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ACC NR: AP5027306

resolution equal to 39 and 21% for Cs^{137} and K^{40} respectively and thus does not allow analysis of complex gamma radiation spectra. Activities of 5.10^{-11} to 5.10^{-3} curies can be measured. Isosensitivity of the larger part of the measuring volume is shown to be high and is seen particularly upon moving the source. The configuration of the object hardly influences the measuring results. Increased specimen volume will lead to self-absorption and attemuation of initial gamma irradiation producing a slight drop in the count. This is shown on aqueous phantoms. For those up to 0.5 liter this does not depend on radiation energy and amounts only to a few percent. This counter has been used for radiobiologic and radiation protection studies and has been found highly reliable. Reproducibility was increased 10-20 times compared to radiochemical methods, and the number of measured objects reached 6000 per year. Its use for prevital radioactivity determination in experimental animals afforded studies of isotope metabolism in the organism. Orig. art. has: 10 figures.

SUB CODE: 06, 07/ SUBM DATE: 05Jan 65/ ORIG REF: 001/ OTH REF: 002

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BELLE, Yu.S.; KOSTIKOV, Yu.I.; SHAMOV, V.P.; SHAPIRO, E.L.

Radiometric properties of the large liquid scintillation counter BZhSS-1. Med. rad. 10 no.10:67-73 O '65. (MIRA 18:12)

1. Leningradskiy nauchno-issledovatel'skiy institut radiatsionnoy gigiyeny Ministerstva zdravookhraneniya RSFSR. Submitted January 5, 1965.

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Results of research carried out in the Central Scientific Wood Chemistry Research Institute in 1933. E. S. Shapiro and S. Ya. Val'kov. *Lesokhimicheskaya Prom.* 3, No. 3, 3-6(1934).—A preliminary summary of reports. Lab. expts. on wood distn. with superheated steam yielded CH_3COOH 6.0-6.5% (3% in ordinary distn.) from pine and 12.0-13.0% (instead of 6-7%) from birch, while the yield of MeOH remained unchanged. Resinous compds. and permanent gases were not obtained. Waste wood of all kinds may be used. A disadvantage of this method is the high dilu. of tar water due to the use of steam. The yield of formaldehyde was raised to 88-93% (from the usual 50-55%) by using a lower catalyst temp. and a lower O_2 concn. An anti-freeze for automobile radiators remaining fluid at −60° to −70° was prepd. from kerosene and neutral oils which are by-products in wood distn. Acetone was prepd. by catalytic cracking of CH_3COOH with Fe, salts and oxides of alk. earth metals, Mn_3O_4, etc. The yields of acetone from 80% AcOH amounted to 90-93%. Catechol and pyrogallol contained in pine tar were cracked yielding up to 30 kg. of a photographic developer per ton of tar. Wood impregnated with halogen salts ignited from a Bunsen burner at 900-1200°. Cedar wood on being impregnated with inorg. acids and mixts. of oxy acids yielded a material suitable for pencils; treatment with paraffin and ceresin brought the quality up to American standards. In the treatment of pulp with concd. H_2SO_4, the latter is recovered by treatment with phosphorite or apatite, the acid being recovered as $CaSO_4$. H_3PO_4 is then neutralized with $Ca(OH)_2$. The soln. after removal of the ppt. is used directly in the fermentation. The residue is used for the prepn. of $(NH_4)_2SO_4$. HCl left from hydrolysis with a concd. HCl (41%) is recovered by hydrolysis. Lignin obtained as a by-product in the hydrolysis with concd. acids was saccharified by fusing with NaOH at 300°, and was further used in the prepn. of catechol, vanillin, adrenaline, etc. Polyatomic phenols were prepd. from lignin and creosote or phenol.

A. A. Boehtlingk

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1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

Compounds of iridium with thiourea. V. V. Lebedinskii, E. S. Shapiro and N. P. Kasatkina. *Ann. inst. platine* (U. S. S. R.) No. 12, 93-102 (1935). $(NH_4)_2IrCl_6$ is reduced to $(NH_4)_2IrCl_6$ (I) by H_2S, and the ppt'd. S is filtered off. In the presence of HCl, I reacts with $SC(NH_2)_2$ (II) to form $Ir(SCN_2H_4)_6Cl_3$. If any excess II is present, small amts. of $[Ir(SCN_2H_4)_6Cl_2]Cl$ (III), $[Ir(SCN_2H_4)_6Cl]Cl_2$ (IV) and $[Ir(SCN_2H_4)_6]Cl_3$ (V) are formed. III is best prepd. from 1 g. of I and 1.2-1.5 g. of II. The mother liquor from this contains IV, which forms ppts. with C_2O_4, $PtCl_4$ and ClO_4 ions. If 1 g. of I and 3 g. of II are used, the main product is V. No mono- or disubstituted compds. could be obtained. The above reactions are not always strictly reproducible.

H. M. Leicester

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1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

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Phenomena of hydrolysis in sodium aluminate solutions. R. S. Shapiro. *Tsvetnaya Metal.* 16, No. 13, 30-2(1941); *Chem. Zentr.* 1943, I, 1706-7.—The results of lab. and semitech. investigations of the stability of aluminate solns. are reported. Solns. contg. up to 200-80 g./l. Al_2O_3, with a caustic ratio of 1.18-1.20, were not hydrolyzed by aq. leaching within 24 hrs. The same resistance to hydrolysis was shown by less concd. solns. contg. 220 g./l. Al_2O_3, with a caustic ratio of 1.26. In the diffusion extn. of Na ferrite, the temp. of the water had a pronounced influence on the decompn. of the ferrite. Thus, 89.5% of the ferrite was decompd. at a water temp. of 90° and only 46.9% at 60°. In the diffusion leaching of the crushed melt a satisfactory extn. of alumina and alkali was obtained with a water temp. of 90-5° and a particle size of 5 mm. Too low a water temp. and too large a piece size resulted in hydrolysis of the aluminate soln. An important cause of hydrolysis, especially in the case of bauxite, is improper emptying of the charge and the use of components of poor quality. Thus, only hydrolysis occurs if the soda content of the charge is too low, if the caustic ratio is too low, if the ferrite ratio in the bauxite is too low or if the melt is extd. with water which is not hot enough. A further cause of hydrolysis is to be found in incomplete decompn. of the Na ferrite and an incorrect granulometric compn. of the melt, which reduces the extn. of the alkali.

M. G. Moore

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1ST AND 2ND ORDERS — 3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

Inst. Org. Chem., AS USSR 2

Hydrolysis of vinyl alkyl ethers in water-dioxane solutions. E. N. Prilezhaeva, E. S. Shapiro, and M. F. Shostakovskii. *Zhur. Obshchei Khim.* (J. Gen. Chem.) 18, 1863-73(1948).—(1) Rates of acid hydrolysis in soln. were detd. for CH_2:CHOBu (I) in 0.025 and 0.5 *M* soln. in H_2O + dioxane 40, 60, and 80 vol. %, at 15, 25, and 35°, with 8×10^{-4}, 15×10^{-4}, and 33×10^{-4} *M* HCl; CH_3:CHOBu (II) in 0.035-0.045 *M* soln., in H_2O + dioxane 40 vol. %, at 25 and 35°, with 8×10^{-4} *M* HCl; and MeCH(OBu)$_2$ (III) in 0.018-0.02 *M* soln. in H_2O + dioxane 60 vol. %, at 15 and 25°, with 7×10^{-4} *M* HCl. The reaction mixt. was analyzed by alk. oximation of the aldehyde formed and titration of the excess NH_2OH. The reaction is of the 2nd order (1st order with respect to the ether and 1st order with respect to HCl or H_3O^+). Values of the 2nd-order $k' = 2.3\,k/[HCl]$ and $k_a = 2.3\,k/[H_3O^+]$, where k is the 1st-order rate const., in 10^{-3} sec.$^{-1}$ (mol./l.)$^{-1}$, are: I in H_2O, 15, 25, 35°, k' 100, —, —, k_a 100, —, —; dioxane 40 vol. %, k' 11.6, 37.0, 101.0, k_a 11.6, 37.0, 101.0; 60%, k' 3.76, 9.81, 23.3, k_a 4.04, 11.5, 27.9; 80%, k' 2.17, 6.50, 17.3, k_a 6.73, 21.7, 62.8; II 40%, k' —, 33.9, 85.6, k_a —, 33.9, 85.6; III 60%, k' 1.96, 6.83, —, k_a 2.11, 7.99, —. The activation energies E (in kcal./mole) are (I) 40, 60, and 80 vol. % dioxane, E = 19.04, 17.20, and 19.70; (II) 40%, 17.90; (III) 60%, 22.7. For II and III, E is the same as that in 100% H_2O soln., from data of Skrabal (*C.A.* 34, 1235[9]) and of Palomaa and Salonen (*C.A.* 28, 2982[4]). In the case of I, the variation of E with the compn. of the solvent shows no regularity. The calcd. collision no. is higher than the theoretical -2.8×10^{11}, i.e. the simple collision theory is inapplicable. For I, both k_a and $k_{H_3O} = k_a/[H_3O]$ have a min. at 60 vol. % dioxane. The intermediate complex is formed by interaction of the H_3O^+ ion with both the O atom of the ether and the β-C atom; regeneration of the H_3O^+ is facilitated by a rearrangement and reaction with H_2O, according to $MeCH(OH)O^+\langle^{R}_{H} \rightarrow MeCH(OR)\text{-}O^+\langle^{H}_{H} \xrightarrow{H_2O} MeCH(OR)(OH) + H_3^+O$, followed by rapid decompn. of the semiacetal. The slowing-down by dioxane is no doubt due to a decreased rate of formation of the intermediate complex owing to the higher affinity of dioxane for H^+. (2) The soly. of I in H_2O + dioxane mixts., 0, 25, 50, 70 vol. % dioxane, at 20°, was detd. to 0.0054, 0.0078, 0.0464, 0.1860 mole/l.; complete miscibility with 100% dioxane. N. Thon

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SHAPIRO, E. S.

USSR/Chemistry - Organic Sulfur Compounds May/June 51

"Synthesis of Sulfur Compounds from Acetylene and Vinyl Ethers. Communication No 1: Synthesis of alpha-Alkoxyethylmercaptanes and alpha, alpha-Dialkoxydiethylsulfides by Reacting Hydrogen Sulfur With Vinyl Ethers," M. F. Shostakovskiy, Ye. N. Privezhayeva, E. S. Shapiro, Inst Org Chem, Acad Sci USSR

"IZ AK NAUK SSSR, OTDEL KHIM NAUK," No 3, pp 284-294

Found conditions of quant addn of hydrogen sulfide according to Markovnikov's rule to vinylether ether and vinylbutyl ether with formation of alpha-alkoxyethanethiols and alpha, alpha-dialkoxydiethylsulfides. Showed hemithioacetals, as distinguished from their oxygen analogues, are capable of brief existence as free substances. Studied some reactions of alpha-alkoxyethanethicols and alpha, alpha-dialkoxydiethylsulfides and proved constitution of these substances. In syst RO-C-S-X, there is conjugation of single bonds leading to facilitated splitting off of OR as anion and X as caption with simultaneous formation of double C=S bond.

