE OF NEUTRON STRENGTH FUNCTIONS FOR NUCLEI -U-

PROCESSING DATE--09OCT70

AUTHOR-(04)-MALECKI, H., PIKELNER, L.B., SALAMATIN, I.M., SHARAPOV, E.I.

COUNTRY OF INFO--USSR

SOURCE--YAD. FIZ. 1970, 11(1), 111-21

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--STATISTIC ANALYSIS, NUCLEAR SPIN, NEUTRON, NUCLEUS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1976/0426

STEP NO--UR/0367/70/011/001/0111/0121

CIRC ACCESSION NO--AP0042462

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202730009-6"

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UNCLASSIFIED

CIRC ACCESSION NO--AP0042462 PROCESSING DATE--09OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A SIMPLE ANAL. EXPRESSION IS OBTAINED FOR THE DISTRIBUTION OF THE NEUTRON STRENGTH FUNCTIONS OF NUCLEI. BY USING THIS EXPRESSION AS THE BASIS, THE DISTRIBUTION OF DIFFERENCE OF THE STRENGTH FUNCTIONS FOR 2 SPIN STATES IS OBTAINED. A STATISTICAL ANAL. FOR 28 NUCLEI SHOWED THAT THE EXPTL. OBSD. DIFFERENCES OF THE STRENGTH FUNCTIONS FOR VARIOUS SPIN SYSTEMS ARE MAINLY DETD. BY THE STATISTICAL FLUCTUATIONS OF THE N WIDTHS. THE EXPTL. DATA WERE EVALUATED STATISTICALLY FOR ALL THE NUCLEI OF KNOWN STRENGTH FUNCTION S(J). IT IS CONCLUDED THAT THERE IS NO BASIS FOR ASSUMING THE EXISTENCE OF A GENERAL AND ESSENTIAL RELATION BETWEEN THE STRENGTH AND THE SPIN FOR MOST OF THE NUCLEI.

FACILITY: OB'EDIN. INS. YAD. ISSLED., USSR.

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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202730009-6"

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Waveguides

USSR

UDC 621.372.88

BAKANOV, S. A., BONDARENKO, I. K., SALAMATIN, V. V.

"A Unit for Automatically Measuring the Parameters of Waveguide Devices"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 2, Jan 71, Author's Certificate No 290460, division H, filed 17 Jan 69, published 22 Dec 70, p 162

Translation: This Author's Certificate introduces a unit for automatically measuring the parameters of waveguide devices. The unit consists of a tee connected to a measurement channel and a reference channel. Installed in these channels are couplers of circular polarization and ballast loads connected to a detector section. As a distinguishing feature of the patent, the overall dimensions of the device are reduced and the design is simplified by using a section of circular waveguide to connect the couplers of circular polarization in the measurement and reference channels. Connected in series in this waveguide section are a fixed detector section and a phase-shifting plate which turns through 180 degrees.

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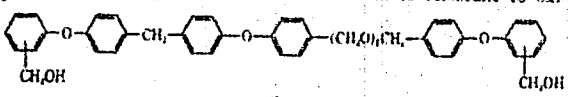
"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202730009-6

SALAMATOVA, V.A.

Acc. Nr. AP0045174 Abstracting Service: CHEMICAL ABST. 5-70 Ref. Code UR0191

90896k Oxygen-containing oligomers based on diphenyl oxide. Novosel'tsev, P. V.; Zasova, V. A.; Korshak, V. V.; Kul'kova, L. A.; Salamatova, V. A.; Sergeev, V. A. (USSR). Plast. Massy 1970, (1), 9-11 (Russ). The polycondensation of Ph_2O with HCHO in glycerol (I), EtOH, AcOH, and AcOEt in the presence of H_2SO_4 was studied. Optimum reaction conditions were: Ph_2O-HCHO-H_2SO_4-solvent ratio = 1:2:0.1:0.2; reaction temp., 100°; reaction time, 10 hr. Best results were obtained in AcOH, EtOH, and I. The polycondensation gave a yellow viscous product, tentatively assigned the structure II. Thermogravimetric tests of II and Iditol (a thermoplastic novolak oligomer) indicated that II was more resistant to oxi-



(II)

dative thermal degradation, presumably due to inhibited oxidn. of the CH_2 bridge in II. CKJR

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USSR

UDC 621.315.1

DZHUVARLY, CH. M., Academician of the Azerbaydzhan SSR Academy of Sciences, Doctor of Technical Sciences, Professor, SALAM-ZADE, M. M., Candidate of Technical Sciences, Docent, DZHAFAROV, E. M., Engineer, Azerbaydzhan Petroleum and Chemistry Institute imeni M. Azizbekov

"Parameters of the Mathematical Model of a Surface Effect in the Ground and Conductors for Investigating Wave Processes in Electric Transmission Lines on Digital Computers"

Minsk, Izvestiya vysshikh uchebnykh zavedeniy — Energetika, No 5, 1972, pp 19-25

Abstract: The parameters of the mathematical model of the surface effect in the ground and conductors for investigating wave processes in 330-750 kilovolt electric power transmission lines are presented for the presence of commutations and thunderstorm effects. Recommendations are made with respect to selecting the optimal schematic for the mathematical model. The presented result can be used for more precise consideration of the surface effect when investigating various wave processes leading to overvoltages in the high and superhigh voltage electric power transmission lines. The initial data and parameters of the models are presented for two and three parallel R, L branches for commutation processes, three matrix R, L branches for single-circuit

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USSR

DZHURARLY, DH. M., et al., Izvestiya vysshikh uchebnykh zavedeniy — Energetika, No 5, 1972, pp 19-25

transposed electric power transmission lines without considering lightning protective cables and models of three matrix R, L branches for single-circuit 330-750 kilovolt overhead electric power transmission lines. The maximum error in the model of multiphase overhead electric power transmission lines is within the limits of 5%.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202730009-6

USSR

UDC 669.245:589.23

IVANOV, R. D., URAZALIYEV, U. S., TIKHONOV, A. A., SALANSKIY, N. M., and BUNAREV, V. I.

