"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

IVANCHEVA-GABROVSKA, T.
"Outstanding workers in the fight for high yields of tobacco" (p.19) KOOPERATIVNO ZEMEDELIE
(Ministerstvo na zemedeliato) Sofiya Vol 8 No 7 1953

SO: East European Accessions List Vol 2 No 7 Aug 1954

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

PROCESSES AND PROPERTIES INDEX

Methods of determining lead peroxide. II. A. V. PAMFILOV AND E. G. IVANCHEVA. *Z. anal. Chem.* 79, 186-95; *J. Russ. Phys.-Chem. Soc.* 61, 1907-17 (1929); *B. C. A.* 23, 5437.—A study of the best-known methods for analyzing PbO_2 confirms the experience of others that the method of Lux is not reliable as ordinarily carried out. Dissolving the sample in the presence of excess Fe and titrating the excess with $K_2Cr_2O_7$ is the most reliable method known. W. T. H.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

PROCESSES AND PROPERTIES

Determination of lead as peroxide. III. A. V. Pamfilov and Elizaveta G. Ivančikva. *J. Gen. Chem.* (U. S. S. R.) 1, 700-4(1931); *Z. anal. Chem.* 88, 23-6(1932); cf. *C. A.* 24, 1056.—A crit. study of methods previously proposed shows that the bromometric method is convenient and satisfactory. It gives values which are comparable with those obtained by the more expensive iodometric method used in the U. S. To 0.5 g. of red lead, or 0.1 g. of PbO_2, add 20 cc. of a standard, neutral soln. of As_2O_3 and 10 cc. of 25% HCl. Boil till the PbO_2 is all dissolved, dil. to 50 cc. and titrate with $NaBrO_3$ at 80°. Good results are also obtained with indigo carmine or methyl orange as indicators. Take 0.1-0.2 g. of PbO_2, or 0.5 g. of red lead, add 20 cc. of neutral As_2O_3 soln. and 10 cc. of 20% HCl. With PbO_2 the sample dissolves in the cold, but red lead requires 15 min. boiling. Add water and titrate as above. The end point can be detd. potentiometrically if desired. W. T. H.

ASM SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

Methods for determining lead peroxide. V. A. A. Panfilov and E. G. Ivancheva. *J. Gen. Chem.* (U. S. S. R.) 3, 262-8(1933); cf. *C. A.* 26, 3456. The most convenient and sufficiently accurate method was found to be the following: Digest PbO_2 or Pb_3O_4 with 25 cc. HNO_3 (d. 1.2), add 75 cc. H_2O and 5-10 cc. of standard 1.2% H_2O_2 and titrate the excess H_2O_2 with $KMnO_4$ (cf. Ebell, *Chem.-Ztg.* 10, Repet. No. 10, 70(1886); Busvold, *C. A.* 26, 2140). Chas. Blanc

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

Reduction of linseed oil consumption in the production of linoleum. A. V. Pamfilov and E. G. Ivanchova. *Trans. Inst. Chem. Tech. Ivanovo* (U. S. S. R.) 1, 139-42(1935).—Formulas are given for the substitution of 50% of Ca salts of naphthenic acids for linseed oil in the production of oilcloth. Chas. Blanc

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

1ST AND 2ND TRUERS

PROCESSES AND PROPERTIES INDEX

Methods of determining lead dioxide. F. G. Ivancheva. *Zavodskaya Lab.* 4, 344-5(1935); cf. Pamfilov and Ivancheva, *C. A.* 26, 3203, 3450. The method of Schurmann and Charisius (*C. A.* 28, 4005[5]) for the detn. of PbO_2 in minium is inconvenient and inaccurate. The best results are obtained by the H_2O_2 method. C. B.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

IVANCHEVA, Ye. G.