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Inst. Org. Chem., AS USSR

Synthesis of sulfur compounds based on vinyl ethers and acetylene. II. **Synthesis of 2,2'- and 1,2'-dialkoxydiethyl sulfides.** E. N. Prilezhaeva, E. S. Shapiro, and M. F. Shostakovskii. *Izvest. Akad. Nauk S.S.S.R., Oddel. Khim. Nauk* 1951, 438-47; cf. C.A. 46, 8831f.—H_2S, passed through $BuOCH{:}CH_2$ (30 g.) with addn. of 0.2 ml. 20.4% HCl in dioxane and continued application of H_2S pressure (unstated but somewhat above atm.) for 10 hrs., reacted vigorously after 3 hrs., and a total of 4.8 g. added to the $BuOCH{:}CH_2$. Distn. gave a little $(BuO)_2CHMe$, 1.6 g. *1,1-bis(2-butoxyethylmercapto)ethane*, $b_{0.5}$ 166.5-9.0°, n_D^{20} 1.4814, d_4^{20} 0.9702, and some 27 g. mixed ($BuOCH_2CH_2)_2S$ (I) and $BuOCH_2CH_2SCH(OBu)Me$ (II), $b_{0.5}$ 117-40°; careful fractionation gave numerous fractions of disproportionation products of the latter acetal, including $CH_2{:}CHSCH_2CH_2OBu$, $b_{0.5}$ 61.5-5.0°, n_D^{20} 1.4699, d_4^{20} 0.9190; $(BuOCH_2CH_2S)_2CHMe$, $b_{0.5}$ 150-1°; I, b_5 124-4.5°, $b_{0.5}$ 112-14°, b_{760} 283-6°, n_D^{20} 1.4559, d_4^{20} 0.9223 (best isolated after heating the crude product 9 hrs. at 150°); and II, b_5 107.5-8.5°, $b_{0.5}$ 117-1°, d_4^{20} 0.9171, n_D^{20} 1.4537. $BuOCH{:}CH_2$ (30 g.) with H_2S, as above, but with 0.2 ml. 25.2% HCl in dioxane in the presence of 0.02 g. piperidine, gave 15% $BuOCH_2CH_2SH$, b_{760} 165-7°, $b_{0.5}$ 48-9°, n_D^{20} 1.4188, d_4^{20} 0.9111 (yielding with $HgCl_2$, $(CH_2OSH)_2Cl_2$, m. 137.5-8.0°), and 60% mixed I and II. Generally, increased concn. of HCl gave more products of Markovnikov-type addn. Similarly H_2S with $EtOCH{:}CH_2$ in dioxane-HCl gave 55.9% *Et analogs* of I and II, and fractionation of the reaction mixt. gave a little $EtOCH_2CH_2SH$; *Et analog* of I, $b_{0.5}$ 83.3-4.4°, n_D^{20} 1.4560, d_4^{20} 0.9520; and *Et analog* of II, $b_{0.5}$ 70.8-1.4°, n_D^{20} 1.4512, d_4^{20} 0.9471; among the products from the reaction in 23.7% HCl-dioxane soln. was obtained some *1,1-bis(2-ethoxyethylmercapto)ethane*, $b_{0.5}$ 131-4°, n_D^{20} 1.4880, d_4^{20} 1.0120; a fraction contg. crude $(MeCHOEt)_2S$, $b_{0.5}$ 57.5-8.5°, n_D^{20} 1.4474, was also isolated. Analysis of the mixt. is possible because of the decompn. of compds. of the last type and those analogous to II, in the presence of $HgCl_2$, yielding ppts. of $RSHgCl$. G. M. K.

SHAPIRO, E. S.

PA 195717

USSR

"Synthesis of Sulfur Compounds Based on Vinyl Ether and Acetylene. II. Synthesis of 2,2'- and 1,2'-Dialkoxydiethyl Sulfides. Prilezhaeva, Ye. N., Shapiro, E. S., and Shostakovskiy, M. F. Izv. Akad. Nauk SSSR, Otd. Khim. Nauk, 1951, 4, 438-447 (in Russian)

Studied the reaction of β,γ-unsaturated ethers with H_2S in the presence of HCl in dioxane. Found that the reaction is a Markovnikov type addition. Also found that the reaction of H_2S with $BuOCH{:}CH_2$ in the presence of HCl in dioxane in the presence of piperidine gives $BuOCH_2CH_2SH$ (15%) and a mixture of $(BuOCH_2CH_2)_2S$ and $BuOCH_2CH_2SCH(OBu)Me$ (60%). Fractionation of the latter mixture gives numerous fractions of disproportionation products of the latter acetal, including $CH_2{:}CHSCH_2CH_2OBu$, $(BuOCH_2CH_2S)_2CHMe$, $BuOCH_2CH_2SCH{:}CH_2$, $(BuO)_2CHMe$, $(BuOCH_2CH_2S)_2CH_2$. Analysis of the mixture is possible because of the decomposition of compounds of the last type and those analogous to II, in the presence of $HgCl_2$, yielding ppts. of $RSHgCl$.

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USSR/Chemistry - Organic Sulfur Compounds - Sep/Oct 51

"Synthesis of Sulfur Compounds on the Basis of Acetylene and Vinyl Ethers. Communication 4. Synthesis of Trithioacetaldehyde," Ye. N. Prilezhayeva, E. S. Shapiro, M. F. Shostakovskiy, Inst of Org Chem, Acad Sci USSR

"Iz Ak Nauk SSSR, Otdel Khim Nauk" No 5, pp 568-570

By action of H_2S on vinyl ethers in presence of high concns of HCl, prepd with good yield cyclic trimer of thioacetaldehyde and

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USSR/Chemistry - Organic Sulfur Compounds (Contd) Sep/Oct 51

corresponding alc. Reaction proceeds through intermediate formation of α-chloroethylalkyl ethers and α-alkoxyethylmercaptans and decompn of latter in acid medium.

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SHAPIRO, E. S.

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Chem
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Chem Abs V48
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Organic ~~Chemistry~~

Trimer of thioacetaldehyde (β-form) (β-1,3,5-trimethyl-2,4,6-trithiane). M. F. Shostakovskiĭ, E. N. Prilezhaeva, and E. S. Shapiro. *Akad. Nauk S.S.S.R., Inst. Org. Khim., Sintezy Org. Soedineniĭ, Sbornik* 2, 126-8(1952).—BuOCH:CH_2 (15 g.) cooled to −10° is satd. over 1 hr. with dry HCl to form MeCHClOBu, and the product is directly treated at −10 to −15° with H_2S (thoroughly dry) for 1 hr., after which H_2S is passed in at room temp. until no more absorption takes place. The product is washed with H_2O on a glass filter, yielding 83-8% *Me-CH.S.CHMe.S.CHMe.S*, m. 125-6° (from EtOH). Other alkyl vinyl ethers can be used similarly. G. M. K.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5

SHAPIRO, E. S.

Chem Abs V48
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Organic Chemistry

1-Ethoxy-1-acetylmercaptoethane. E. N. Prilezhaeva, M. F. Shostakovskii, and E. S. Shapiro. *Akad. Nauk S.S.S.R., Inst. Org. Khim., Sintezy Org. Soedinenii, Sbornik* 2, 171-3(1952); cf. *C.A.* 46, 883*f*.—To 8.5 g. MeCH(SH)OEt in 20 g. dry pyridine was added at −5° 9 g. AcCl keeping the temp. under 5°. After stirring 0.5 hr. and allowing the mixt. to stand overnight, it was dild. with Et_2O and H_2O, the aq. layer was extd. with Et_2O, the combined org. layers were washed with H_2O, dried over Na_2SO_4 and distd. yielding 64% *MeCH(OEt)SAc*, b_{17} 60-3.5°. Pure product, b_{18} 62-2.5°, d_{18} 1.004, n_D^{18} 1.4556. Similarly are prepd.: 73% *MeCH(OBu)SAc*, b_7 78-8.5°, n_D^{18} 1.4560, d_{20} 0.9664; 55-6% *MeCH(OEt)SBz*, b_4 120-20.5°, n_D^{18} 1.5472, d_{18} 1.0891; 36-40% *MeCH(OBu)SBz*, b_4 139-40°, n_D^{18} 1.5346, d_{20} 1.0492. G. M. Kosolapoff

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SHAPIRO, E. S.

Chem Abs V48
1-25-54
Organic Chemistry

Chem 4
(4)

1-Ethoxyethyl mercaptan and bis(1-ethoxyethyl) sulfide. M. F. Shostakovskii, E. N. Prilezhaeva, and E. S. Shapiro. *Akad. Nauk S.S.S.R., Inst. Org. Khim., Sintezy Org. Soedinenii, Sbornik* 2, 174-8(1952); cf. *C.A.* 46, 883*f*.—EtOCH:CH_2 (20 g.) in an ampul is flushed with a stream of dry H_2S, then chilled with liquid N for condensation of 28-8.5 g. H_2S in the ampul. The latter is rapidly sealed and placed into an autoclave for 20-4 hrs. under a pressure of 15-16 atm. of N or H (good quality of ampuls is strongly advised). The ampul is opened after chilling in liquid N and the contents are distd. yielding 47% *MeCH(OEt)SH*, b_{15} 38-9°, and 46.9% *S(CHMeOEt)*$_2$, b_4 58.2-8.6°. Some MeCH(OEt)$_2$ is also formed. The proportions of the products are varied by variation of the proportion of the reagents. Similarly can be prepd.: 23-9% *MeCH(OBu)SH*, $b_{20.5}$ 52.2-3.0°, and 65-6% *S(CHMeOBu)*$_2$, $b_{2.2}$ 96.5-6.7°, from 1 mole BuOCH:CH_2 and 1.3 moles H_2S. Higher proportion of H_2S yields more mercaptan and less sulfide.

G. M. Kosolapoff

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USSR/Chemistry - Organic Sulfur Compounds May/Jun 52

"Synthesis of Sulfur Compounds on the Basis of Simple Vinyl Ethers. Part 5. Some New Representatives of the α,β- and β,β-Dialkoxydiethylsulfides," Ye.N.Prilezhayeva, E.S.Shapiro, M.F.Shostakovskiy, Inst of Org Chem, Acad Sci USSR

"Iz Ak Nauk, Otdel Khim Nauk" No 3, pp 478-483

Addn of H_2S to vinyl isobutyl and vinyl isoamyl ethers in presence of HCl in dioxane forms mixts of α,β- and β,β-dialkoxyethylsulfides. Some chem

220T11

conversions of new homologues of the dialkoxydiethylsulfide and of the β,β'-dialkoxydiethylmercaptal series were studied.

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SHAPIRO, YE.S.

M-3

Synthesis of sulfur compounds on the basis of vinyl ethers and acetylene. VI. Reaction of mercaptans with vinyl ethers. M. F. Shostakovskii, E. N. Prilezhaeva, and E. S. Shapiro. *Bull. Acad. Sci. U.S.S.R., Div. Chem. Sci.* 1955, 325-34(Engl. translation).—See *C.A.* 48, 9311i.
H. L. H.

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SHAPIRO, Ye. S.

Synthesis of sulfur compounds on the basis of vinyl ethers and acetylene. VI. Reaction of mercaptans with vinyl ethers. M. F. Shostakovskii, E. N. Prilezhaeva, and E. S. Shapiro. *Izvest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 1953, 357-67; cf. *C.A.* 47, 4840g.—Into 3.9 g. EtSH and 7.2 g. EtOCH:CH_2 at −20° was briefly passed a current of SO_2, the mixt. stirred 2 hrs. at room temp., and left overnight; distn. gave 81.7% *MeCH(OEt)SEt*, b_{20} 67.5-8.5°, b_{14} 53-4°, n_D^{20} 1.4428, d_{20} 0.900; alc. $HgCl_2$ gives a quant. ppt. of EtSHgCl. Similarly EtSH and BuOCH:CH_2 in the presence of little SO_2 after 20 hrs. in a sealed tube at room temp. gave 86.5% *MeCH(OBu)SEt*, b_5 50-7°, n_D^{20} 1.4461, d_{20} 0.8855. At room temp. the reaction of EtSH with EtOCH:CH_2 catalyzed by O is not complete even in 2 months; heating some 60 hrs. at 60-5° gave 93% *EtSCH$_2$CH$_2$OEt* (I), b_{23} 78-8.5°, n_D^{20} 1.4567, d_{20} 0.9120; the catalytic amts. of dissolved O were merely the traces left in the starting materials after vacuum distns. With alc. $HgCl_2$ the product forms a viscous unknown mass. Oxidation of I with H_2O_2 in AcOH gave 50.7% *sulfoxide* ($C_6H_{14}O_2S$), b_6 112.2-13.5°, n_D^{20} 1.4696, d_{20} 1.0351. Similar reaction of BuOCH:CH_2 with EtSH was even slower and gave the max. yield (96.8%) of *BuOCH$_2$CH$_2$SEt*, b_5 65-6°, n_D^{20} 1.4520, d_{20} 0.8979, after 35 hrs. at 60°. With H_2O_2 in AcOH it gave the *sulfoxide*, b_{15} 112-12.5°, b_3 117.2-17.4°, n_D^{20} 1.4664, d_{20} 0.9955. BuOCH:CH_2 and BuOCH$_2$CH$_2$SH under similar reaction conditions heated 50 hrs. to 60-5° in a period of 7 days gave 93.9% (*BuOCH$_2$CH$_2$)$_2$S*, $b_{4.3}$ 130-1.0°, n_D^{20} 1.4560, d_{20} not cited. EtOCH:CH_2 and EtSH react more rapidly in ordinary closed flasks in contact with atm. O and in 6 days give 94.6% addn. product. If the vinyl ether contains some peroxide the reaction is retarded. Completely peroxide-free starting material gave a mixt. of reaction products contg. some 97.5% EtSCH$_2$CH$_2$OEt and only 2.5% MeCH(OEt)SEt; if the ether contains peroxides from air contact, the reaction product is mainly (65.5%) the latter product, and only 34.5% of the former product is formed. Under conditions of free air access, EtOCH:CH_2 and MeCH(OEt)SH yield only *MeCH(SCH$_2$CH$_2$OEt)OEt*, $b_{7.4}$ 65-8°, n_D^{20} 1.4505. BuOCH:CH_2 adds quite less rapidly than the Et analog and after 8 hrs. at 50° or 12 hrs. at 100° yields 87-9% addn. products with EtSH. At room temp. the product is mainly BuOCH$_2$CH$_2$SEt with some 13% MeCH(OBu)SEt. At elevated temp. the main product (59-62%) is the latter substance, while the former substance is the lesser constituent (37-40%). Pure *MeCH(OBu)SEt*, b_1 56.1-6.2°, n_D^{20} 1.4476, d_{20} 0.8897; pure *BuOCH$_2$CH$_2$SEt*, $b_{4.3}$ 67.8-8.2°, n_D^{20} 1.4521, d_{20} 0.8981. Keeping BuOCH:CH_2 with BuOCH$_2$CH$_2$SH 20 days at room temp. gave 85.7% mixed (*BuOCH$_2$CH$_2$)$_2$S* and *MeCH(OBu)SCH$_2$CH$_2$OBu*, b_1 118-24°, contg. 34.5% of the latter. Similarly BuOCH:CH_2 and MeCH(OBu)SH after 7 days gave 60% mixed MeCH(OBu)SCH$_2$CH$_2$OBu and [MeCH(OBu)]$_2$S, b_1 102-6°, contg. 90.4% of the former. A mixt. of 30 g. BuOCH:CH_2 and 9.3 g. AcSH after 2 days gave 90.7% *AcSCH$_2$CH$_2$OBu*, $b_{3.1}$ 84-4.1°, n_D^{20} 1.4605, d_{20} 0.9805. G. M. Kosolapoff

Inst. Org. Chem., AS USSR

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5

Shapiro, E.S.