"Effect of Plasma on the Structure and Magnetic and Electric Properties of Thin Permalloy Films"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 34, No 2, Aug 72, pp 256-262

Abstract: The effect of plasma and of physico-technological properties of the cathodic precipitation method on the structure and magnetic and electric properties of thin Permalloy films was experimentally investigated. The films were produced by atomization of the 79NM alloy. Their crystalline structure was investigated by methods of electron beam optics, and their chemical composition was tested by the x-ray fluorescence analysis method. The bombardment of the substrate surface by changed particles was found to produce a diversity in the microstructure of the film. The mechanism of forming precipitated cathodic films is in full agreement with thermodynamic principles for nonequilibrium statistical systems. Five figures, five bibliographic references.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202730009-6

USSR

UDC:669-405:538

SALANSKIY, N. M., FROLOV, G. I.

"Model of Pulse Switching of Thin Magnetic Films in Weak Fields"

Fiz. Magnitn. Plenok [The Physics of Magnetic Films -- Collection of Works], No. 2, Irkutsk, 1970, pp. 82-89 (Translated from Referativnyy Zhurnal Fizika, No. 11, 1970, Abstract No. 11 Ye 1320 by O. S. Kolotov)

Abstract: The process of pulse switching of thin permalloy films under the influence of a magnetic field applied along the axis of easy magnetization, the intensity of which varies over the range $H_c < H < 2H_k$, is studied (where H_c is the coercive force, H_k is the field of anisotropy of the specimen being studied). In order to produce information concerning the switching mechanism, along with the signal read from the longitudinal turn, the signal from an SHF detector recording the change in SHF susceptibility of the film being switched is studied. It is

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UDC:669-405:538

SALANSKIY, N. M., FROLOV, G. I., Fiz. Magnitn. Plenok [The Physics of Magnetic Films -- Collection of Works], No. 2, Irkutsk, 1970, pp. 82-89 (Translated from Referativnyy Zhurnal Fizika, No. 11, 1970, Abstract No. 11 Ye 1320 by O. S. Kolotov)

demonstrated that the signal from the SHF detector is observed only when rotation mechanisms are present. Analysis of these signals is used to estimate the relative contribution of mechanisms of rotation of magnetization and displacement of domain walls. A switching model is suggested, based on these data. According to this model, at the beginning of the switching process, two-directional rotation of local magnetization vectors occurs, along with formation of a blocked domain structure. This is followed by switching of individual local sectors, which increase due to a 180°-wall displacement. The influence of film parameters on these stages of the switching process is studied.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202730009-6

UNCLASSIFIED PROCESSING DATE--23OCT70

1/2 040

TITLE--A METHOD OF FORMING SEVERAL STABLE STATES IN PARAMETRONS BASED ON A THIN MAGNETIC FILM -U-

AUTHOR-(03)-SALANSKIY, N.M., LITVINCHUK, V.I., SHCHERBAKOV, V.M.

COUNTRY OF INFO--USSR

SOURCE--USSR PATENT 263668

REFERENCE--MOSCOW, OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI, NO

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--MAGNETIC THIN FILM, PARAMETRON, MAGNETOSTRICTION, ELASTIC STRESS, MECHANICAL VIBRATION, AUTHOR CERTIFICATE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

STEP NO--UR/0482/70/000/000/0000/0000

PROXY REEL/FRAME--1992/0136

CIRC ACCESSION NO--AA0111330

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202730009-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202730009-6

UNCLASSIFIED

PROCESSING DATE--23OCT70

2/2 040

CIRC ACCESSION NO--AA0111330

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THIS AUTHOR'S CERTIFICATE INTRODUCES A METHOD OF FORMING SEVERAL STABLE STATES IN PARAMETRONS BASED ON A THIN MAGNETIC FILM. THE METHOD DIFFERS BECAUSE TO IMPROVE THE RESISTANCE TO INTERFERENCE, FLEXURAL OSCILLLATIONS OF THE FILM SUBSTRATE SYSTEM ARE INDUCED BY MAGNETOELASTIC INTERACTION, AND THE AMPLITUDE OF THE MAGNETIZING FIELD IS THEN CHANGED TO THE THRESHOLD VALUES OF THE SUBSEQUENT ELASTIC MODES.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202730009-6

UDC 681.326.34(681.325.65)

USSR

SALANSKIY, N. M., LITVINCHUK, V. I., SHCHERBAKOV, V. M., Institute of Physics ~~of the Siberian~~ Department of the Academy of Sciences of the USSR

"A Method of Forming Several Stable States in Parametrons Based on a Thin Magnetic Film"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 8, 10 Feb 70, p 37, Patent No 263668, Filed 24 Dec 68

Translation: This Author's Certificate introduces a method of forming several stable states in parametrons based on a thin magnetic film. The method differs because to improve the resistance to interference, flexural oscillations of the film-substrate system are induced by magnetoelastic interaction, and the amplitude of the magnetizing field is then changed to the threshold values of the subsequent elastic modes.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202730009-6

USSR UDC: 621.373.826:62

VYSOTSKIY, V. Z., GAPONOV, S. V., KULIKOVA, N. P., PETROVSKAYA, M. P., SALASHCHENKO, N. N.

"Precision Laser Machining of Foil"

Elektron. prom-st'. Nauch.-tekhn. sb. (The Electronics Industry. Scientific and Technical Collection), 1972, No 4, pp 93-94 (from RZh-Radiotekhnika, No 12, Dec 72, abstract No 12D487 by A. L.)

Translation: A method is described for making masks of thin foil (Cu, Nb, Al, Mo, W) 20-60 μm by using a laser. The pulse duration of the laser emission was varied over a range of $3 \cdot 10^{-4}$-$5 \cdot 10^{-8}$ s. Straight-through machining of the masks is done at durations of the order of 10^{-6} s, but the outline of the mask is distorted in this mode due to ejection of a considerable quantity of metal. With a reduction in pulse duration to $5 \cdot 10^{-8}$-10^{-7} s, a layer about 1 μm thick is removed from the surface of the mask during the laser burst, and the outline of the mask is not as distorted.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202730009-6

USSR UDC: 621.372.413

VEREVKIN, Yu. K., SALASHCHENKO, N. N.