"Morphology of Pigments. III. X-Ray Examinations of Litharge," Zhur. Obshch. Khim., No.6, pp 621-625, 1935

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

Preparation of precipitated white lead. A. V. Pamfilov and K. G. Ivanchova. *J. Applied Chem.* (U. S. S. R.) 8, 1157-63(1935).—PbO is added to aq. AcOH until the soln. contains 180 g. of $Pb(OAc)_2$ + 80 g. of excess PbO per l., and CO_2 is passed until the d. of the soln. falls from 1.30 to 1.14, corresponding with a fall in *p*H of from 7.6 to 6.4. The product so obtained is in no way inferior to that given by the dry process. B. C. A.

ASM SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

Morphology of pigments. VI. Oxidation of crystalline modification of lead oxide. A. V. Pamfilov, F. G. Ivancheva and A. A. Petrash. *J. Applied Chem* (U. S. S. R.) 9, 2030-8(in French 2038)(1936); cf. *C. A.* 30, 7280[9].—The velocity of oxidation of Pb oxide of tetragonal form is greater than that of rhombic. A preliminary baking of Pb oxide slows down its oxidation, but a mech. treatment accelerates the oxidation, possibly because of the change of the character of the surface. To obtain an easily oxidizable and structurally homogeneous Pb oxide in the mechanized plant equipment, it is recommended to warm the pptg. system to a temp. corresponding to that of the formation of tetragonal crystals of Pb oxide. Ten references. A. A. Balguny

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

Morphology of pigments. III. X-ray examination of litharge. E. O. Ivanchiya. *J. Gen. Chem.* (U. S. S. R.) 6, 621-5(1936); cf. Krause, *et al.*, *C. A.* 27, 886; 29, 5327.- Some 15 samples of com. Pb oxides, including 3 American specimens, were examd. by x-rays. The structure of all specimens of litharge obtained by oxidation of atomized Pb (Barton) at 500-600° is rhombic. Different samples of litharge produced by oxidation of Pb with air at 600-700° in manually operated furnaces are either rhombic or tetragonal. One American storage-battery Pb oxide showed also tetragonal structure. In agreement with Darbyshire (*C. A.* 26, 2098) minium is a definitely crystd. compd., giving a characteristic röntgenogram different from that of the mixt. of PbO and PbO_2.

Chas. Blanc

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

Morphology of pigments. VIII. F. G. Ivanchevn. *J. Gen. Chem.* (U. S. S. R.) **7**, 2513-17(in French 2517) (1937); *cf. C. A.* **32**, 2375[6].—An x-ray study of a large no. of samples of Pb_3O_4 showed that it exists only as one cryst. form of the tetragonal system. Ten references. **IX. Dispersion of Prussian blue.** A. V. Pamfilov and A. S. Zhukov. *Ibid.* 2654-7(in French 2657).—The ultramicroscopic size of particles of Prussian blue in glycerol, linseed oil and a soln. of oxalic acid was found to be of the order of 0.2 μ. S. L. Madorsky

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

IVANCHEVA, E.G.

RT-976 (Chemistry of titanium IX. Structure of titanium oxide precipitates) K khimii titana. IX. O strukture osadkov dvuokisi titana.
ZHURNAL OBSHCHEI KHIMII, 7(22): 2774-2778, 1937.

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

PROCESSES AND PROPERTIES INDEX

Morphology of pigments. X. X-ray characteristics of white pigments. E. G. Ivancheva and K. M. Komissarova. *J. Gen. Chem.* (U.S.S.R.) 7, 2848-51 (in English 2851) (1937); cf. C. A. 32, 2765[4].—All pigments of white lead give the same x-ray pattern as that of $PbCO_3$; all pigments of zinc white show the same x-ray pattern as crystals of ZnO. All lithopone paints are shown on x-ray examn. to consist of $BaSO_4$. S. I. Madorsky

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

PROCESSES AND PROPERTIES INDEX

C1

Morphology of pigments. XI. Structure of lampblack. A. V. Pamfilov and E. G. Ivancheva. *J. Gen. Chem.* (U. S. S. R.) 8, 683-9(1938); cf. C. A. 32, 3987[5], 6070[6]. Com. samples of lampblack have the same x-ray pattern before and after heating to 1000-1100°. Samples heated above 1200° had a pattern in which the graphite structure was more pronounced and was coupled with larger primary crystals as revealed by the width of interference lines. S. I. Madorsky