Synthesis of sulfur compounds from vinyl ethers and acetylene. VII. Peculiarities of the addition reaction of hydrogen sulfide to vinyl butyl ether against the Markovnikov rule. M. F. Shostakovskii, E. N. Prilezhaeva, and E. S. Shapiro (N. D. Zelinskii Inst. Org. Chem., Acad. Sci. U.S.S.R., Moscow). *Izvest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 1954, 292–302; cf. *C.A.* 48, 9311i.—Addn. of H_2S to $BuOCH:CH_2$ is catalyzed by small amounts of O which leads to contra-Markovnikov order of addn.; ascaridole and some peroxides also give this result. Antioxidants hinder the reaction thus proving its radical nature. Larger amounts of O, Bz_2O_2, and H_2O_2 inhibit the reaction, probably by chain breaking through oxidation of chain-leading radicals $RSCH_2C\cdot(OR)H$. Heating 1 mole $BuOCH:CH_2$ with 0.4 mole H_2S 80–90 hrs. yields $(BuOCH_2CH_2)_2S$, while an equimolar mixt. in the cold yields $BuOCH_2CH_2SH$. $BuOCH:CH_2$ stored for a long time over Na and showing a peroxide test reacts very sluggishly, but $BuOCH:CH_2$ stored over K_2CO_3 reacts normally. A good catalytic effect is produced by addn. of small amounts of HCl in dioxane. VIII. General method of synthesis of β-alkoxymethylmercaptans. *Ibid.* 303–13.—Reaction of H_2S and $ROCH:CH_2$ in the presence of traces of O yields the corresponding alkoxyethylmercaptans and corresponding sulfides, predominantly on contra-Markovnikov structure, especially noted in *n*-derivs. Branched ethers tend to give the normal addn. products. Keeping 15 g. $EtOCH:CH_2$ and 9.7 g. H_2S in sealed tube 10 days gave 58.9% $EtOCH_2CH_2SH$, b. 126–8°, n^{20}_D 1.4456, d_{20} 0.9412, and 5.1 g. $(EtOCH_2CH_2)_2S$; the former yields $RSHgCl$, m. 154.5–5°. $PrOCH:CH_2$ with H_2S at 70° yielded 60.8% $PrOCH_2CH_2SH$, b_{40} 64–4.5°, n^{20}_D 1.4478, d_{20} 0.9227, and a *mixture* of $(PrOCH_2CH_2)_2S$ and $PrOCH_2CH_2SCH(OPr)Me$, b_{24} 139–43°, containing 13.7% of the latter obtained by titration; pptn. of the latter with $HgCl_2$ gave the pure *former sulfide*, b. 105.8°, n^{20}_D 1.4533, d_{20} 0.9394, whose $HgCl_2$ *adduct* m. 69–70°. Reaction of

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iso-PrOCH:CH₂ with H₂S at 70° gave 70% *iso-PrOCH₂CH₂SH* (at room temp. the yield was 58%), b_{44} 56.1–6.4°, n^{20}_D 1.4424, d_{20} 0.9130, and 19–89% (depending on reagent ratio) mixed (*iso-PrOCH₂CH₂)₂S* and *iso-PrOCH₂CH₂SCl*. *EtOCHMe₂*, containing appreciable amounts of the latter; the mixture yielded after the above treatment pure (*iso-PrOCH₂CH₂)₂S*, b_6 99–9.5°, n^{20}_D 1.4493, d_{20} 0.9258. Reaction with iso-BuOCH:CH₂ at room temp. gave somewhat lower total yield than at 70°; the products were: *iso-BuOCH₂CH₂SH*, b_8 45.2–5.5°, n^{20}_D 1.4444, d_{20} 0.9038, originally contaminated by some iso-BuOCHMeSH, and a mixture of sulfides (probably all possible isomers) from which was isolated (*iso-BuOCH₂CH₂)₂S*, b_5 125–6°, n^{20}_D 1.4506, d_{20} 0.9130; *HgCl₂ salt*, m. 47°. iso-AmOCH:CH₂ reacted slowly at room temp. but at 70° gave up to 89% total yields of mercaptans and sulfides as isomeric mixtures; from these were isolated pure: *iso-AmOCH₂CH₂SH*, b_8 53.9–4.5°, n^{20}_D 1.4489, d_{20} 0.9028, and (*iso-AmOCH₂CH₂)₂S*, b_5 144–5°, n^{20}_D 1.4550, d_{20} 0.9080. $C_4H_9OCH:CH_2$ reacts slowly with H₂S yielding up to 90% total products from which were isolated: *C₄H₉OCH₂CH₂SH*, $b_{4.4}$ 103°, n^{20}_D 1.4556, d_{20} 0.8906, and (*C₄H₉OCH₂CH₂)₂S*, $b_{0.34}$ 195–8°, n^{20}_D 1.4610, d_{20} 0.8952. Vinyl cyclohexyl ether reacts very slowly and tends to yield appreciable amounts of Markovnikov orientation; the total products formed at 60° can rise to 72%, at room temp. the total yield can reach 89%; the isolated products were: *C₆H₁₁OCH₂CH₂SH*, b_{15} 73–3.5°, n^{20}_D 1.4864, d_{20} 0.9938, and (*C₆H₁₁OCH₂CH₂)₂S*, b_5 182–4°, n^{20}_D 1.4982, d_{20} 1.0112, whose 0.5 *HgCl₂ salt* m. 118°. *EtOCH₂CH₂SH₂Cl*, m. 154.5–5.5°; *PrOCH₂CH₂SH₂Cl*, m. 137–7.5°; *iso-PrOCH₂CH₂SH₂Cl*, m. 153.5°; *BuOCH₂CH₂SH₂Cl*, m. 137.5–8°; *iso-BuOCH₂CH₂SH₂Cl*, m. 144–4.5°; *iso-AmOCH₂CH₂SH₂Cl*, m. 129°; *C₄H₉OCH₂CH₂SH₂Cl*, m. 126°, *C₆H₁₁OCH₂CH₂SH₂Cl*, m. 150.5°.

G. M. Kosolapoff

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SHOSTAKOVSKIY, M.F.; PRILEZHAYEVA, Ye.N.; SHAPIRO, E.S.

Synthesis of sulfurous substances based on vinyl esters and acetylene. Report no.8. General method for the synthesis of β-alkoxyethylmercaptans. Izv. AN SSSR. Otd.khim.nauk no.2:303-313 Mr-Ap '54. (MLRA 7:6)

1. Institut organicheskoy khimii im. N.D.Zelinskogo Akademii nauk SSSR.
(Mercaptans)

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SHAPIRO E.S.

Chem

Synthesis of sulfur compounds from vinyl ethers and acetylene. XII. Most effective catalysts in reactions of addition of hydrogen sulfide to vinyl ethers against the Markovnikov rule. M. F. Shostakovskii, E. N. Prilezhaeva, and E. S. Shapiro. *Bull. Acad. Sci. U.S.S.R., Div. Chem. Sci.* 1955, 655-9 (Engl. translation).—See *C.A.* 50, 7080f. B. M. R.

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M.A. YOUTZ
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Shapiro, E.S.

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Polymerization of vinyl isopropyl and vinyl cyclohexyl ethers under the influence of isobutyro-2,2'-azobisnitrile. M. F. Shostakovskii, F. P. Sidel'kovskaya, and E. S. Shapiro (N. D. Zelinskii Inst. Org. Chem., Moscow). Izvest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk 1955, 1085-9.—Heating CH_2:CHOCHMe$_2$ at 40-60° with 0.1-5% (:NC-Me$_2$CN)$_2$ gave polymers, viscous liquids, of unknown mol. wt. CH_2:CHOC$_6$H$_{11}$ under similar conditions gave polymers, m. 47-9°, mol. wt. up to 1440, the products contg. up to 0.9% N. The polymers were sol. in usual solvents. CH_2:CHOPh after 100-280 hrs. also gave polymeric products consisting of 5-6 monomer links with an azonitrile terminal group; the yields were very low. G. M. K.

Chem

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SHOSTAKOVSKIY, M.F.;PRILEZHAYEVA, YE.N.;SHAPIRO, E.S.

Synthesis of sulfurous substances based on vinyl ethers and acetylene. Report no.12. The most effective catalysts in the reaction of hydrogen-sulfide addition to vinyl ethers in disagreement with Markovnikov's rule. Izv. AN SSSR.Otd.khim.nauk no.4:734-741 Jl-Ag '55. (MLRA 9:1)

1.Institut organicheskoy khimii imeni N.D.Zelinskogo Akademii nauk SSSR. (Vinyl ethers) (Hydrogen sulfide)

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Shapiro, E. S.

Fractionation of palmarosa oil. E. S. Shapiro (Synthetics Plant, Moscow). *Masloboino-Zhirovaya Prom.* 20, No. 5, 17(1955).—In order to increase the yield of alc., crude palmarosa oil is vacuum fractionated in the presence of NaOH, which simultaneously hydrolyzes the ester, combines with acidic substances, and isomerizes the ketones. M. D.

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SHOSTAKOVSKIY, M.F.; SIDEL'KOVSKAYA, F.P.; SHAPIRO, E.S.

Polymerization of the vinyl isopropyl and vinyl cyclohexyl ethers under the influence of 2,2'-azo bisnitrile of isobutyric acid. Izv. AN SSSR.Otd.khim.nauk 86 no.6:1085-1089 My '55. (MLRA 9:4)

1.Institut organicheskoy khimii imeni N.D.Zalinskogo Akademii nauk SSSR. (Ethers) (Nitriles)

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SHAPIRO, R. S.

Low-molecular-weight polymerization of vinyl ethers under the action of benzoyl peroxide. M. F. Shostakovskii, R. S. Shapiro, and F. P. Sidel'kovskaya. *Bull. Acad. Sci. U.S.S.R. Div. Chem. Sci.* 1956, 351-4(Engl. translation).—See *C.A.* 50, 11052*h*. B. M. R.

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Shapiro, L. S.

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Low-molecular-weight polymerization of vinyl ethers under the action of benzoyl peroxide. M. F. Shostakovskii, E. S. Shapiro, and F. P. Sidel'kovskaya (N. D. Zelinskii Inst. Org. Chem., Moscow). *Izvest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 1956, 368-72.—Polymerization of $BuOCH:CH_2$ and iso-$PrOCH:CH_2$ with 0.1-1.0% Bz_2O_2 at 60° and 80° showed that with lower than 2% concn. of Bz_2O_2 the reaction is that of low-mol.-wt. polymerization; with 5-10% catalyst this is complicated by reactions of addn. The polymers had mol. wts. of 330-1215.

G. M. Kosolapoff

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SHAPIRO E.S.