"Investigation of the Excitation of Open Resonators by Tuned Slot Antennas and Distributed Structures"

V sb. Raschety radiotekhn. skhem i proyektir. radioapparatury (Calculations of Radio Circuits and Design of Radio Equipment--collection of works), Omsk, 1970, pp 112-116 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6B160)

Translation: Expressions are derived for the loaded Q and transmission ratio of a resonator. An experimental check is made for a resonator formed by a flat and a spherical mirror and excited by a tuned slot antenna in the center of a flat screen, as well as for a resonator made up of two spherical mirrors and excited through a metal diaphragm with perforation. Higher transmission ratios and Q values are obtained in the case of excitation by the latter method. Four illustrations, bibliography of three titles. N. S.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202730009-6

USSR UDC: 621.372.413

VEREVKIN, Yu. K., SALASHCHENKO, N. N.

"Investigation of Excitation of Open Resonators by Untuned Slot Antennas"

V sb. Raschety radiotekhn. skhem i proyektir. radioapparatury (Calculations of Radio Circuits and Design of Radio Equipment--collection of works), Omsk, 1970, pp 117-123 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6B161)

Translation: The authors calculate the Q and transmission ratio of a loaded resonator. The method and results of an experimental study are presented. The theory is qualitatively confirmed by the experimental data with an accuracy up to the regions of degeneration of the normal modes of the resonator. Four illustrations, bibliography of five titles. N. S.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202730009-6

1/2 021 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--TREATMENT OF NONDEOXIDIZED STEELS WITH GASES IN LADLES -U-

AUTHOR-(05)-KABLUKOVSKIY, A.F., KLIMOV, S.V., SALAUTIN, V.A., YEFIMOV, I.A., STURMAN, V.K.

COUNTRY OF INFO--USSR

SOURCE--METALLURG (MOSCOW) 1970, 15(3), 18-21

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--GAS CONTAINING METAL, METAL CONTAINING GAS, ARGON, METAL REFINING, CARBON MONOXIDE, METAL MELTING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/0941 STEP NO--UR/0130/70/015/003/0018/0021

CIRC ACCESSION NO--AP0133027

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202730009-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202730009-6

2/2 021 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0133027

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EXPTL. MELTINGS WERE MADE WITH THE BLOWING OF AR, AR-O MIXTS., AND CO GAS INTO THE LADLE TO DET. WHETHER IT IS POSSIBLE TO DECARBURIZE AND REFINE THE MELT. REJECTED ELEC. FURNACE STEEL WAS MELTED IN A 5-TON LADLE. GRAPHS SHOW THE DEPENDENCE OF GAS CONSUMPTION ON PRESSURE FOR VARIOUS POROUS REFRACTORIES; DEPENDENCE OF SP. SURFACE OF GAS AND METAL ON THE BUBBLE DIAM.; IN ADDN., SOME PROPERTIES OF THE REFRACTORY PLUGS ARE TABULATED. SIO SUB2 AND AL SUB2 O SUB3 CONTENTS IN THE SLAG ARE INCREASED AND CAO FALLS. THE EFFECT OF THE METAL BLOW CYCLE WITH GASES ON THE LIFE OF THE REFRACTORY LINING IN THE LADLE NEEDS TO BE DETD. THE C CONTENT OF THE METAL FALLS UNDER THESE CONDITIONS. THE RESULTS SUGGEST WIDE POSSIBILITIES FOR VARIOUS GASES FOR EXTRA FURNACE REFINING OF METAL. FACILITY: ISENT. NAUCH.-ISSLED. INST. CHERN. MET., MOSCOW, USSR.

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1/2 026 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--USING A DIGITAL COMPUTER FOR CALCULATING THE ANGULAR CHARACTERISTICS OF SATURATED, PHANEROPOLAR, SYCHRONIC MACHINES -U-

AUTHOR-(03)-SALAYAK, I.I., FILTS, R.V., GULKHIVSKIY, L.I.

COUNTRY OF INFO--USSR

SOURCE--MINSK, IZVESTIYA VYSSHIKH UCHEBNYKH ZAVEDENIY: ENERGETIKA, NO 2, 1970, PP 1-5

DATE PUBLISHED--------70

SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR.

TOPIC TAGS--DIGITAL COMPUTER, ANGLE MEASURING INSTRUMENT, SYNCHRONOUS GENERATOR, MAGNETIC SATURATION, MAGNETIC FIELD/(U)RAZDANZ DIGITAL COMPUTER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/1695 STEP NO--UR/0143/70/000/002/0001/0007

CIRC ACCESSION NO--AT0123519

UNCLASSIFIED

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202730009-6

2/2 026 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AT0123519

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A METHOD IS PRESENTED FOR CALCULATING THE ANGULAR CHARACTERISTICS OF THE ACTIVE AND REACTIVE CAPACITIES OF A PHANEROPOLAR, SYNCHRONIC MACHINE. THE METHOD TAKES INTO CONSIDERATION SATURATION OF POLES, ARMATURE YOKE AND TOOTH ZONE, VARIABLE AIR GAP, AND THE DISTRIBUTION OF THE WORKING MAGNETIC FIELD ALONG THE POLAR DIVISION. THE CALCULATION WAS CARRIED OUT BY THE NUMERICAL METHOD ON A DIGITAL COMPUTER ACCORDING TO ANGULAR CHARACTERISTIC EQUATIONS IN DIFFERENTIAL FORM. A COMPARISON IS GIVEN OF CHARACTERISTICS CALCULATED ON THE "RAZDAN-2" DIGITAL COMPUTER AND THOSE OBTAINED EXPERIMENTALLY.

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USSR UDC 010.49

ABDULLAYEV, G. B., [illegible], V. B., BELEN'KIY, G. L., [illegible], D. T., NANI, R. [illegible], and [illegible], E. YU., Institute of Physics, Academy of Sciences Azerbaydzhan SSR

"Photoconductivity of $CdIn_2S_4$ Single Crystals, Recombination Scheme"

Baku, Izvestiya [illegible] Nauk Azerbaydzhanskoy SSR, Seriya Fiziko-Tekhnicheskikh i Matematicheskikh Nauk, No 4, 1971, pp 127-131

Abstract: A [illegible] the photoelectric properties of $CdIn_2S_4$ single crystals [illegible] thermostimulated conductivity, as well as the [illegible] under the action of fast electrons, enabled the [illegible] on the energy level spacing in the forbidden band of $CdIn_2S_4$ and to determine some recombination and trapping center parameters.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202730009-6

USSR UDC 621.315.592

SALAYEV, E. YU., GASHIMZADE, F. M., KHALILOV, V. KH.