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

Chemistry of titanium. X. Lead metatitanate. A. V. Pamblov, E. G. Ivancheva and M. A. Rabkin. *J. Applied Chem.* (U. S. S. R.) 11, 398-402 (in French 402) (1938); cf. C. A. 32, 3715). One mol. of TiO_2 and 1.5 mols. of PbO were calcined at 800°; removal of excess of PbO by extg. with AcOH yielded lead metatitanate, contg. TiO_2 25.5-25.6 and PbO 73.4-73.6%. The product (pigment) is stable in cold H_2SO_4 but decompd. in hot H_2SO_4, stable in concd. alkali and partially decompd. in HNO_3 and HCl. Its soly. in H_2SO_4 is much lower than that of TiO_2. The pigment (d. (Roberson) = 7.3) is not darkened by H_2S, and is stable under an atm. condition. The x-ray investigation showed a pseudocubical system of the Perovskite type, a = 3.91 A., c = 4.03 A. and c/a = 1.03. Eight references.

A. A. Podgorny

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

CA

26

Decreasing the consumption of linseed oil in the manufacture of oilcloth. A. V. Panfilov and E. G. Ivanchova. *Trans. Inst. Chem. Tech. Ivanovo* (U. S. S. R.) No. 2, 93–5 (1939).—Expts. were carried out to det. the possibility of using substitutes for linseed oil in oilcloth manuf. Oxycarboxylic acids derived from petroleum were found unsatisfactory. A fish oil "Ivasi" which was polymerized at 200° for 18 hrs. and also castor oil which had been heated with Al_2O_3 at 280° were found satisfactory. The use of the fish and castor oils made possible a reduction in linseed oil consumption by 50%. In addn. the product was not inferior to that prepd. with linseed oil alone. The quality of the oilcloths thus prepd. was higher than that in which naphthenic acids were used. B. Z. Kanich

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

CA

The chemistry of titanium. XIV. The formation of anatase and rutile structures in precipitation. A. V. Pamfilov and E. G. Ivancheva. J. Gen. Chem. (U. S. S. R.) 9, 1739-41(1939); cf. C. A. 33, 6742[8]. When TiO_2 is pptd. from solns. of $TiCl_4$ it has the rutile structure. If the soln. contains 5% or more SO_4^{--}, the TiO_2 has the anatase structure. Contrary to the results of Weiser and Milligan (C. A. 28, 4328[1]), TiO_2 pptd. from $Ti(NO_3)_4$ solns. also has the anatase structure.

H. M. Leicester

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

CA

6

Chemistry of titanium. XIII. Separation of titanium dioxide from sulfate solution. A. V. Pamfilov, E. G. Ivancheva and I. M. Soboleva. *J. Applied Chem.* (U. S. S. R.) 12, 226-33 (in French, 233) (1939); cf. *C. A.* 32, 6569[4].—The methods of Mecklenburg (*C. A.* 24, 3330) and Blumenfeld (*C. A.* 18, 3267) are compared. The second method yielded a product of better color and form than that obtained by the first method. Data are tabulated.

A. A. Podgorny

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

IVANCHEVA,YE8G8 600

1. PAMFILOV, A. V., IVANCHEVA, Ye. G.

2. USSR (600)

"The Chemistry of Titanium -- XIV. The Formation in Precipitates of the Structure of Anatase and Rutile", Zhur. Obshch. Khim., 9, No. 19, 1939. Laboratory of Inorganic Chemistry, Belorussian University. Received 13 April 1939.

9. [redacted] Report u-1626, 11 Jan 1952.