AUTHORS: Shostakovskiy, M. F., Shapiro, E. S. Sidel'kovskaya, F. P. 62-1-12/29

TITLE: Investigation in the Field of the Lactones and Lactams (Issledovaniye v oblasti laktonov i laktamov). Report 1c: On the Reaction of the Addition of Hydrogen Sulfide to Vinyllactames (Soobshcheniye 1c. O reaktsii prisoyedineniya serovodoroda k vinillaktamam)

PERIODICAL: Izvestiya AN SSSR Otdeleniye Khimicheskikh Nauk, 1958, Nr 1, pp 68 - 74 (USSR)

ABSTRACT: The reactions of the above mentioned compound according to the general formula have practically not been treated at all in the references and were the object of detailed investigation in the laboratory of the authors. Already the investigation of the properties of the vinylcaprolactame and vinylpyrrolidone showed that they can quantitatively hydrolyze according to the ion mechanism (in acid medium). The reaction of the alcohols with vinylprolactame took place under formation of alkoxyethylideslactame only up to 8% (since the process was complicated by the by-reactions). The behavior of the vinyllactames in the above mentioned reaction is to a certain extent similar to the behavior of thionylethers (and of vinylethylsulphide). (tables 1 and2).

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Investigation in the Field of the Lactones and Lactams 62-1-12/29
Report 10. On the Reaction of the Addition of Hydrogen Sulfide to Vinyllactames

In the present paper the authors report on the investigation of the reaction of the above mentioned compound and prove that on the basis of the vinylcaprolactame and vinylpyrrolidone sulfides and thioles can be obtained with a general yield of 75--85%. Furthermore it was found that the second reaction stage had a greater velocity than was assumed and thus leads to the formation of sulfide. The synthesis of the thiole (on the basis of vinylkaprolactame) succeeded with a yield of 40-45%. It was shown that the reaction of the compound of hydrogen sulfide with vinylcaprolactame is retarded in the case of that the latter had came for a longer time into contact with air. The synthesis of thiole with the pyrrolidone ring was realized with a yield of 60% (after the reaction between N-β-chloroethylpyrrolidone and NaSH had taken place). There are 2 tables and 15 references, 14 of which are Slavic.

ASSOCIATION: Institute of Organic Chemistry imeni N.D.Zelinskiy, AS USSR (Insitut organicheskoy khimii im.N.D. Zelinskogo Akademii nauk SSSR)

SUBMITTED: July 6, 1956

1. Lactones-Derivatives 2. Lactams-Derivatives 3. Hydrogen sulfide-Chemical reactions 4. Vinyllactames-Chemical reactions 5. Thiols-Synthesis

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5

AUTHORS: Shostakovskiy, M. F., Shapiro, E. S., Dubrova, Ye. V. SOV/79-28-12-34/41

TITLE: Synthesis of Polyfunctional Sulfur Compounds Starting From the Divinyl Ether and Hydrogen Sulfide (Sintez polifunktsional'nykh sernistykh soyedineniy na osnove divinilovogo efira i serovodoroda)

PERIODICAL: Zhurnal obshchey khimii, 1958, Vol 28, Nr 12, pp 3311 - 3316 (USSR)

ABSTRACT: Earlier (Refs 1-3) the authors had investigated the anomalous affiliation of hydrogen sulfide to the vinyl ethers and they found that dinitrile of the azoisobutyric acid was the most efficient of all catalysts used. In this paper the affiliation reaction of H_2S to the divinyl ether is carried out in their presence. Some other affiliation reactions to this ether are described as well: Halogenation and hydrohalogenation (Ref 4), affiliation of CCl_4 (Ref 5). On this problem there are only affiliations of H_2S to the diallyl ether and its homologs in the presence of butyl amine to be found in publications. Harman and Vaughan (Ref 6) obtained cyclic thioxanes and thiomanes besides the poly-

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meus of the structure $(-S-CH(CH_3)-CH_2-O-CH(CH_3)-CH_2-)$ (Ref 6)

At low temperatures, increased pressure and under ultraviolet irradiation viscous products of some practical importance (Scheme 1) were obtained according to data mentioned in patents (Refs 7,8). The authors carried out the reaction of H_2S with divinyl ether in the presence of the dinitrile of azoisobutyric acid. This reaction took place stepwise under the formation of a mixture of chain-like dithiols of different composition (Scheme 2-a,b,v). The formation of compound (III) can be explained by scheme 3-a,b. The compounds (I-III) were obtained with a great excess of H_2S (Table 1). The formation of cyclic and polymeric products was not observed. Varying the conditions of the initial products sulfide dithiols could be obtained in large quantities (II, III). H_2S was used in liquid state. Thus, the dithiol and sulfide dithiol were synthesized, and it was demonstrated that these compounds have a still greater tendency to anomalous affiliation to the double bond than

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Synthesis of Polyfunctional Sulfur Compounds Starting From the Divinyl Ether and Hydrogen Sulfide SOV/79-28-12-34/41

thiols have. Some dithio- and trithioethers (V) were synthesized. There are 2 tables and 14 references, 9 of which are Soviet.

ASSOCIATION: Institut organicheskoy khimii Akademii nauk SSSR (Institute of Organic Chemistry of the Academy of Sciences, USSR)

SUBMITTED: November 16, 1957

Card 3/3

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5

SHAPIRO, L.S

AUTHORS: Shostakovskiy, M. F., Shapiro, E. S., Shmonina, L.I. 20-1-32/58

TITLE: Chlorination of Diacetylene (Khlorirovaniye diatsetilena). The Synthesis of Hexachlorobutadiene-1,3 (Sintez geksakhlorbutadiyena -1,3).

PERIODICAL: Doklady AN SSSR, 1958, Vol. 118, Nr 1, pp. 114-116 (USSR).

ABSTRACT: The haloidation-reaction of diacetylene is well investigated in the example of the bromine-addition (reference 1). But there are no data on the chlorination. For this purpose the authors worked out a method: the reaction takes place in the medium of carbon tetra-chloride at -30 - 25°C. Liquid and crystalline 1,1,2,3,4,4-hexachlorobutene-2 forms. Its geometrical isomers were isolated and are known (reference 2). They are supposed not to react with chlorine and bromine. The authors, however, succeeded in performing a further chlorination of the hexachlorobutenes with liquid chlorine under pressure and ultra-violet illumination. In the case of large chlorine excess (4-8 and more Mol) they did not notice any chlorinolysis and obtained octachlo-robutane with a quantitative yield. A subsequent dehydrochlorination of the latter led to the synthesis of hexachlorobutadiene-1,3. This is a substance valuable in many commercial respects. Regarding this production (references 3,4) there exist patent applications (although

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Chlorination of Diacetylene. The Synthesis of Hexachlorobutadiene-1,3. 20-1-32/58

from other products and through more stages). The production from other substances was also reported (references 5-7). The splitting off of HCl by boiling with alcohol-alkali, recommended in the patent, considerably polluted hexachlorobutadiene by by-products. It was recently proved (reference 3) that a reaction takes place here. Chlorine is exchanged for the alkoxy group, and perchlorinated vinyl derivatives and ortho-ethers form on that occasion. Therefore the authors carried out the splitting off of HCl from octachlorobutane by water-alcohol-alkali at maximum 30°C. An experimental part with the usual data is given.
There are 1 table, and 9 references, 1 of which is Slavic.

ASSOCIATION: Institute for Organic Chemistry imeni N.D.Zelinskiy AN USSR (Institut organicheskoy khimii imeni N. D. Zelinskogo, Akademii nauk SSSR).

PRESENTED: August 2, 1957, by A. V. Topchiyev, Academician.

SUBMITTED: July 24, 1957.

AVAILABLE: Library of Congress.

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B117/B208

15-8103 2203.1312

AUTHORS: Shostakovskiy, M. F. and Shapiro, E. S.

TITLE: Synthesis of phthalyl glycine vinyl ester and some of its conversions

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, no. 3, 1961, 517-519

TEXT: In this news in brief, the authors report on their method of direct vinylation of N-substituted α-amino acid. Phthalyl glycine was used as standard substance. Vinylation was carried out in a rotating autoclave with a manometer and a thermocouple with automatic temperature regulation. The reaction took place at a high acetylene excess in absolute dioxane medium, i.e., under conditions that had been repeatedly applied with success by the authors. Anhydrous zinc acetate was used as catalyst. The corresponding vinyl ester was thus obtained in 80-85 % yield:

$C_6H_4\langle{}^{CO}_{CO}\rangle NCH_2COOCH{=}CH_2$ is a crystalline substance insoluble in most

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B117/B208

Synthesis of phthalyl glycine vinyl...

organic solvents, in petroleum, and in water. This fact is used for purifying the vinyl ester from the initial phthalyl glycine in those cases in which vinylation does not quantitatively proceed. Some conversions of the respective vinyl ester were studied. Its hydrolysis was found to occur under more rigorous conditions than in vinyl alkyl esters, i.e., on heating to 80°C with 15 % sulfuric acid. Thiols are added smoothly and quantitatively during catalysis with a radical initiator, thus giving the corresponding sulfides: phthalyl glycine-β-ethyl-thioethyl ester $C_{14}H_{15}O_4NS$, boiling point 139°-141°C (0.015 mm); phthalyl glycine-β-butyl-thioethyl ester $C_{16}H_{19}O_4NS$, boiling point 150°-152°C (0.008 mm). After distillation, both sulfides become nearly colorless, viscous liquids which crystallize on standing. After recrystallization from petroleum ether, their melting points are 43° and 37°-38°C, respectively. In the presence of the dinitrile of azoisobutyric acid and benzoyl peroxide, the phthalyl glycine vinyl ester is polymerized. Also its copolymerization with methyl methacrylate was shown to be possible in principle. There are 3 tables and 6 references: 2 Soviet-bloc and 4 non-Soviet-bloc.

Card 2/3

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5

20942

S/062/61/000/003/009/013
B117/B208

Synthesis of phthalyl glycine vinyl...

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR (Institute of Organic Chemistry imeni N. D. Zelinskiy, Academy of Sciences USSR)

SUBMITTED: May 4, 1960 (initially)
October 9, 1960 (after revision)

X

Card 3/3

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5

26405
S/062/61/000/008/010/010
B117/B206

15.8050

AUTHORS: Shostakovskiy, M. F., Sidel'kovskaya, F. P., Shapiro, E. S., and Ogibina, T. Ya.

TITLE: β-(N-pyrrolidonyl) ethylvinyl sulfide

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye khimicheskikh nauk, no. 8, 1961, 1524-1526

TEXT: The authors investigated the vinylation of the previously prepared N-(β-mercaptoethyl) pyrrolidone (Ref. 1: M. F. Shostakovskiy, F. P. Sidel'kovskaya, E. S. Shapiro, T. Ya. Ogibina, Izv. AN SSSR. Otd. khim. n., 1958, 68). The reaction was carried out in dioxane medium with a 2- to 4-fold acetylene excess. A rotating autoclave (250 ml) fitted with manometer, thermocouple, and automatic temperature control was used. Vinylation proceeds smoothly and with good yield (81.8 %) in the presence of 10 % caustic potash. β-(N-pyrrolidonyl) ethylvinyl sulfide (I) is a colorless, weakly smelling, viscous liquid, practically soluble in any organic solvent. Some of its conversions were investigated: addition of thiols, polymerization, and copolymerization. The addition

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5

26405
S/062/61/000/008/010/010
B117/B206

β-(N-pyrrolidonyl) ethylvinyl sulfide

of the thiols is practicable during radical initiation (azoisobutyric acid dinitrile). Corresponding sulfides are formed thereby with good yield. Addition of ethyl-thiol produces 88 % β-pyrrolidonyl ethyl-β-ethyl mercapto ethyl sulfide with boiling point 117-120°C (0.015 mm); n_D^{20} 1.5440; d_4^{20} 1.1222. During heating the synthetized monomer (I) undergoes thermal polymerization. This is accelerated by addition of azoisobutyric acid dinitrile. The new polymer is a transparent, almost colorless, semisolid product. It is soluble in water, alcohol, benzene, and other common organic solvents with the exception of diethyl- and petroleum ether. The monomer (I) does not only form homopolymers, but participates also in the copolymerization with other vinyl monomers. (I) was found to be extremely active. According to its activity, it is similar to acrylonitrile and methyl acrylate. It is of much higher reactivity than vinyl acetate and vinyl pyrrolidone. Polymerization and copolymerization occurred under standard conditions: in ampullas at 60°C within 100 hr in the presence of azoiso butyric acid dinitrile. Diethyl ether was used for the precipitation of polymers and copolymers. Petroleum ether was only used for copolymers of (I) and methyl acrylate.