"Interband Faraday Effect in GaSe"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 6, No 2, 1972, pp 261-266

Abstract: A study was made of the Faraday effect near the absorption edge of hexagonal GaSe. The effect of indirect forbidden transitions on the dispersion curves of the Faraday rotation was considered, and this contribution to the total rotation of the polarization plane for $E \perp C$ caused basically by direct allowed transitions was quantitatively taken into account. The value of $|p^x_{cv}|^2$ in the case of direct allowed transitions was estimated on the basis of the paper by J. M. Boswarva, et al. [Proc. Roy. Soc., London, No A269, 125, 1962] ($|p^x_{cv}|^2$ is the square of the matrix element of the pulse operator $\hat{P}$).

The dispersion curves of the Faraday rotation have a complex nature and can be explained under the assumption that the Faraday rotation is caused both by direct allowed transitions and indirect forbidden transitions. The formula for the Faraday rotation in the case of indirect forbidden transitions is presented first, and from analysis of the Faraday rotation, the width of the forbidden band and the magnitude of the matrix element in the case of direct allowed transitions are determined. The dispersion curves of the rotation of the polarization plane were measured in the 1.4-2.1 electron volt range at temperatures

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USSR

SALAYEV, E. YU., et al., Fizika i Tekhnika Poluprovodnikov, Vol 6, No 2, 1972, pp 261-266

of 300 and 120° K for various thicknesses of the samples. Curves are presented for samples 0.0047 and 0.0580 cm thick. The measurements were performed with orientation of the samples E $\perp$ C in a magnetic field of ≈ 14 kilogauss. The curves for the different thicknesses of the samples are shifted relative to each other. The mechanism of this effect is explained.

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USSR

UDC 621.315.592

SALAYEV, YU. E., KHALILOV, V. KH., ANTONOV, V. B., NANI, R. KH.

"Faraday Effect in the Exciton Absorption Region in GaSe"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 6, No 2, 1972, pp 267-270

Abstract: A study was made of Faraday rotation in the exciton absorption region for weak fields (13.5 kilogauss) and at temperatures of 300 and 120° K. Comparison of the results with the data obtained from magneto-optical measurements in strong fields [K. Aoyagi, et al., J. Phys. Soc. Japan, No 21 (supplement), 1966] shows good agreement of the results. This agreement confirms the applicability of the mathematical model used and the results obtained by the different methods.

The result from investigating the Faraday effect in the absorption region of the exciton line n = 0 were processed on the basis of the Halpern theory [J. Halpern, Phys. Rev., Vol 134, No A140, 1964] and the Zwara approximation [M. Zwara, Phys. St. Sol., No 36, 785, 1969]. Relaxation times of $\tau = 0.443 \cdot 10^{-13}$ for 300° K and $\tau = 0.845 \cdot 10^{-13}$ sec for 120° K were obtained. The effective values of the g-factors were $g^* = 3.88$ for 300° K and $g^* = 3.46$ for 120° K. The estimated concentrations of the exciton states were $N = 1.59 \cdot 10^{16}$ cm^{-3} for 300° K and $N = 0.89 \cdot 10$ cm^{-3} for 120° K.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202730009-6

Veterinary Medicine

UDC 619:616.988.43-097

USSR

SALAZHOV, Ye. L., and IVANOV, V. S., All-Union Institute of Experimental Veterinary Science

"The Component of Foot-and-Mouth Disease Virus Responsible for Immunogenic Properties"

Moscow, Veterinariya, No 9, Sep 70, pp 38-40

Abstract: Type A_{22} foot-and-mouth disease virus cultured in fetal pig kidney cells was inactivated by irradiation with UV light (32000 erg/mm^2) or by treatment with 0.05% formalin solution for 48 hrs at 26°C. The RNA was also isolated from active virus. Virus inactivated by either method was avirulent for suckling white mice. The RNA produced infection in experimental animals of the same type produced by the active virus. Tests with guinea pigs indicated that inactivated virus of either type raised antibody titers in convalescent animals not susceptible to infection, while the RNA did not have this effect and even lowered the antibody titer. Upon administration of RNA to susceptible animals, the same immunobiological reactions occurred as were observed in infections with active virus, because the RNA replicated with formation of virus. Results indicated that virus protein rather than RNA

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202730009-6

USSR

SALAZHOV, Ye. L and IVANOV, V. S., Veterinariya, Vol 47, No 9, Sep 70, pp 38-40

(which lost its capacity for replication after inactivation of the virus) had immunogenic properties. It does not follow, however, that a foot-and-mouth disease vaccine must consist only of virus protein. Complete elimination of the RNA is a technically difficult and expensive process. Furthermore, the RNA remaining in the vaccine, although incapable of replication, may act as a haptene in combination with the virus protein.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202730009-6

USSR UDC 616.988.43

SALAZHOV, Ye. L., KOSTERIN, Ye. V., MUSTAFAYEV, G. A., and LEBEDENKO, L. A., All-Union Institute of Experimental Veterinary Medicine

"Foot-and-Mouth Disease in Man"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, Vol 47, No 6, Jun 70, pp 87-90

Abstract: Two cases of foot-and-mouth disease in man were studied in Kostromskaya oblast in order to obtain data on the subtype (variant) of foot-and-mouth disease virus affecting man. Not much is known about the serum antibodies in patients suffering from the disease. In both cases, the same type and variant of the virus, A_{22}, was responsible for the disease. Antibodies to this virus variant were found in the blood of both patients. These were the only two cases reported in humans in the oblast. Extensive measures to control the disease among domesticated animals and people were taken.