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

6

CH

The chemistry of titanium. XV. Polymorphic structures of titanium dioxide. A. V. Pamfilov and [illegible] Ivanchenko. *J. Gen. Chem.* (U. S. S. R.) 10, 151 (1940); cf. C. A. 34, 3607[9].—All attempts to obtain TiO_2 of the brookite structure have failed. Contrary to the literature data, TiO_2 prepd. from its salts by thermal treatment in the lab. has only the rutile and anatase structures.

Chas. Blanc

ASB SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

a

6

The chemistry of titanium. XVI. The transition of the anatase to the rutile structure. A. V. Pamfilov and E. G. Ivancheva. *J. Gen. Chem.* (U. S. S. R.) 10, 736-64 (1940); cf. *C. A.* 34, 7199[1].—The transition from the anatase to the rutile structure of TiO_2 takes place at 800-1000°, depending on the conditions of pptn. from $Ti(SO_4)_2$ and the nature of impurities. Chas. Blanc

COMMON ELEMENTS

COMMON VARIABLES INDEX

OPEN

MATERIALS INDEX

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

Chemistry & Physics

A.C.S.

Chemistry of titanium: XVII. Effect of calcination on the properties of titanium dioxide. A. V. PAMFILOV, E. G. IVANCHEVA, AND K. F. TREKBLETOV. *Zhur. Prikl. Khim.*, 13, 1310-14 (1940); *Chem. Abs.*, 35, 2432 (1941).—The appearance of a yellow color in TiO_2 on calcining was due to the presence of Fe oxides and had no connection with the transition of the anatase structure into the rutile structure. Sufficiently pure samples remained white or became slightly grayish in this transition. The optimal temperature of calcining products separated from sulfate solutions was somewhat higher than 800°. The product of rutile structure was a better pigment than that of anatase structure; it had a better covering power and required less oil.

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

Oxidation of crystalline modifications of lead oxide. V. Lead oxides. A. V. Pamfilov, E. G. Ivancheva, and A. G. Ivancheva (Gorky Industrial Inst.). *J. Gen. Chem.* (U.S.S.R.) 16, 325-30(1946); cf. *C.A.* 39, 651[1]. Only the tetragonal form of PbO is oxidized in the air to Pb_3O_4; the rhombic form is converted to Pb_3O_4 only after transition to the tetragonal form. Mechanical work, such as grinding, greatly enhances oxidizability. Admixt. of tetragonal form increases the rate of conversion of the rhombic to the tetragonal form. G. M. Kosolapoff

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

26

Transformations of pigmented films. I. Mechanical properties of pigmented oil films. A. V. Pamfilov and E. G. Ivancheva. *J. Applied Chem.* (U.S.S.R.) 20, 676-84(1947)(in Russian). -The tensile strength σ and the relative elongation ϵ of films of linseed oil mixed with inorg. pigments (Cr_2O_3, ZnO, TiO_2, Fe_3O_4, minium contg. PbO_2 26.9%, PbO_2 rhombic and tetragonal, lead white, $PbCrO_4$), brushed in 2 coats on amalgamated tin-plate, dried at room temp. or at 70° and stripped with a razor blade, was detd. within ±10% as a function of the length of exposure, on film samples 50 × 10 mm., 30-40 μ thick. Dry linseed oil films without pigment have a very low σ; thus, a 4-coat film reaches only σ = 0.05-0.10 kg./sq. mm. in 200 days at room temp. or 80 days at 70°. With pigment, the films reach σ several times higher in the 1st few days. The development of σ with time is specific for each pigment; thus, at room temp., the Pb_3O_4 film attained σ max. (about 0.24 kg./sq. mm.) in 15-20 days, ϵ max. (10%) in 5 days, and then fell rapidly; other pigments keep their optimum values for some time (TiO_2, Cr_2O_3, $PbCrO_4$) or even continue to rise slowly (TiO_2, Fe_3O_4, lead white) for some time (up to 180 days). At 70°, the fall of σ and ϵ following the max., in Pb_3O_4 and PbO_2, is complete in a few days; ZnO reaches σ max. = about 1.0 in 20 days, remains const. about 40 days and then decreases. Fe_3O_4 reaches σ = 0.35 in about 10 days; on further exposure, its σ continues to grow slowly up to about 0.45 after 70 days. Generally, relatively fast rise of σ and ϵ to a high optimum, followed by relatively fast impairment on further standing, is characteristic of pigments with which chem. reaction with the binder is probable. In open atm. exposure, PbO_2 and Pb_3O_4 films become brittle in the very first few days, ZnO quite fast; only Cr_2O_3 and Fe_3O_4 films remain elastic for quite a long time (120 days) but their σ and ϵ are poorer than when stored in a closed room; anatase TiO_2 films crumble fast, rutile TiO_2 much slower. With increasing amt. of ZnO, σ increases, ϵ decreases; 1% ZnO has hardly any effect on σ, with 5% ZnO, σ is increased 2-3 times, with 10% it is increased almost to the same extent as with the usual 110% (0.9-1.0 kg./sq. mm. in 40-50 days at 70°); however, this growth to a high σ is always offset by subsequent decrease, whereas the low-ZnO, low-σ films keep their σ const. for about 70 days (at 70°). In contrast to ZnO, films with up to 30% Cr_2O_3 have σ almost as low as pure linseed oil films; it grows to a max. of about 0.45 (in 20 days at 70°) only with as high as 200% Cr_2O_3; here, too, only the high σ falls off rapidly while the low σ of all the lower Cr_2O_3 films remains fairly const. for 70