Card 2/4

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5

26405
S/062/61/000/008/010/010
B117/B206

β-(N-pyrrolidonyl) ethylvinyl sulfide

The results are listed in the Table. There are 1 table and 5 references: 4 Soviet and 1 non-Soviet.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR (Institute of Organic Chemistry imeni N. D. Zelinskiy, AS USSR)

SUBMITTED: February 22, 1961

Table: Properties of the polymers produced. Legend: 1) Designation; 2) appearance; 3) yield, %; 4) determined S, %; 5) content of (I) links in the copolymer, mole%; 6) solubility; 7) acetone; 8) dimethyl formamide; 9) sulfuric ether; 10) petroleum ether; 11) homopolymer of vinyl sulfide (I); 12) copolymer of methylacrylate and (I); 13) copolymer of (I) and vinyl acetate; 14) copolymer of (I) and vinyl pyrrolydone; 15) copolymer of (I) and acrylonitrile; 16) transparent, elastic mass; 17) transparent, semisolid product; 18) transparent, elastic product; 19) white, hard, brittle. *) for $C_8H_{13}ONS$ 18.72 % S were calculated. **) P = soluble; H = insoluble; P.orp. = restrictedly soluble.

Card 3/4

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5

SHOSTAKOVSKIY, M.F.; SHAPIRO, E.S.

Methods of the indirect synthesis of phthalylglycine vinyl esters. Zhur.ob.khim. 32 no.10:3137-3141 O '62. (MIRA 15:11)

1. Institut organicheskoy khimii imeni N.D. Zelinskogo AN SSSR.

(Glycine) (Vinylation)

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5

SHAPIRO, E.S.; SHOSTAKOVSKIY, M.F.

Exchange reaction of vinyl acetate with phthalyl amino acids. Izv. AN SSSR. Ser. khim. no.12:2221-2222 D '63. (MIRA 17:1)

1. Institut organicheskoy khimii im. N.D. Zelinskogo AN SSSR.

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5

L 48979-65 EWT(m)/EPF(c)/EWP(j)/T Pc-4/Pr-4 RM

ACCESSION NR: AP5009663 UR/0062/65/000/003/0528/0529

19
B

AUTHOR: Shapiro, E. S., Shostakovskiy, M. F.

TITLE: Chemical reactions of phthalylglycine vinyl ester 9

SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 3, 1965, 528-529

TOPIC TAGS: phthalylglycine, vinyl ester, vinyl phthalylglycinate, halogen addition, olefin addition, unsaturated ester, thioacetic acid, pyrrolidonylethylthiol, hexachlorocyclopentadiene

ABSTRACT: The addition of bromine and chlorine to phthalylglycine vinyl ester produced phthalylglycine α, β-dibromoethyl ester ($C_{12}H_9O_4NBr_2$) and $C_{12}H_9O_4NCl_2$, respectively. The addition of thioacetic acid and β-pyrrolidonylethylthiol to phthalylglycine vinyl ester yielded, respectively, phthalylglycine β-acetylthioethyl ester ($C_{14}H_{13}NO_5S$) and phthalylglycine b-pyrrolidonylethylthioethyl ester ($C_{18}H_{20}O_5N_2S$). The reaction of hexachlorocyclopentadiene with phthalylglycine vinyl ester formed 1,4,5,6,7,7-hexachloro-2-phthalylglycylbicyclo[2.2.1]-5-heptine ($C_{17}H_9O_4NCl_6$). All the syntheses are described.

ASSOCIATION: Institut organicheskoy khimii im. N.D. Zelinskogo Akademii nauk SSSR (Institute of Organic Chemistry, Academy of Sciences, SSSR)

Card 1/2

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5

L 48979-65

ACCESSION NR: AP5009663

SUBMITTED: 22Jun64 ENCL: 00 SUB CODE: OC, GC

NO REF SOV: 005 OTHER: 002

Card 2/2

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5

L 5360-66 ETP(b)/EWT(1)/EWA(h)/ETC(m) WW

ACC NR: AP5026109 SOURCE CODE: UR/0119/65/000/010/0018/0020

AUTHOR: Nikolayev, G. V. (Engr.); Rukhadze, V. A. (Engr.); Shapiro, E. T. (Engr.)

ORG: none

TITLE: Prospects for development of the standardized GSP-URS sensor system

SOURCE: Priborostroyeniye, no. 10, 1965, 18-20

TOPIC TAGS: sensor, transducer

ABSTRACT: A number of (GSP-URS) standardized modular industrial sensors are being developed. The standard sensors will measure the following physical quantities: pressure, pressure drop, rate-of-flow, level, temperature, gas or liquid density, viscosity, rpm, displacement, and force. All sensing elements have force as their output. Planned measuring ranges of some sensors are given, as well as pictures of laboratory models or prototypes. The development of 0--50 g and 0--50 kg force sensors, 0--500 and 0--4000 rpm sensors, 0--1000 and 10000 kg/cm^2 pressure sensors, 0--10 and 0--25 kg/cm^2 differential manometers, -30+300C no-mercury thermometers, etc. is expected. Possible sensor applications are discussed. Orig. art. has: 5 figures and 1 table.

UDC: 62.525:621.3.083.8

SUB CODE: IE/ SUBM DATE: 00/ ORIG REF: 000/ OTH REF: 000

Card 1/1

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5

ACC NR: AP6025289 (A) SOURCE CODE: UR/0119/66/000/007/0028/0031

AUTHOR: Nikolayev, G. V. (Engineer); Shapiro, E. T. (Engineer)

ORG: none

TITLE: New system of measuring transducers

SOURCE: Priborostroyeniye, no. 7, 1966, 28-31

TOPIC TAGS: measuring transducer, signal transducer, electronic equipment, electronic measurement

ABSTRACT: A new West-German (GST Company) system of measuring transducers is described. The system comprises 20 types of ME transducers with 0—5, 0—20, or 0—50-ma output. The current output can be transformed into pneumatic output by means of a special electropneumatic PE transducer; hence, 20 types of MP pneumatic transducers are obtainable. Design features and technical data of the above transducers are reported. Their advantages (wide applicability, standardized output, three current ranges, optional pneumatic output) and disadvantages (no high-resistance-input transducer, high temperature error — 0.5% per 10C) are noted. Orig. art. has: 7 figures.

SUB CODE: 13, 09 / SUBM DATE: none / ORIG REF: 002

Card 1/1

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5

BEN'YAMINOVICH, I.M., glavnyy inzh.; SHAPIRO, F.B., zamestitel' glavnovo inzh.; BOGDANOVICH, M.I.

Rapid construction of the "650" rolling mill in Nizhniy Tagil. Prom. stroi. 37 no.4:37-47 Ap '59. (MIRA 12:6)

1.Ordena Lenina trest Tagilstroy. 2.Zamestitel' nachal'nika proizvodstvennogo otdela Ordena Lenina tresta Tagilstroy (for Bogdanovich).

(Nizhniy Tagil--Rolling mills)

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5

SHAPIRO, F. B.

34020. SOTNIKOV, N. N. I. SHAPIRO, F. B. O Sodyerzhanii syery I azota v nyekotorykh vidakh kos'yey shyerst'--v ogl 2-Y kvt; R. B. Shapiro izvyestiya turkm filiala ak d nauk SSSR 1949, No. 2, S. 92-93

SO: Letopis' Zhurnal'nykh Statey, Vol. 42, Moskva, 1949

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5

SHAPIRO, F. B.

USSR/Biology - Thiol Poisons 1 Nov 53

"The Possibility of Acting on Chicken Embryos Through the Latebra," B. F. Shapiro, Moscow State U

DAN SSSR, Vol 93, No 1, pp 213-216

Found that the frequency of the heart beat of chicken embryos was reduced by introduction of $CdCl_2$ through the latebra, with the result that the embryos perished finally. Introduction of cysteins or urea brought the heart activity back to normal, but the embryos still perished due to excessive toxicity of the $CdCl_2$ soln. Control expts showed

275T4

that the harmful action due to the mechanical trauma inflicted in the tests was negligible. Presented by Acad A. I. Oparin 7 Sep 53.

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5

NUZHDIN, N.I.; SHAPIRO, F.B., redaktor; POLYAKOVA, T.V., tekhnicheskiy redaktor.

[Collection of papers on radiobiology] Sbornik rabot po radiobiologii. Moskva, 1955. 159 p. (MLRA 8:11)

1. Chlen-korrespondent AN SSSR (for Nuzhdin] 2. Akademiya nauk SSSR. Institut genetiki i institut biofiziki.
(Radiobiology)

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5

TEREKHOV, P.G.; KOSHTOYANTS, Kh.S., otvetstvennyy redaktor; BONDARENKO, N.P., redaktor; MOLCHANOVA, O.P., redaktor; SOROKIN, Yu.N., redaktor; FIGUROVSKIY, N.A., redaktor; SHAPIRO, F.B., redaktor izdatel'stva; SIMKINA, Ye.N., tekhnicheskiy redaktor

[Heritage of science] Nauchnoe nasledstvo. Moskva. Vol.3. [Ivan Mikhailovich Sechenov; unpublished works, notes and papers] Ivan Mikhailovich Sechenov; neopublikovannye raboty, perepiska i dokumenty. 1956. 280 p. (MLRA 9:8)

1. Akademiya nauk SSSR. Institut istorii yestestvoznaniya i tekhniki.
(Sechenov, Ivan Mikhailovich, 1829-1905)

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5

KUDASHEV, A.I., redaktor; SHAPIRO, F.B., redaktor; ALEKSEYEVA, T.V., tekhnicheskiy redaktor

[Use of radioisotopes in industry, medicine and agriculture; reports of foreign scientists] Primenenie radioaktivnykh isotopov v promyshlennosti meditsine i sel'skom khoziaistve; doklady inostrannykh uchenykh... Moskva, Izd-vo Akademii nauk SSSR, 1956. 725 p. (MLRA 9:2)

1. International Conference on the Peaceful Uses of Atomic Energy, Geneva, 1955.

(Radioisotopes)

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5

Shapiro, I. B.

USSR/General Biology - Individual Development.

The Jour : Nef Chur - Biol., No 5, 1958, 19076

Author : Shapiro, I.B.
Inst : -
Title : Investigation of Some Phases of Phosphorus Metabolism in Hen Embryo During Early Stages of Development by Use of Labeled Atoms.

Orig Pub : V sb.: Prob. sovrem. embriologii. L., Un-t, 1956, 235-240

Abstract : A solution of labeled phosphorus Na_2HPO_4 was introduced into hen eggs after 15-17 and 36-38 hours of incubation. When the solution was injected into the vegetative pole of the non-incubated egg yolk or an egg with a dead fetus, there was no P^{32} even after 5 hours at the animal pole. However, when the solution was injected into eggs with a developing fetus P^{32} is found in the blastoderm and in the yolk underneath the blastoderm even in 20-30 minutes. P^{32} spreads considerably more slowly in the opposite

Card 1/2

[illegible] to room temperature for 3-3.5 hours before injecting P^{32}, the intake of P^{32} from yolk to [illegible] in the [illegible]

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5

KUZIN, A.M., prof., otvetstvennyy red.; LIVSHITS, N.N., red.; SHAPIRO, F.B., red.; EYDUS, L.Kh., red.; IOFFE, V.G., red.izd-va; POLYAKOVA, T.V., tekhn.red.

[Radiobiology; proceedings of a conference] Radiobiologiia; trudy konferentsii. Moskva, Izd-vo Akad. nauk SSSR, 1958. 286 p. (MIRA 11:5)

1. Vsesoyuznaya nauchno-tekhnicheskaya konferentsiya po primeneniyu radioaktivnykh i stabil'nykh izotopov i izlucheniy v narodnom khozyaystve i nauke, 1957. 2. Institut biofiziki AN SSSR (for Kuzin)

(RADIATION--PHYSIOLOGICAL EFFECT)

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5

ASTANIN, Lev Petrovich; SHAPIRO, F.B., red.; LIPKINA, T.G., red.izd-va; KUZ'MINA, N.S., tekhn.red.

[Organs of the mammal body and their functions] Organy tela mlekopitaiushchikh i ikh rabota. Moskva, Gos.izd-vo "Sovetskaia nauka," 1958. 351 p. (MIRA 12:5)
(Mammals--Anatomy)

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5

SOV/20-122-2-14/42

21(3)

AUTHORS: Shapiro, F. B., Shapiro, N. I.