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1/2 018 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--FOOT AND MOUTH DISEASE IN MAN -U-

AUTHOR-(04)-SALAZHOV, YE.L., KOSTERIN, YE.V., MUSTAFAYEV, G.A., LEBEDENKO, L.A.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL MIKROBIOLOGII, EPIDEMIOLOGII I IMMUNOBIOLOGII, 1970, NR 6, PP 87-90

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--FOOT AND MOUTH DISEASE, GEOGRAPHIC LOCATION, MAN, DIAGNOSTIC MEDICINE, ANTIBODY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/0419 STEP NO--UR/0016/70/000/006/0087/0090

CIRC ACCESSION NO--AP0126172

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202730009-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202730009-6

UNCLASSIFIED PROCESSING DATE--04DEC70

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CIRC ACCESSION NO--AP0126172

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TWO CASES OF FOOT AND MOUTH DISEASE WERE DIAGNOSED IN 1967 IN KOSTROMA REGION. THE DIAGNOSIS WAS MADE ON THE BASIS OF EPIZOOTIC, ANAMNESTIC AND CLINICAL DATA. SICK ANIMALS SERVED AS THE SOURCE ON INFECTION: IN ONE CASE INFECTION WAS TRANSMITTED THROUGH MILK FROM A COW, AND IN ANOTHER, BY CONTACT WITH INFECTED ANIMAL. FOOT AND MOUTH DISEASE WAS DIAGNOSED BY EXAMINATION OF MATERIAL OBTAINED FROM SICK ANIMALS AND ONE OF THE PATIENTS; IN ALL OF THE CASES THE DISEASE PROVED TO BE CAUSED BY THE VIRUS BELONGING TO THE SAME TYPE AND OF THE SAME VARIANT, A SUB22, AGAINST WHICH ANTIBODIES WERE REVEALED IN THE BLOOD SERUM OF THE PATIENTS. FACILITY: VSESOYUZNYY INSTITUT EKSPERIMENTAL'NYY VETERINARII.

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Mathematic analysis

SALAZKIN, V.N.

(4)

JPRS 58292

22 February 1973

UDC 612.273

MATHEMATIC ANALYSIS OF THE REACTIONS OF THE HUMAN RESPIRATORY SYSTEM TO HYPOXIA AND HYPERCAPNIA

/Article by I.S. Breslav, A.G. Chirankin, V. N. Salazkin, and A. M. Shmelyev; Leningrad, Fiziologicheskiy Zhurnal SSSR im. I. M. Sechenov, Russian, No 11, 1972, submitted 8 February 1972, pp 1749-1755/

Man's ventilatory reactions to the inhalation of hypoxic and hypercaptic mixtures as studied in 300 experiments were mathematically processed by multiple correlation and regression analysis. Equations were obtained that characterize the quantitative relations between the minute volume of respiration and the parameters of the gaseous composition of the external and internal environments. These equations can be used to assess the relative importance of hypoxic and hypercapnic stimuli in the regulation of human breathing.

One of the difficult problems in the physiology of respiration is to evaluate the factors responsible for the volume of pulmonary ventilation. The difficulty is occasioned by the fact that none of the stimuli that directly or indirectly influence the activity of the respiratory center acts in isolation. For example, when the pH and CO_2 tension change, the ventilatory response to hypoxemia also changes. The Bohr (?) and Haldane effects must also be taken into account. Moreover, the ventilatory response itself by altering the chemical composition of the blood induces secondary shifts in the apparatus that regulates respiration.

Gray /8/ formulated the fundamental mathematical relationships between ventilation and a number of factors that affect it, notably tension of the blood respiratory gases. These relationships were developed by Grodins /8, 9, 10/ who was able to use them to create a model of the "respiratory chemostat". The mathematical approach to analysis of the regulation of respiration during muscular exertion and change in the gaseous composition of the atmosphere was followed by several physiologists /11-14/.

However, the possibilities provided by a quantitative characterization of the systems regulating respiration, as of biological systems in

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general, based on the usual deterministic approach employed in the [illegible] work, are limited. The complexity of the system and the multitude of variables operating make it more effective to describe the reaction of the system mathematically, using statistical methods as a function of a great many factors rather than of individual ones. This approach, not yet widely used to analyze physiological processes, was followed in this article to describe the statistical relationships obtaining between certain physiological parameters of the system regulating human respiration and the concentration of oxygen and carbon dioxide in the air inhaled. We believe such a description can be of value both in understanding the general principles involved in the regulation of respiration and in predicting the behavior of the respiratory system under the actual conditions of an altered gaseous mixture (hypoxia, hypercapnia).

Procedure

Experiments were performed on 18 healthy persons (9 males and 9 females) age 18 to 30. We used a complex apparatus /1/ to record the minute volume of respiration, CO_2 content of alveolar gas (with a CO2-7 capnograph), and oxygenation of arterial blood (with an O-16 oxyhemograph).

In each experiment the subject first inhaled air (21 percent oxygen in nitrogen) and then a mixture with a changed composition. The following mixtures were used: hypoxic (18, 15, 12, or 9 percent O_2 in nitrogen), hypercapnic (0.5, 1, 2, 3, or 5 percent CO_2 in air), and a combination containing a reduced quantity of oxygen with CO_2 added. Thus, we investigated the entire range of changes in concentration of respiratory gases compatible with man's vital processes.

The gaseous mixture was inhaled for 10 to 15 min. Analysis of the dynamics of the parameters recorded showed that they became stabilized at rest by any of the above mixtures after 10 min, an indication that a steady state had been achieved by this time. Therefore, our report includes the results of analysis of the values recorded at the 10th minute of inhalation of the corresponding gaseous mixtures.

The physiological reactions were mathematically described by means of multiple correlation and regression analysis /3, 4, 6/.

Two kinds of equations were sought, one for the absolute values of the variables, the other for the normalized variables. The second method made it possible to evaluate the contribution (weight) of each variable to a given function. Normalization of the following kind was used:

$$x' = \frac{x - M_x}{\sigma},$$

where x' is the normalized value of the variable, x is the absolute value of the variable, M_x is the average value of the variable in the experiment,

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1/2 011 UNCLASSIFIED PROCESSING DATE--11SEP70

TITLE--THERMAL STABILITY OF AROMATIC POLYESTERS -U-

AUTHOR--KORSHAK, V.V., VINOGRADOVA, S.V., DANILOV, V.G., BERIDZE, L.A., SALAZKIN, S.N.