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

PROCESSES AND PROPERTIES INDEX

Ca

26

Transformations of paint films. II. Interaction between the pigment and the oil. A. V. Pantilov and E. G. Ivancheva. *Zhur. Prikkad. Khim.* (J. Applied Chem.) 21, 104-12(1948); cf. C.A. 42, 3193d.—The extent of compd. formation between the inorg. pigment and the linoleic acid of the linseed oil was detd. by combustion of the supernatant oil after sedimentation or centrifugation of the unreacted suspended pigment, or, particularly with dried thin films of paint, by soln. in $CHCl_3$, evapn. of the solvent and combustion of the residue, it being held evident that only the metal linoleates, not the inorg. pigments, are extd. by $CHCl_3$; absence of a significant reaction in the process of the extn. with hot $CHCl_3$ was ascertained by 1-hr. boiling of PbO or ZnO with linseed oil in $CHCl_3$, in which only 0.8-0.9% of metal oxide (with respect to the wt. of the oil) was found in the ext. Expts. were made with 3 different prepns., (*a*) stirring of the pigment with the oil, (*b*) grinding with a small amt. of the oil and subsequent dilu. with the balance of the oil, (*c*) spreading of a thin layer of the paste on glass and drying at 5-10°, and with 3 different oils, (*a'*) ordinary linseed oil, (*b'*) linoleic acid obtained by sapon. of the oil, (*c'*) incompletely sapond. linseed oil, acid no. 115. With *aa'* and *bb'*, 3 g. pigment per 10 g. oil, significant amts. of linoleate were formed only with PbO (e.g. 0.7% metal oxide per 100 g. oil, after 35 days' standing with occasional stirring, 9% after 82 days), small amts. with ZnO, none with Cr_2O_3, Fe_2O_3, and TiO_2. Under conditions *ac'* and *bc'*, PbO, Pb_3O_4, and ZnO react with the oil rapidly, Fe_2O_3 reacts weakly, Cr_2O_3 and TiO_2 do not react at all. Under conditions *ca'* (dried thin film), all the pigments investigated have reacted, to varying degrees, with the oil. PbO almost quantitatively in 48 hrs., ZnO somewhat slower (quantitatively after 20 days), Cr_2O_3 and TiO_2 are bound in amts. corresponding to about half the amt. calcd. for the linoleate, and this amt. does not increase any further on 15 days' standing at 5-10°. It is not, however, claimed that this constitutes a proof of compd. formation; it may indicate only the presence of very finely divided, very slowly settling pigment in the sol. part of the film, especially as the $CHCl_3$ solns. of the Cr_2O_3 films, after long centrifugation, are colorless in transmitted, greenish in reflected, light, whereas directly prepd. Cr linoleate, in $CHCl_3$ soln., is violet. In case *cb'*, PbO and ZnO were found bound to the extent of 90% of the amt. calcd. for the salt, after 48 hrs.; under the same conditions, no Cr, Ti, or Fe was detected in the $CHCl_3$ ext., even though a $CHCl_3$ ext. of a *fresh* Fe_2O_3 film showed the same red-brown color as a soln. of synthesized Fe linoleate. Possibly, the absence of metal in the ext. of an aged film is due not to absence of chem. interaction, but to insolubilization of the product through aging. Interaction between the oil and the pigment is thus shown to take place quite intensely, and much more intensely in the film than in the bulk. Aging of the paint film, and the gradual deterioration of its quality, are thus linked directly, at least in part, to that interaction. N. Thon