TITLE: The Variation of the Numerical Ratio of the Sexes in Mice as a Possible Result of γ-Irradiation of the Embryos (Izmeneniye chislennogo sootnosheniya polov u myshey kak vozmozhnyy rezul'tat γ-oblucheniya embrionov)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol 122, Nr 2, pp 215-218 (USSR)

ABSTRACT: The purpose of this paper was 1) the investigation of the fertility of the animals which were irradiated in the stage of gonad formation and 2) the investigation of the secondary sex symptoms in such animals. Both of these problems required an exact recording of the sex of the animals born. The results of these investigations, on their part, required the investigation of the problem of the possible variation of the numerical ratio of the sexes as a result of the γ-irradiation of the embryos. The carrying out of the experiments is discussed in a few lines. A table gives the results concerning the numerical ratio of the sexes for the descendants of

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5

SOV/20-122-2-14/42

The Variation of the Numerical Ratio of the Sexes in Mice as a Possible Result of γ-Irradiation of the Embryos

non-irradiated females and of females which were irradiated by γ-rays in various stages of the pregnancy. According to these results, the irradiation of the embryos 9 - 10 days after conception causes a noticeable increase in the number of males. This tendency is intensified by an irradiation of the embryos in the interval of between 11 and 12 days. After an irradiation of the embryos 13 - 14 days after conception, the numerical ratio of the sexes is practically normal. The critical period, therefore, seems to be limited to the interval of 9 - 12 days after the irradiation. There are 2 possible explanations of the variation of the sex ratio: 1) More females than males die under the influence of irradiation. 2) The direction of the development of the embryos is changed from the female to the male sex. The arguments in favor of both of these hypotheses are discussed. Further investigations are necessary for a definitive solution of this problem. There are 1 figure, 1 table, and 12 references, 4 of which are Soviet.

Card 2/3

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5

SOV/20-122-2-14/42

The Variation of the Numerical Ratio of the Sexes in Mice as a Possible Result of γ-Irradiation of the Embryos

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova (Moscow State University imeni M. V. Lomonosov)
Institut biofiziki Akademii nauk SSSR (Institute of Biophysics, AS USSR)

PRESENTED: May 16, 1958, by I. I. Shmal'gauzen, Academician

SUBMITTED: May 14, 1958

Card 3/3

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5

MAKAROV, Petr Osipovich, prof.; SHAPIRO, F.B., red.; PARSADANOVA, K.G., red.izd-va; GOROKHOVA, S.S., tekhn.red.

[Methodology of neurodynamic investigations and a course on the physiology of the human analyzers] Metodiki neirodinamicheskikh issledovanii i praktikum po fiziologii analizatorov cheloveka. Moskva, Gos.izd-vo "Vysshaia shkola," 1959. 268 p.
(NERVOUS SYSTEM) (MIRA 13:12)

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5

SHAPIRO, F.B.

Estrous cycle in mice subjected to gamma irradiation during their embryonic development. Nauch.dokl.vys.shkoly; biol.nauki no.2: 101-105 '59. (MIRA12:6)

1. Rekomendovana kafedroy darvinizma Moskovskogo gosudarstvennogo universiteta im. M.V.Lomonosova.
(ESTRUS) (GAMMA RAYS--PHYSIOLOGICAL EFFECT)

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5

17(4)

SOV/20-125-4-65/74

AUTHOR: Shapiro, F. B.

TITLE: The Fertility of Female Mice Subjected to Gamma-irradiation During Embryonic Development and the Viability of Their Offspring (Plodovitost' samok myshey, podvergnutykh gamma-obluchenyu v period embrional'nogo razvitiya, i zhiznesposobnost' ikh potomstva)

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 125, Nr 4, pp 921-924 (USSR)

ABSTRACT: Despite numerous investigations on the sterilizing effect of ionizing radiations the questions mentioned in the title have hardly been clarified. For the experiment white mice from a population bred for nine years in a laboratory were used. The female mice received a single dose of gamma-irradiation on the 10th, 12th, and 14th day of pregnancy, i.e. at times when an intensive gonad differentiation takes place in the embryo. The dose was 50 r at a dose rate of 30 r/min. Further investigations were made on the daughters of the irradiated mice. Table 1 shows the results. By examining the first litter (Table 1 and Fig 1) the following was found: 1) If 100 per cent of the female control mice were fertile, only summarily 71.4 per cent

Card 1/3

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5

SOV/20-125-4-65/74

The Fertility of Female Mice Subjected to Gamma-irradiation During Embryonic Development and the Viability of Their Offspring

were so in the group of irradiated females. There was no difference between mice irradiated on the 10th, 12th, and 14th day. 2) The irradiated females which bore offspring were less fertile than their controls. 3) In the litters of the irradiated females high postnatal mortality and a high percentage of stillbirths occur. 4) Young mice born by irradiated mothers have a smaller weight at birth than controls. For six weeks they are behind in weight as compared to the latter. The decrease of the average number of offspring in a litter of irradiated females may be considered normal as a consequence of embryonic death of their offspring or as the result of the formation of a smaller number of ova. In order to check this latter assumption a series of experiments were made: ten control females and ten females irradiated at the time of ovary formation were dissected. It was proved that ovulation is quantitatively normal, but that a smaller number of fertilized ova is implanted, or that part of the ova are not fertilized at all. The author concludes by asserting that fertility in general is more radiosensitive than sex cycles (Ref 2). In conclusion it may be said that the influence of radiation as

Card 2/3

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5

SOV/20-125-4-65/74

The Fertility of Female Mice Subjected to Gamma-irradiation During Embryonic Development and the Viability of Their Offspring

described above has a considerable sterilizing effect and reduces the viability of the offspring. This is probably due to injury of the embryos' spermatoblasts by gamma-radiation. There are 3 figures, 1 table, and 4 references, 1 of which is Soviet.

PRESENTED: December 30, 1958, by K. M. Bykov, Academician

SUBMITTED: December 25, 1958

Card 3/3

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5

TARUSOV, Boris Nikolayevich, prof.; SHAPIRO, F.B., red.; YEZHOVA, L.L., tekhn.red.

[Essentials of biophysics and biophysical chemistry] Osnovy biofiziki i biofizicheskoi khimii. Moskva, Gos.izd-vo "Vysshaia shkola." Pt.1. 1960. 222 p. (MIRA 14:5)

(BIOPHYSICS)

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5

BURLAKOVA, Yelena Vladimirovna; VEPRINTSEV, Boris Nikolayevich; KOL'S, Ol'ga Romanovna; KRIGER, Yuriy Arkad'yevich; TARUSOV, B.N., prof., red.; SHAPIRO, F.B., red.; CHERKASOVA, V.I., red. izd-va; GRIGORCHUK, L.A., tekhn. red.

[Laboratory manual of general biophysics; in eight parts] Praktikum po obshchei biofizike; v vos'mi vypuskakh. Pod obshchei red. B.N. Tarusova. Moskva, Gos. izd-vo "Vysshaia shkola." Nos.3-4. [Investigation of bioelectric phenomena in tissues and cells] Issledovaniia bioelektricheskikh iavlenii v tkaniakh i kletkakh. 1961. 259 p. (MIRA 14:8)

(ELECTROPHYSIOLOGY—LABORATORY MANUALS)

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5

ZHEDENOV, Vladimir Nikolayevich, prof.; SHAPIRO, F.B., red.; SIDOROVA, V.A., red. izd-va; GRIGORCHUK, L.A., tekhn. red.

[Lungs and heart in animals and man (in natural and historical development)] Legkie i serdtse zhivotnykh i cheloveka (v estestvenno-istoricheskom razvitii). Izd.2., perer. i dop. Moskva, Gos. izd-vo "Vysshaia shkola," 1961. 477 p. (MIRA 14:6)

1. Odesskiy Sel'skokhozyaystvennyy institut, Veterinarnyy fakul'tet (for Zhedenov)

(LUNGS) (HEART)

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5

KOZHANCHIKOV, Igor' Vasil'yevich; SHAPIRO, F.B., red.; KAPYSHEVA, V.S., red.izd-va; GOROKHOVA, S.S., tekhn.red.

[Methods of studying insect ecology] Metody issledovaniia ekologii nasekomykh. Moskva, Gos.izd-vo "Vysshaia shkola," 1961. 283 p. (MIRA 14:12)
(Entomological research)

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5"

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SHAPIRO, F.B.

Fertility of male mice exposed to γ-radiation during embryonic development, and viability of their offspring. Nauch. dokl. vys. shkoly; biol. nauki no.2:104-108 '62. (MIRA 15:5)

1. Rekomendovana kafedroy darvinizma Moskovskogo gosudarstvennogo universiteta im. M.V.Lomonosova.
(GAMMA RAYS--PHYSIOLOGICAL EFFECT) (FERTILITY)

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5

SHAPIRO, F.B.; ZHELTIKOVA, N.N.

Functional state of testes in mice exposed to gamma irradiation during embryonal development. Nauch. dokl. vys. shkoly; biol. nauki no.4:90-94 '63. (MIRA 16:11)

1. Rekomendovana kafedroy darvinizma Moskovskogo gosudarstvennogo universiteta im. M.V. Lomonosova.

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SHAPIRO, F.B.; SHAPIRO, N.I., prof., red.; ANDREYEV, V.S., red.

[General genetics] Obshchaia genetika. Moskva, Nauka, 1965. 298 p. (MIRA 18:7)

1. Akademiya nauk SSSR. Nauchnyy sovet po problemam molekulyarnoy biologii.

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5

SHAPIRO, F.B., KIRIL'CHENKO, A.M.

Effect of γ-irradiation on the daily rhythm of eosinophils in the peripheral blood of mice. Probl. endok. i gorm. 11 no.2:97-101 Mr-Ap '65. (MIRA 18:7)

1. Kafedra darvinizma biologo-pochvennogo fakul'teta (zav. - prof. F.A.Dvoryankin) Moskovskogo universiteta.

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ACC NR: AP6001896 (A, N) SOURCE CODE: UR/0325/66/000/003/0107/0112

35

AUTHOR: Shapiro, F. B.; Paniyeva, I. M.

ORG: Department of Darwinism, Moscow State University im. M. V. Lomonosov (Kafedra Darvinizma Moskovskogo gosudarstvennogo universitota)

TITLE: Diurnal rhythm of eosinophils in the peripheral blood of mice long after gamma irradiation

SOURCE: Nauchnyye doklady vysshey shkoly. Biologicheskiye nauki, no. 3, 1966, 107-108

TOPIC TAGS: irradiation effect, radiation tissue effect, ACTH, mouse, diurnal variation

ABSTRACT: Diurnal rhythm is a sign of adaptation to night in mice and depends on ACTH secretion, which is assumed to be altered by radiation due to changes in the adrenal cortex. It was studied in 1½ year old mice a year after irradiation with 500 r and in 3-4 month old mice irradiated in the uterus with 100 r on the 16th day of embryo development. Blood was taken at 9 AM, 2 PM and 8 PM. For eosinophil count, each animal served as its own control. Reactions to phenamine and ACTH administration were also tested. Irradiation was found to disturb the normal functional rhythm of the hypophysial system for long periods; in the older mice this was seen in less eosinophil increase during the day (11.6 against 22.5% in controls), less drop at night (30.8

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ACC NR: AR6028896

against 50%), and less eosinophil reaction to phonamine administration. In the mice irradiated in the embryo stage and subjected to various conditions of lighting (day, night or 24-hour light or darkness), there was less increase in the day and no adaptation to various lighting conditions. Tests for sensitivity of the adrenal cortex to ACTH revealed the absence of such reaction in the younger mice and thus a disturbance of adrenal cortex function in respect to stimulation by external and possible also internal ACTH. It was concluded that radiation caused long-lasting impairment of the adrenal cortex function; this did not exclude the possibility of additional damage to the hypophysial function. Orig. art. has: 2 figures and 1 table.

SUB CODE: 06, 18/ SUBM DATE: 07Oct65/ ORIG REF: 012/ OTH REF: 007

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5

ANTONOV, A.V.; ISAKOV, A.I.; MURIN, I.D.; NEUPOKOYEV, B.A.; FRANK, I.M.; SHAPIRO, F.L.; SHTRANIKH, I.V.

[Neutron diffusion in beryllium, graphite, and water, studied by the pulse method] Izuchenie diffuzii neitronov v berillii, grafite i vode impul'snym metodom. Moskva, 1955. 27 p. (MIRA 14:7)

(Neutrons—Scattering) (Beryllium) (Graphite)

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5"

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BERGMAN,A.A.; ISAKOV,A.I.; MURIN,I.D.; SHAPIRO,F.L.; SHTRANIKH,I.V.; KAZARNOVSKIY,M.V.

[Neutron spectrometer to measure retardation of neutrons in lead] Neitronnyi spektrometr po vremeni zamedleniia neitronov v svintse; doklady, predstavlennye SSSR na Mezhdunarodnuiu konferentsiiu po mirnomu ispol'zovaniiu atomnoi energii. Moskva, 1955. 30 p. [Microfilm] (MLRA 9:3)

(Neutrons) (Spectrometry)

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5

[illegible], [illegible], [illegible]TRANIK, I. V., [illegible], [illegible], [illegible], [illegible], [illegible], [illegible], [illegible], B. A., and [illegible], I. A.