COUNTRY OF INFO--USSR

SOURCE--VYSOKOMOL. SOEDIN. SER B 1970, 12(2), 129-32

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--THERMAL STABILITY, POLYESTER RESIN, CONDENSATION REACTION, CHLORIDE, POLYNUCLEAR HYDROCARBON, PHENOL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1989/0227 STEP NO--UR/0460/70/012/002/0129/0132

CIRC ACCESSION NO--AP0106883

UNCLASSIFIED

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202730009-6

2/2 011 UNCLASSIFIED PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0106883

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DTA CURVES OF POLYESTERS PREPD. BY CONDENSING PHENOLPHTHALEIN WITH 1 EQUIV. OF SEBACOYL CHLORIDE, ISOPHTHALOYL CHLORIDE, 4,4PRIME,BIPHENYLDICARBONYL CHLORIDE, OR TEREPHTHALOYL CHLORIDE (I), AND BY CONDENSING I WITH 9,9,BIS(4-HYDROXYPHENYL)FLUORENE, 10,10,BIS(4,HYDROXYPHENYL),ANTHRONE, 2,2,BIS(4,HYDROXYPHENYL)ACENAPHTHELENONE, OR BISPHENOL A (II), SHOWED THAT THE COMPDS. WERE STABLE SMALLER THAN OR EQUAL TO 460DEGREES IN HE. AT 350-600DEGREES THE WT. LOSS IN HE WAS 2-3PERCENT. THE WT. LOSSES IN HE AT 900DEGREES WERE SMALLER THAN OR EQUAL TO 50PERCENT FOR THE POLYESTERS WITH THE EXCEPTION OF THOSE CONTG. II.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202730009-6

1/2 021 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--THERMAL STABILITY OF POLY,3,METHYLENEPHTHALIDE -U-

AUTHOR-(05)-RUDE, V.V., ZHURAVLEVA, I.V., GAMZAZADE, A.I., SALAZKIN, S.N., CHELIDZE, G.SH.
COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (4), 926-8

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--THERMAL STABILITY, ACTIVATION ENERGY, FREE RADICAL, BENZENE DERIVATIVE, HETEROCYCLIC OXYGEN COMPOUND, LACTONE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3006/1312 STEP NO--UR/0062/70/000/004/0926/0928

CIRC ACCESSION NO--AP0134984
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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202730009-6

2/2 021 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0134986

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TITLE POLYMER (I) (S. B. VINOGRADOVA, ET AL., 1970) WAS HEATED IN A VACUU OR AR ATMOSPHERE AT 275-400DEGREES. THE MAIN DECOMPN. PRODUCT IS LESS THAN OR EQUAL TO 375DEGREES WAS 3,METHYLENEPHTHALIDE. ONLY ABOVE 375DEGREES TRACES OF CO SUB2, CO, AND H SUB2 WERE DETECTED. DTA CURVES AND WT. LOSS VS. TIME CURVES SHOWED THAT THE DECOMPN. OF I WAS A FREE RADICAL INITIATED DEPOLYMN. ASSOCD. WITH 39.5 KCAL-MOLE ACTIVATION ENERGY.

FACILITY: INST. ELEMENTOORG. SOEDIN., MOSCOW, USSR.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202730009-6

1/2 013 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--POLYARYLATES -U-

AUTHOR-(04)-KORSHAK, V.V., VINOGRADOVA, S.V., SALAZKIN, S.N., BERIDZE, L.A.

COUNTRY OF INFO--USSR

SOURCE--USSR 263,140
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--04FEB70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--POLYARYL RESIN, CHEMICAL PATENT, POLYCONDENSATION, PHENOL, LACTONE, TEREPHTHALIC ACID

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/1473 STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0128872

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202730009-6

2/2 013 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AA0128872

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. POLYARYLATES ARE PREPD. BY POLYCONDENSATION OF DICARBOXYLIC ACID CHLORIDES WITH BISPHENOLS. SUCH AS GAMMA DILACTONES OF 2,5,BIS(PHENYL),4 PRIME, HYDROXYPHENYL)HYDROXYMETHYL)TEREPHTHALIC ACID AND 2,4 BIS(PHENYL,4 PRIME, HYDROXYPHENYL)HYDROXYMETHYL)ISOPHTHALIC ACID. FACILITY: INSTITUTE OF HETEROORGANIC COMPOUNDS, ACADEMY OF SCIENCES, USSR.

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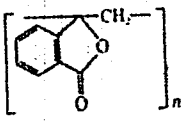
"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202730009-6

Acc. Nr. AP0048827 Abstracting Service: CHEMICAL ABST 5-70 Ref. Code UR0459

90903k Synthesis and behavior of poly(methylenephthalide). Vinogradova, S. V.; Salazkin, S. N.; Korshak, V. V.; Cheldze, G. Sh.; Slonimskii, G. L.; Askadskii, A. A.; Mzhel'skii, A. I. (Inst. Elementoorg. Soedin., Moscow, USSR). *Vysokomol. Soedin., Ser. A* 1970, 12(1), 205-13 (Russ). The title polymer (I) was prepd. by bulk, emulsion, and soln. polymn. of methylenephthalide (II) in the presence of peroxides or $BF_3.HCONMe_2$. II was also thermally polymd. in $HCONMe_2$ in air at 60° to give I of



(I)

higher mol. wt. than I obtained similarly under argon. Increasing the temp. to 80° had no effect on the I yield and viscosity. I with reduced viscosity 0.5–0.7 dl/g (0.5% $HCONMe_2$, 25°) was obtained by soln. polymn. of II in the presence of Bz_2O_2 or $(NH_4)_2S_2O_8$. Soln. polymn. of II was solvent-sensitive. I with

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max. reduced viscosity (0.85 dl/g) was obtained by polymn. of II in $HCONMe_2$ at 70° in the presence of $BF_3.HCONMe_2$. Increasing the reaction time raised the I yield sharply. II was also bulk copolymd. with other monomers, esp. styrene, acrylonitrile, and Me methacrylate, in the presence of Bz_2O_2 to give high yields of copolymers with high reduced viscosity. All copolymers were solids, sol. in the same solvents (CF_3CO_2H, Me_2SO, etc.) as I. I had softening point 300° and good thermal stability. DBJR

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202730009-6

1/2 018 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--PARAMETERS OF THE DEPENDENCE OF INTRINSIC VISCOSITY ON MOLECULAR WEIGHT FOR POLYARYLATES WITH ALIPHATIC SIDE GROUPS -U-

AUTHOR-(05)-PAVLOVA, S.A., DUBROVINA, L.V., VINOGRADOVA, S.V., SALAZKIN, S.S., KORSHAK, V.V.