ASM SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

29

B

9749 **Changes in Paint Films. Part I. The Mechanical Properties of Pigmented Oil Films. Part II. The Reaction of Pigment With Oil.** A. V. Pamfilov and E. G. Ivanchova. *Paint Technology*, v. 16, May 1951, p. 193-199. (Translated from *Zhurnal Prikladnoi Khimii* [Journal of Applied Chemistry], v. 20, July 1948, p. 676-683; v. 21, Feb. 1949, p. 104-112.)

Materials used were boiled linseed oil and a series of pigments of the metal-oxide class (in addition to white lead and lead chromate). Physical characteristics examined were tensile strength and relative elongation. Measurements were obtained with the aid of an apparatus of the weight loaded type. In Part II, extent to which aging of the film is affected by presence of pigment was investigated. Data are tabulated and charted. 17 ref.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

CA

Transformations of paint films. III. Films of condensed linseed oil. A. V. Pamfilov, E. G. Ivancheva, and V. P. Granenova. *Zhur. Prikład. Khim.* (*J. Applied Chem.*) 22, 87-100(1949); cf. C.A. 43, 1991*b*. Investigations analogous to those described before were carried out with pigmented and nonpigmented films, mostly 30-50 μ thick, made with partly polymerized or oxidized linseed oil instead of ordinary painters' linseed oil, specifically with (I) 12% polymerized oil (i.e. linseed oil requiring addn. of 12% lacquer kerosene to give the normal lacquer consistency), d. 0.957, acid no. 9.0, sapon. no. 192, iodine no. 111, (II) 35% polymerized oil, 0.980, 5.0, 192, —, (III) oxidized oil, 0.981, 5.0, 193, 111, and (IV) lacquer 15-a, acid no. 11.5, sapon. no. 185, iodine no. 73. With the same pigments, films made with the above condensed oils showed, on the whole, higher tensile strength and slower aging than films made with ordinary linseed oil (V). Films with "active" pigments, i.e. pigments with distinct basic properties (PbO, Zn white), age faster than films with "neutral" pigments, such as Fe_2O_3 or Cr_2O_3. With TiO_2, the films show a tendency to crumbling, but less rapidly than similar films with V. Whereas nonpigmented films of V have no mechanical strength at all, and similar films with III are hardly any stronger, films with I, II, and, particularly, IV, do have some tensile strength and elasticity, the latter becoming brittle only after 6-7 months. Films of I, with active pigments, became unfit for mech. tests after 6-8 months; with Fe_2O_3 and with Cr_2O_3, these films kept thier mech. properties for 1 yr. With the same pigment, films with II were regularly superior to I. Films of III have a somewhat lower strength and a somewhat greater elasticity than I, and age more slowly, particularly with active pigments and with TiO_2. IV was on the whole inferior to I, II, and III. Films of the latter, pigmented with ZnO, age faster than with PbO, whereas in I this order is reversed. Interaction (i.e. compl. formation) between the pigment and the oil, investigated by the previously described method of extn. with $CHCl_3$, is more vigorous with the condensed oils than with V. Partly, this interaction is due to the formation of stable suspensions, stabilized by the polymerized oil. It is more pronounced in I and II than in III.