"A Study of Neutron Diffusion in Beryllium Graphite and Water by the Impulse Method," a paper presented at the Atoms for Peace Conference, Geneva, Switzerland, 1955

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5

SHAPIRO, F. L., GROSHEV, L. V., KOZINETS, O. I., LAZAREVA, LE, TOLSTOV, K. D., FEYNBERG, E. L., FRANK, I. M. and SHTRANIKH, I. V.

Sessiia Akademii Nauk SSSR po Mirnomu Ispol'zovaniiu Atomnoi Energii (Zasedaniia Otdeleniia Fiziko-Matematicheskikh Nauk), 1955, pp 21-50, English summary, pp 51-52, Investigation of the Parameters of Uranium-Graphite Heterogeneous Systems by the Prism Method.

SO: SUM 728, 28 Nov 1955

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5

SHAPIRO, F.L.

Average neutron velocities in various media. K. D. Tolstoy, F. L. Shapiro, and I. V. Shtranikh. *Sessiya Akad. Nauk S.S.S.R. po Mirnomu Ispol'zovaniyu Atomnoi Energii, Zasedaniya Otdel. Fiz.-Mat. Nauk* 1955, 108-29(English summary, 129-31).—The process of slowing down neutrons in the vicinity of the thermal equil. region (v = 2200 m./sec.) is influenced by many factors. The av. energy and spectrum of the neutrons depend on the mean energy transferred owing to inelastic collisions, on the capture cross section, the structure and vol. of the moderator, and the temp. of the medium. The influence of these factors on the av. velocity $\bar{v}$ and on the spectrum of thermal neutrons was studied. The $\bar{v}$ was detd. by the ratio flux of neutrons to their d. The d. was measured with a BF_3 ionization chamber, the flux with a Geiger counter, which counted the γ-quanta owng to neutron capture in Cd. The $\bar{v}$ was obtained by measuring the transmission of neutrons by a $1/\bar{v}$ absorber. The temp. function of the diffusion length was detd. by the exponential method. The changes with temp. of the diffusion coeff. of the neutrons was found by measuring the variation of the neutron density when the medium was heated; the mean free transport path changes were found by measuring the changes of the albedo. Expts. were done with prisms of 60 × 60 × 100 cm. or 20 × 100 × 120 cm. of graphite (I), paraffin (II), H_2O, and H_2O-B, with and without increments having $1/\bar{v}$ absorption. Also, heterogeneous systems with I and H_2O as moderators, like the U-I system, were investigated, and it was found that in I, II, and H_2O the neutrons attain thermal equil. and their velocity spectrum is Maxwellian. If the lifetime of the neutrons within the prism is decreased to 1/20 by introducing neutron absorbers, or to 1/50 by diminishing the dimensions of the prism, $\bar{v}$ is increased up to 40%. Neutrons in the vicinity of the thermal equil. suffer many collisions before they lose their energy; the results agree with the theory of slowing down of neutrons in a cryst. medium. If I is heated up to 300°, the increase of $\bar{v}$ is 6 ± 2% larger than is that of the square of the diffusion length, thus the mean free transport path λ_{tr} decreases 5 ± 1%. The $\bar{v}$ was measured at 20 and 300° in the U-I system with various U concns., and it was found that for any concn. $\bar{v}$ in a homogeneous system is higher than in such a heterogeneous one. It was found by calcn. and measurement that the neutron spectrum emitted by the moderator surface is not only detd. by the neutron spectrum in the moderator, but also by the energy function of λ_{tr}. Therefore, the spectrum of the neutrons in the medium is different from that of the neutrons that have passed through the prism. W. J.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5

SHAPIRO, F. L.

Measurement of temperature effects in uranium-graphite subcritical systems. B. P. Ad'yasevich, O. I. Kozmets, K. D. Tolstov, I. M. Frank, F. L. Shapiro, and I. V. Shtrankh. *Sessiya Akad. Nauk S.S.S.R. po Mirnomu Ispol'zovaniyu Atomnoi Energii, Zasedaniya Otdel. Fiz.-Mat. Nauk* 1955, 132–54(English summary, 154–5).—The temp. effects on the multiplication const. $k_\infty = \nu_1\varphi\theta$ and also on all the factors thereof were investigated by two 120 × 120 × 260 cm. prisms, each in its own thermostat, heated to 300–450°. U-graphite (I) lattices were used with slug diams. of 32–7 mm. with various U concns. (c). A Ra-Be and a Po-Be neutron source were employed. The thermal utilization factor θ was measured by the Cd ratio method; a pos. temp. effect was found which increased with decreasing U concn. and was greater in the presence of cooling H_2O. This effect was already predicted by the elementary diffusion theory, but the theory furnished too high values in the absence and too low values in the presence of H_2O. This discrepancy was due to the fact that θ increased when the neutrons were cooled in H_2O upon entering the slug. The pos. effect on θ increased also if the cooling was extended over a layer of I adjacent to the slug. At identical U concns. the θ of a heterogeneous system can be increased over that of a homogeneous one by inhomogeneously heating the moderater. In order to evaluate correctly the temp. effect on the ν escape probability, φ, cold H_2O and H_2O at 80° were circulated alternately through the slugs, the temp. of the I being kept const. The variation of φ was obtained from exponential measurements of the buckling x^2 and from measurements of the influence of heating on the epi-Cd neutron d. in the vicinity of the source. The temp. effect of the φ-integral is found to be $\partial p/p\,\partial t = (1.95 \pm 0.4) \times 10^{-4}$ per degree. The temp. effect on k_∞ was detd. by measuring x^2 by the exponential method. The temp. changes of ν_1 (no. of neutrons generated/no. of neutrons captured) were calcd. from the changes of φ and θ and from the temp. effect on k_∞. It was found that ν_1 has a neg. temp. effect, which is roughly proportional to the variation of the mean energy of the thermal neutrons, caused by the heating of the system: $\partial\nu_1/\nu_1\,\partial_E = -(37 \pm 6)$ %/e.v. Werner Jacobson

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C-2

Category : USSR/Nuclear Physics - Instruments and Installations. Methods of Measurement and Investigation

Abs Jour : Ref Zhur - Fizika, No 1, 1957, No 280

Author : Lazareva, L.Ye., Feynberg, Ye.L., Shapiro, F.L.
Inst : Physics Inst., USSR Acad. of Sciences
Title : Neutron Spectrometry, Based on the Measurement of the Neutron Slowing-Down Time

Orig Pub : Zh. eksperim. i teor. fiziki, 1955, 29, No 3, 381-383

Abstract : Description of a method of neutron spectroscopy, based on monochromatization of neutron energy with time when the neutrons are slowed down in a heavy medium. This change of the neutron spectrum n(v,t) with time follows from the "age" theory. The natural dispersion of the distribution of the slowing-down neutrons is

$$D = \frac{(\delta v)^2}{v^2} = \frac{3}{2M}$$

where M is the mass of the moderator nucleus. Using as a moderator a

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Category : USSR/Nuclear Physics - Instruments and Installations. Methods of Measurement and Investigation C-2

Abs Jour : Ref Zhur - Fizika, No 1, 1957, No 280

block of lead weighing several tens of tons one obtains a gain in the neutron stream on the order of 3--4 orders of magnitude compared with the time of flight method. The high "luminosity" of the slowing-down method makes it possible to perform experiments on the spectrometry of neutrons in the energy region of 10 -- 10,000 ev in the presence of a simple neutron source, namely the C T reaction in an ion accelerating tube using several hundred kilovolts. An advantage of this method of spectrometry, based on the slowing-down time, is also the possibility of direct measurement of the absorption cross section, an important factor in those cases, when the absorption is small compared with the scattering. A shortcoming of the limited resolving power (approximately 30% relative to the energy), which is determined by the dispersion (see also Referat Zhurnal Fizika, 1956, 27925).

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5

SHAPIRO, F.L., BERGMAN, A.A., ISAKOV, A.I., POPOV, Yu.P.

"Measurements of the Energy Dependence of the Cross Section for the He^3 (n.p.); Li^6 (n.α); B^{10} (n.α); N^{14} (n.p) Reactions."

(Lebedev Physics Institute, Acad. Sci. USSR)

paper submitted at the All-Union Conf. on Nuclear Reactions in Medium and Low Energy Physics, Moscow, 19-27 November 1957.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5

[illegible], A. A., [illegible], A. I., [illegible], Yu. [illegible], [illegible], [illegible].

"Characteristics of a Lead Slowing Down Time Spectrometer and Measurement of Cross Sections for the (n, γ) Reaction,"

Lebedev Physical Inst. of Acad. Sci. USSR

paper submitted at the A-U Conf. on Nuclear Reactions in Medium and Low Energy Physics, Moscow, 19-27 Nov 57.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5

SHAPIRO, F. L.

(Acad. Sci., Moscow)

"Measurement of the Energy Dependence of the Cross Section for the (n,p) and (n, γ) Reactions with the slowing Down Time Neutron Spectrometer."

"Cross Section for the He^3 (n,p) Reaction for Neutron Energy up to 25 kev, and excited State of He^4.

papers submitted for presentation at the Intl. Conference on the Neutron Interactions with the Nucleus, 9-13 Sept. 1957, Columbia Univ. New York.

papers prepared with A. A. Bergman, A. I. Isakov, and Yu. P. Popov

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5

Shapiro, F.L.

INSTRUMENTATION: SPECTROMETERS

"Increasing the Intensity in Time-of-Flight Measurements by Sweeping the Beam over the Target", by F.L. Shapiro, Physics Institute imeni P.N. Lebedev, Academy of Sciences USSR, Pribory i Tekhnika Eskperimenta, No 1, January-February 1957, pp 33-36

By moving the beam over the target in such a way that the neutrons formed pass, later on, through a shorter path to the detector, it is possible to increase the intensity without deteriorating the resolution for a certain narrow velocity interval. For a fixed duration of source flareup, the resolution is improved without loss in intensity. Reference is made to work by R.C. Mobley (Physical Review, 1952, 88, 360) and W.W. Havens Jr. (Geneva Conference on Peaceful Uses of Atomic Energy 1955), Paper P/574.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5

AUTHOR BERGMAN, A.A., ISAKOV, A.I., POPOV, Yu.P., SHAPIRO, F.L. 56-7-2/66

TITLE Measurements with a Slowing-Down-Time Neutron Spectrometer Employing Lead. Excited Level of the He^4 Nucleus.
(Izmereniya s neytronnym spektrometrom po vremeni zamedleniya v svintse. Vozbuzhdennyy uroven' yadra He^4 - Russian)

PERIODICAL Zhurnal eksperim. i teoret. Fiziki, 1957, Vol 33, Nr 7, pp 9-16 (U.S.S.R.)

ABSTRACT Investigations carried out in connection with neutron reactions with a neutron spectrometer gave the following results:
1) Fe(n,γ) Resonance was found at E_R=1200±100 eV
2) Pb(n,γ) Resonance was found at E_R= 1700±150 eV and 2800±200 eV.
3) The cross section course of the reaction B^{10}(n,α) deviates by 5-10% from the 1/v course. In B^{11} a resonance with ER ~250 keV, Γ_α ~ ~400 keV, Γ_n~200 keV, J=5/2+ or 7/2+ was found.
4) The deviation of the course of the cross section of the reaction Li^6(n,α) from the 1/v course is below 5%.
5) The deviation of the course of the cross section of the reaction He^3(n,p) from the 1/v course is considerable, which fact can be explained only by the presence of an excited state in He^4. The parameters of this level are either J"=1+, E_R~200 keV, Γ_{p_0}~200 keV or J=0+, E_R~500 keV Γ_{p_0}~1200 keV. (2 tables, 5 illustrations, 4 Slavic references)

ASSOCIATION Physical Institute "P.N. Lebedev" of the Academy of Sciences of the USSR (Fizicheskiy institut im. P.N. Lebedeva Akademii nauk SSSR)

SUBMITTED 22.1.1957

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BALASHKO, Yu. G., BARIT, I. Ya., BERGMAN, A. A., GONCHAROV, Y. A. and SHAPIRO, F. L.

"Etude de Certaines Reactions Nucleaires sur les Noyaux legers pour des Particules Incidents d'energie Jusqu'a 1 MeV."

report presented at the International Congress for Nuclear Interactions (Low Energy) and Nuclear Structure, Paris, 7-12 July 1958.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5

KAZARNOVSKIY, M. V., STEPANOV, A. V. and SHAPIRO, F. L.

"Thermalization and Diffusion of Neutrons in Heavy Media."

paper to be presented at 2nd UN Intl. Conf. on the peaceful uses of Atomic Energy, Geneva, 1 - 13 Sep 58.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5

DENISOV, F.P.,red.; LAZAREVA, L.Ye.,red.; LEYKIN, Ye.M.,red.; ROZHANSKIY, I.D.,red.; FRANK, I.M.,red.; SHAPIRO, I.S.,red.; SHAPIRO, F.L.,red.; POLENOVA, T.P.,tekhn. red.