COUNTRY OF INFO--USSR

SOURCE--VYSOKOMOL. SOEDIN., SER. B 1970, 12(1), 69-71

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--INTRINSIC VISCOSITY, MOLECULAR WEIGHT, POLYARYL RESIN, POLYCONDENSATION, LIGHT DIFFRACTION, POLYMER STRUCTURE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1986/0254 STEP NO--UR/0460/70/012/001/0069/0071

CIRC ACCESSION NO--AP0102304

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202730009-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202730009-6

2/2 018 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0102304

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. POLYARYLATE F-12-ST (I) AND POLYARYLATE F-12-ATS (II) (WHERE THE N SUBSTITUENT IS AC INSTEAD OF COC SUB17 H SUB35) WERE PREPD. BY INTERFACIAL POLYCONDENSATION BY A METHOD DESCRIBED EARLIER BY S. V. VINOGRADOVA, ET AL. (1965). THE INTRIMSIC VISCOSITIES OF I AND II WERE MEASURED IN TETRAHYDROFURAN (III) AND CHCL SUB3 AT 20 PLUS OR MINUS 0.1DEGREES, WHEREAS THE MOL. WTS. WERE MEASURED BY LIGHT DIFFRACTION IN A VISUAL NEPHELOMETER AT LAMBDA EQUALS 5461 A. CALCN. OF MARK HOUWINK PARAMETERS (ALPHA AND K FOR I AND II IN III WERE 1.14 AND 3.24 TIMES 10 PRIME NEGATIVE6, AND 0.80 AND 1.55 TIMES 10 PRIME NEGATIVE5, RESP.) SHOWED THAT ALPHA WAS PROPORTIONAL TO THE LENGTH OF THE ALIPHATIC CHAIN, WHICH WAS INCONSISTENT WITH DATA OBTAINED FROM POLYARYLATES HAVING AROMATIC SIDE GROUPS. THE CHANGE IN THE HYDRODYNAMIC BEHAVIOR WAS ATTRIBUTED TO HIGHER CHAIN RIGIDITY.

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USSR

UDC 547.721'781'821

SALDABOL, N. O., ZELIGMAN, L. L., and GILLER, S. A., Institute of Organic Synthesis, Acad. Sc. Latvian SSR, Riga

"Aminomethylation of 2-(Furyl-2)imidazo-[1,2-a]-pyridine"

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, No 6, Jun 71, pp 818-821

Abstract: Aminomethylation, specifically the morpholino- and piperidinomethylation of 2-(furyl-2)imidazo-[1,2-a]pyridine occurs principally at position 3 of the imidazopyridine system, when equimolar quantities of the reagents are used. With excess formaldehyde and amine the reaction occurs also at position 5 of the furane ring. To identify the structure of monomorpholinomethylation product it was further nitrated to yield 3-morpholinomethyl-2-(5-nitrofuryl-2) imidazo-[1,2-a]-pyridine (I). For positive identification, (I) was independently synthesized by morpholinomethylation of 2-(5-nitrofuryl-2)-imidazo[1,2-a]pyridine. Structure identification was carried out by means of TLC, and IR and UV spectroscopical analyses. The reaction was carried out by dropwise addition of formalin and morpholine to 2-(furyl-2)imidazo [1,2-a]pyridine in acetic acid, heating for 3 hrs at 60°, and neutralization with NaOH.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202730009-6

USSR

UDC 615.28:547.7517.012

SALDABOL, N. O., ALEKSEYEVA, L. N., BRIZGA, B. A., KRUZMETRA, L. V., and GILLER, S. A., Institute of Organic Synthesis, Riga, Academy of Sciences Latvian SSR

"Synthesis and Antimicrobial Action of Furyl-Substituted Indolizine, Imidazo (1,2-a)pyrimidine, and Imidazo(2,1-b)thiazole"

Moscow, Khimiko-Farmatsevticheskiy Zhurnal, Vol 4, No 7, 1970, pp 20-22

Abstract: Continuing work on the synthesis and study of antimicrobial properties of furyl-substituted heterocyclic condensed systems with apcial nitrogen atoms, the authors obtained (5-R-furyl-2)substituted indolizine (VIa, VId), imidazo(1,2-a)pyridine (VIIa, VIIb, and VIId), and imidazo92,1-b)thiazole (VIIIa-VIIIc and IXa, IXc) (R = H, Br, and NO_2) and described their antimicrobial action.

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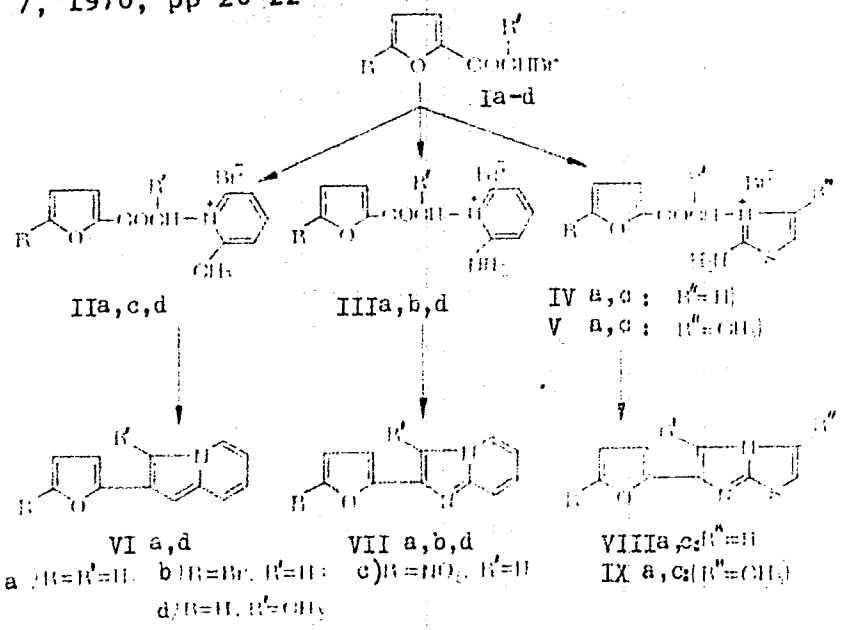
USSR