N. Thon

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

Paints, Varnishes, Lacquers & Enamels

6393* **Paint Films on Synthetic Bonding Agents.** (In Russian.) A. V. Pamfilov and E. G. Ivancheva. *Zhurnal Prikladnoi Khimii*, v. 24, July 1951, p. 742-747.

A study was made of the bonding strength of paints and lacquers containing various pigments. Results are discussed, tabulated, and charted.

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

IVANCHEVA, Ye.G.; NOVAL'KOVSKIY, N.P.; PAMFILOV, A.V.

Degradation of melamine-formaldehyde resins. Ukr. khim. zhur. 30 no.6:571-575 '64. (MIRA 18:5)

1. Chernovitskiy gosudarstvennyy universitet.

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

IVANCHIK, G.S.

Ecologicl distribution of Unio crassus Retz. in basins of the Seret and Prut Rivers. Nauk. zap. UzhGU 40:345-349 '59. (MIRA 14:4)

1. Chernovitskiy gosudarstvennyy universitet.
(Seret Valley--Unionidae)
(Prut Valley--Unionidae)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

SHNAREVICH, I.D.; IZMAYLOVA, L.M.; IVANCHIK, G.S.

Effect of rafting and industrial waste on the bottom fauna and fish productivity of the upper and central Prut River. Gidrobiol. zhur. 1 no. 6:20-27 '65 (MIRA 19:1)

1. Chernovitskiy gosudarstvennyy universitet, laboratoriya prirodnykh resursov Karpat.

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

IVANCHIK, I.I.

PA - 2035

AUTHOR IVANČIK, I.I.

TITLE On the Absolute Values of the Stripping Cross Sections and the Diffraction Spallation of the Deuteron. (Russian)

PERIODICAL Zhurnal Eksperimental'noi i Teoret. Fiziki, 1957, Vol 32, Nr 1 pp 164-165 (U.S.S.R.)

Received 3/1957 Reviewed 3/1957

ABSTRACT At first some previous works dealing with this subject are cited. The following problem may be set. What influence is exercised by the finity of the radius of forces on the amounts of the processes mentioned in the above heading? If it is assumed that the potential of proton-neutron interaction has the shape of a rectangular potential well with the radius a and the depth U (where $U a^2 \sim \pi h^2/2M$ is known to apply), a renewed computation of the stripping cross section and of diffraction spallation is possible by means of the well-known wave functions obtained for this case. For this purpose it is useful to employ the method developed by R.GLAUBER, Phys.Rev., 99, 1515 (1955), on which occasion the following expressions are obtained for the stripping cross section σ_{ab} and for the cross section σ_{diffr} of the diffraction spallation of a deuteron by a black nucleus of the radius R: $\sigma_{ab}/2\pi R = (\alpha/2(1+\alpha a))[(\cos^2\delta/4\alpha^2)(1+2\alpha a)+(a^2/4)+(a^2\cos^2\delta/(\pi+2\delta))(1+2\alpha a)]$

$\sigma_{diffr}/2\pi R = (1/8\alpha)((4/3)\ln 2 - 1/3) - (a/2)(3/4 - \ln 2)$ (at $\alpha a \ll 1$)

The exact formula for σ_{diffr} is very voluminous and furnishes the same numerical values for the values in question. In these formulae δ is determined from the equation $((\pi/2) + \delta)\,\mathrm{tg}\,\delta = \alpha a$. The case $a = 0$ correspondents to the usual formula $\sigma_{ab} = \pi R R_d/2 = 0{,}54 \cdot 10^{-13} 2\pi R\ \mathrm{cm}^2$

Card 1/2

Card 2/2

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

SOV/56-35-4-43/52

21(7)

AUTHOR: Ivanchik, I. I.