[Low and intermediate energy nuclear reactions; transactions of the conference] IAdernye reaktsii pri malykh i srednikh energiiakh; trudy konferentsii. Moskva, Izd-vo Akad. nauk SSSR, 1958. 614 p. (MIRA 11:12)

1. Vsesoyuznaya konferentsiya po yadernym reaktsiyam pri malykh i srednikh energiyakh. Moscow, 1957.
(Nuclear reactions)

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5

SHAPIRO, F.L.

Cross section of the reactions as dependent on the energy of initiating slow neutrons. Zhur.eksp. i teor.fiz.34 no.6: 1648-1649 Je '58. (MIRA 11:9)

1. Fizicheskiy institut im. P.N.Lebedeva AN SSSR.
(Neutrons) (Nuclear reactions)

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5

53-65-1-5/1o

AUTHOR: Shapiro, F. L.

TITLE: Some Possibilities of Applying Polarized Thermal Neutrons in Connection With the Non-Conservation of Parity in β-Decay (Nekotoryye vozmozhnosti ispol'zovaniya polyarizovannykh teplovykh neytronov, svyazannyye s nesokhraneniyem chetnosti pri β-raspade)

PERIODICAL: Uspekhi fizicheskikh nauk, 1958, Vol. 65, Nr 1, pp. 133-14o (USSR)

ABSTRACT: The author of the present paper deals with the possibility of obtaining information on nuclear data from the angular distribution of polarized β-rays. Polarized thermal neutrons are captured by polarized or non-polarized targets. If polarized neutrons are captured by polarized nuclei, the capture cross section becomes infinite for the case that the moment of the compound nucleus $J = j + 1/2$ (j = moment of the initial nucleus) and if the spins of nucleus and of neutron are parallel. If, on the other hand, $J = j - 1/2$ the cross section becomes infinite, in the case of both spins

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being antiparallel. These considerations lead to the fundamental experiments (Refs 1 - 3). The difficulties in these experiments are caused by the application of polarized targets. When polarized neutrons are captured by non-polarized nuclei, the investigation of polarized reaction products also furnishes data on the nucleus (investigation of circular polarized γ-radiation by Halpern (Gal'pern), Biedenharn (Bidenkharn) et al. (Refs 4, 5). The degree of polarization and its sign are dependent upon the multipolarity of the transitions, upon the initial moments and upon those of the compound nucleus, as well as on the levels of the final nucleus on which γ-transition takes place. If two of these moments are known, the two remaining ones can be obtained from a measurement of the circular polarization of the γ-radiation (investigations by Trumphy (Trampi), Ref 6). In order to determine the moment of the compound nucleus its polarization or the polarization of the not excited final nucleus is investigated. (in the transition of the compound nucleus to the ground state its polarization is essentially retained). In the majority of cases the final nuclei are β-radioactive.

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53-65-1-5/10

Some Possibilities of Applying Polarized Thermal Neutrons in Connection With the Non-Conservation of Parity in β-Decay

In so far as they are polarized, the β-radiation emitted by them is anisotropic, as most recent experiments (Ref 7), as well as direct conclusions from the non-conservation of parity in the case of weak interaction (Ref 8) have shown. In this instance it holds that the degree of angular anisotropy is proportional to polarization. The non-conservation of parity discovered in such samples thus offered an opportunity of determining polarization, and, by measuring the angular anisotropy of the β-radiation, of determining also the moment of the compound nucleus. Thus also the moments of very short-lived nuclei formed by neutron capture can be determined. An interesting account of the results obtained is given by the author in two tables. Table 1: Polarization of the final nucleus, formed by the capture of polarized neutrons and emission of dipole-(L=1) -γ-quanta. The data concern moments of the initial nucleus of 0, 1/2, 1, 3/3, 2 and of the moment of the compound nucleus j-1/2 and j+1/2. Table 2 contains data on the polarization of final nuclei produced

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53-65-1-5/10

Some Possibilities of Applying Polarized Thermal Neutrons in Connection With the Non-Conservation of Parity in β-Decay

by the capture of polarized neutrons and emission of γ-cascades for j = 0, 1, 3/2. Theoretical considerations are compared with data obtained by a group of authors (Refs 17, 18), who investigated the angular distribution of the β-radiation which was generated in the decay of Li^8 which was produced by the capture of polarized neutrons from Li^7. There is good agreement.

Experimental: $(J_o - J_\pi)/(J_o + J_\pi) = -0{,}04 \pm 0{,}01$;

Theoretical: $-0{,}036$

There are 2 tables and 21 references, 4 of which are Soviet.

1. Beta particles--Decay 2. Neutron cross sections--Applications

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21(0) PHASE I BOOK EXPLOITATION SOV/2081

International Conference on the Peaceful Uses of Atomic Energy, 2d., Geneva, 1958

Doklady sovetskikh uchenykh; yadernaya fizika (Reports of Soviet Scientists; Nuclear Physics) Moscow, Atomizdat, 1959. 552 p. (Series: Its: Trudy, Vol. 1) 8,000 copies printed.

Eds. (Title page): A.I. Alikhanov, Academician; V.I. Veksler, Academician; and N.A. Vlasov, Candidate of Physical and Mathematical Sciences; Ed. of this volume: S.N.I. Drozdov and B.F. Zaretskiy, Candidates of Physical and Mathematical Sciences; Ed. (Inside book): G.L. Smolyan; Tech. Ed.: Ye.I. Mazel'.

PURPOSE: This collection of articles is intended for scientific research workers and other persons interested in nuclear physics. The volume contains 43 papers presented by Soviet Scientists at the Second Conference on Peaceful Uses of Atomic Energy, held in Geneva in September 1958.

COVERAGE: It is divided into two parts. Part I contains 17 papers dealing with plasma physics and controlled thermonuclear reactions, and Part II contains 26 papers on nuclear physics, including problems of particle acceleration and of cosmic ray physics. The first paper by L.A. Artsimovich presents a review of Soviet work on controlled thermonuclear reactions. The remaining papers in Part I deal with particular problems in this field.

Papers in Part II deal in detail with various problems in nuclear physics, such as the fission of heavy atoms and their isotopes, and with the study of cosmic radiation by means of artificial earth satellites and rockets, described in a paper by S.N. Vernov. The Russian-language edition of the proceedings of the conference is published in 16 volumes. The first 6 volumes contain all the papers presented by Soviet scientists as follows: Volume (1), Yadernaya fizika (Nuclear Physics); Volume (2), Yadernyye reaktory i yadernaya energetika (Nuclear Reactor and Nuclear Power); Volume (3), Yadernoye goryucheye metally (Nuclear Fuel and Reactor Metals), Volume (4), Khimiya radioelementov i radiatsionnykh prevrashcheniy (Chemistry of Radioelements and of Radiation Transformations); Volume 5, Radiobiologiya i radiatsionnaya meditsina (Radiobiology and Radiation Medicine); Volume (6) Polucheniye i primeneniye izotopov (Production and Use of Isotopes). The other 10 volumes contain selected papers presented at the Conference by non-Soviet scientists. In the present volume discrepancies between the English and Russian language edition of the proceedings have been noted in three articles where the texts are not identical; viz: Artsimovich, et al, "High Current Pulsed Discharge"; Akhiyezer, et al, "High Frequency Plasma Oscillation"; and Bogolyubov, "Investigations of the Many-body Problem". The serial numbers of reports 2302 and 2504 are reversed in the English edition. Report 2211, by Sinelnikov, et al, is numbered 2536 in the English edition.

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AVAILABLE: Library of Congress (QC770. I53 1958)

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SHAPIRO, F.L.

21(4) PHASE I BOOK EXPLOITATION SOV/2583

International Conference on the Peaceful Uses of Atomic Engergy. 2nd, Geneva, 1958.

Doklady sovetskikh uchenykh; yadernyye reaktory i yadernaya energetika. (Reports of Soviet Scientists; Nuclear Reactors and Nuclear Power) Moscow, Atomizdat, 1959. 707 p. (Series: Its: Trudy, vol. 2) Errata slip inserted. 8,000 copies printed.

General Eds.: N.A. Dollezhal, Corresponding Member, USSR Academy of Sciences, A.K. Krasin, Doctor of Physical and Mathematical Sciences, A.I. Leypunskiy, Member, Ukrainian SSR Academy of Sciences, I.I. Novikov, Corresponding Member, USSR Academy of Sciences, and V.S. Fursov, Doctor of Physical and Mathematical Sciences; Ed.: A.P. Alyab'yev; Tech. Ed.: Ye. I. Mazel'.

PURPOSE: This book is intended for scientists and engineers engaged in reactor designing, as well as for professors and students of higher technical schools where reactor design is taught.

COVERAGE: This is the second volume of a six-volume collection on the peaceful use of atomic energy. The six volumes contain the reports presented by Soviet scientists at the Second International Conference on Peaceful Uses of Atomic Energy, held from September 1 to 13, 1958 in Geneva. Volume 2 consists of three parts. The first is devoted to atomic power plants under construction in the Soviet Union; the second to experimental and research reactors, the experiments carried out on them, and the work to improve them; and the third, which is predominantly theoretical, to problems of nuclear reactor physics and construction engineering. Yu. I. Moryakin is the science editor of this volume. See SOV/2081 for titles of all volumes of the set. References appear at the end of the articles.

Nostovoy, V.I., V.S. Dikarev, M.B. Yegizarov, and Yu. S. Saltykov. Measuring Neutron Spectra in Uranium Water Lattices (Report No. 2152) 546

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SAPIRO, F. L.

RUMANIA/Nuclear Physics - Structure and Properties of Nuclei. C

Abs Jour : Ref Zhur Fizika, No 1, 1960, 488

Author : Sapiro, F.L.
Inst : -
Title : Certain Possibility of Using Polarized Thermal Neutrons, Connected with the Non-Conservation of Parity in β Decay

Orig Pub : An. Rom.-Sov. Ser. mat.-fiz., 1959, 13, No 1, 65-74

Abstract : Translation from "Uspekhi fiz. nauk" 1958, 65, No 1 (See Referat Zhur Fizika, 1959, No 2, 2740).

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5

BARIT, I.Ya.; PODGORETSKIY, M.I.; SHAPIRO, F.L.

Some possible applications of gamma-ray resonance scattering.
Zhur. eksp. i teor. fiz. 38 no.1:301-302 Jan '60. (MIRA 14:9)

1. Fizicheskiy institut im. P.N.Lebedeva AN SSSR.
(Gamma rays--Scattering)
(Nuclear magnetic resonance and relaxation)

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FAUND, R.V.[Pound, R.V.]; BRILL', O.D.[translator]; SHAPIRO, F.L.,red.

Weight of photons. Usp. fiz. nauk 72 no.4:673-683 D'60. (MIRA 13:11)

(Photons)

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5

KAZARNOVSKIY, M.V.; SHAPIRO, F.L.

[Thermal neutron diffusion theory with allowance for velocity distribution] Teoriia diffuzii teplovykh neitronov s uchetom raspredeleniia skorostei. Moskva, Glav. upr. po ispol'zovaniiu atomnoi energii, 1960. 14 p. (MIRA 17:2)

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548320003-5

KASHUKEYEV, N.T.; POPOV, Yu.P.; SHAPIRO, F.L.

[Measuring the energy dependence of the Cl (n, γ) reaction cross section] Izmereniia energeticheskoi zavisimosti secheniia reaktsii Cl (n, γ). Moskva, Glav. upr. po ispol'zovaniiu atomnoi energii, 1960. 25 p. (MIRA 17:1)

(Chlorine isotopes) (Nuclear reactions)

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S/053/60/072/004/001/006
B025/B056

24.6210 (1138, 1158, 1395)

AUTHOR: Shapiro, F. L.

TITLE: The Mössbauer Effect

PERIODICAL: Uspekhi fizicheskikh nauk, 1960, Vol. 72, No. 4, pp. 685-696

TEXT: The present report on the Mössbauer effect is the revised text of a lecture held by the author at the Second All-Union Congress on Nuclear Reactions at Low and Medium Energies in July 1960. It consists of seven sections; in the first section, the author shows that a quantitative description of the Mössbauer effect, which must really be considered a quantum effect, is possible also in a purely classical manner. (It was on this subject that Shapiro wrote a special book: The Elementary Theory of the Mössbauer Effect, Moscow, 1960, FIAN editions). M. V. Kazarnovskiy (Ref. 6) succeeded in expressing the intensity of Mössbauer lines by the temperature function of the specific heat of the lattice:

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