SALDABOL, N. O., et al., Khimiko-Farmatsevticheskiy Zhurnal, Vol 4, No 7, 1970, pp 20-22



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USSR

SALDABOL, N. O., et al., Khimiko-Farmatsevticheskiy Zhurnal, Vol 4, No 7, 1970, pp 20-22

The minimum concentration of furylazabicycles inhibiting microorganismic growth is 100 mcg/ml, while for phenyl analogs it rises sharply. For example, for 6-phenylimidazo(2,1-b)thiazole and its n-nitroderivative the minimum concentration inhibiting growth of Staphylococcus aureus, Salmonella typhi, and Escherichia coli is 7800 mcg/ml. Thus, replacement of the phenyl with the furyl group leads to an abrupt intensification of antimicrobial action, which is intensified still further in the case of the nitrofuryllazabicycles (VIIc, VIIIC and IXc). The strongest bacteriostatic action is shown by nitrofurylimidazopyridine (VIIc), buts its aromatic analog 2-p-nitrophenylimidazo/1,z-a/pyridine is only slightly active.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202730009-6

Water Treatment

USSR

UDC 678.66:631.67.628.10

SALDADZE, K. M.

"Desalination of Salt Water by Means of Polymer Materials Aimed at Agricultural Water Supply"

Moscow, Plasticheskiye Massy, No 11, 1973, pp 47-51

Abstract: The electro-ion exchange method of water desalination is based on an electrodialysis process using ionoselective membranes. This principle is based on the utilization of the movement of dissociated ions in an electric field through semipermeable ion exchange membranes. Several types of water purifiers have been developed using cation and anion exchange membranes MK-40 or MA-40 and MA-41. These units are designed for sparcely populated areas, being capable of purifying 25 m^3/day of water with salt content of up to 6 g/l. To remove 1 kg of salt, about 0.2-0.4 kwatt·hr of electric energy is used. The need has been stressed for development of more such units, to saturate the sparcely populated areas, and to enlarge the capacity of such purifiers so as to be adaptable to larger concentrations of the population dependent on subterranean salt water.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202730009-6

USSR UDC 543.544

BARKETOV, E. S., KOPYLOVA, V. D., KARGMAN, V. B., DRUSIN, M. I. and SALDADZE, K. M., Scientific-Research Institute of Plastics, Moscow, State Committee

"A Study of Anion-Exchange Resins with Complexing Properties"

Moscow, Zhurnal Analiticheskoy Khimii, Vol XXV, No 3, Mar 70, pp 440-444

Abstract: In connection with obtaining new ion-exchange materials, researchers have devoted much attention to the synthesis of selective ionites which will absorb ions of one or several elements on a selective basis. These efforts have usually been complicated with various difficulties, including the necessity for multistage synthesis.

To overcome these difficulties, the authors studied the complexing properties of new anion-exchange resins based on copolymers of N-(β -(5-vinylpyridyl-2)ethyl)amines and N, N'-di (β -(5-vinylpyridyl-2)-ethyl-substituted diamines, in connection with bivalent copper, cobalt and nickel cations.

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BARKETOV, E. S., et al., Zhurnal Analiticheskoy Khimii, Vol XXV, No 3, Mar 70, pp 440-444

It was found that the anion-exchange resins which contained ethylene-diamine groups had the strongest complexing capability. These have a comparatively high capacity for cations, which they sorb from very dilute solutions (less than 10^{-3}N). In addition, macroporous resins of this type showed more intense sorption kinetics than those of gel structure.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202730009-6

1/2 021 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--KINETICS OF ION EXCHANGE ON POLYSTYRENE TYPE SULFONIC CATION EXCHANGERS CROSSLINKED WITH M AND P-DIVINYLBENZENE -U-

AUTHOR-(04)-BELFER, S.I., SALDADZE, K.M., GINTSBERG, E.G., KOVARSKAYA, B.M.

COUNTRY OF INFO--USSR

SOURCE--ZH. FIZ. KHIM. 1970, 44(4), 1104-5

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--POLYMERIZATION, STYRENE, BUTADIENE, BENZENE, SULFONATION, ION EXCHANGE RESIN, CHEMICAL KINETICS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3007/0791 STEP NO--UR/0076/70/044/004/1104/1105

CIRC ACCESSION NO--AP0136225

UNCLASSIFIED

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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE COPOLYM. OF STYRENE WITH M-DIVINYLBENZENE (I) OR P-DIVINYLBENZENE (II) IN THE PRESENCE OF BZ SUB2 O SUB2, FOLLOWED BY SULFONATION GAVE ION EXCHANGE RESINS. THE POLAROGRAPHIC STUDY OF THE ION EXCHANGE RATES OF BU SUB4 N PRIME POSITIVE WITH H PRIME POSITIVE SHOWED THAT THE RESIN BASED ON I EXCHANGED THIS BULKY ION (RADIUS 12.2 A) FASTER THAN THE RESIN BASED ON II. THE DIFFUSION COEFFS. FOR THESE 2 RESINS WERE RESP. 3.8 TIMES 10 PRIME NEGATIVE8 AND 1.7 TIMES 10 PRIME NEGATIVE8 CM PRIME2 -SEC WHEN 6 MOLE PERCENT OF I OR II WERE PRESENT IN THE COPOLYMER. THE ION EXCHANGE CAPACITIES WERE NEARLY THE SAME: 4.82 AND 4.84 MEQ-G. FACILITY: NAUCH.-ISSLED. INST. PLASTMASS, MOSCOW, USSR.

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