TITLE: On the Angular Distribution of the Diffraction Scattering of Deuterons (Ob uglovom raspredelenii pri difraktsionnom rasseyanii deytronov)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1958, Vol 35, Nr 4, pp 1050-1052 (USSR)

ABSTRACT: A. I. Akhiyezer and A. G. Sitenko (Ref 1) investigated the angular distribution of elastically scattered deuterons. However, the formula they derived is, according to what they say themselves, applicable only if $\varkappa' \ll p$. Here $\varkappa$ denotes the transversal momentum acquired by the deuteron as a result of scattering, $\varkappa' = \varkappa R$, R - the radius of the nucleus, R_d - the radius of the deuteron. It further holds that $p = R/R_d$. The theory of diffraction scattering applies up to $\varkappa \sim \mu c$, i.e. up to $\varkappa' \sim 2p$. Therefore, a formula that is applicable to the entire angular range ought to be derived. The present paper deals with the derivation of such a formula. In this connection $R_d \ll R$ is assumed, and the nucleus is replaced

Card 1/2

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

SOV/56-35-4-43/52

On the Angular Distribution of the Diffraction Scattering of Deuterons

by a plane screen with rectilinear edge. The calculation is discussed step by step. The angular distribution found in this way is, in angular coordinates, the following: $d\sigma(\theta) = 2\pi R^2 \left| a_p(p_o R\theta/h) \right|^2 (p_o R/h)^2 \theta \, d\theta$, where p_o denotes the influence of the inciding deuteron. This distribution decreases with an increase of the angle much more slowly than the angular distribution derived in the aforementioned earlier paper. The secondary maxima in the here derived angular distribution are, by the way, much closer than in the diffraction of a punctiform particle. There are 3 references, 1 of which is Soviet.

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

SUBMITTED: June 27, 1958

Card 2/2

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

IVANCHIK, I. I., Candidate Phys-Math Sci (diss) -- "Diffraction resolution of simple systems". Moscow, 1959. 8 pp (Acad Sci USSR, Phys Inst im P. N. Lebedev), 150 copies (KL, No 25, 1959, 126)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

24(5)

AUTHORS: Ivanchik, I. I., Popov, V. S. SOV/56-36-2-22/63

TITLE: Energy- and Angular Distributions in the Processes of Diffractional Disintegration (Energeticheskiye i uglovyye raspredeleniya v protsessakh difraktsionnogo rasshchepleniya)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959, Vol 36, Nr 2, pp 499-504 (USSR)

ABSTRACT: The diffractional disintegration of the deuteron has already been investigated by Feynberg (Ref 1), Glauber (Ref 2), and by Akhiyezer and Sitenko (Ref 3). In these works a method which is similar to that employed by Kirchhoff (Kirkhgof) was used, which, however, produced good results only within the domain of the geometric shade. Experimentally, the investigation of particles produced as a result of the diffractional disintegration of a deuteron (neutron + proton) presents difficulties because of the difficulty of observing neutrons. The authors of the present paper carry out a theoretical investigation of the energy- and angular distributions for particles produced in the diffractional disintegration of a weakly bound quantum-mechanical system (e.g. deuteron). The energy distribution obtained is shown by figure 1;

Card 1/2

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

the diagram, for comparison, also contains the corresponding distribution curve for the stripping reaction. The curves nearly coincide. Figure 2 shows the angular distribution curve, which is again compared with angular distribution after a stripping reaction. The latter shows a sharper decline. The authors endeavor to explain this difference. Finally, they thank Ye. L. Feynberg for supervising work as well as for their detailed discussions. There are 2 figures and 8 references, 6 of which are Soviet.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva Akademii nauk SSSR (Physics Institute imeni P. N. Lebedev of the Academy of Sciences, USSR)

SUBMITTED: June 27, 1958

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

SOV/56-36-2-42/63

21(8)

AUTHOR: Ivanchik, I. I.

TITLE: On the Diffraction Splitting of Relativistic Particles (O difraktsionnom rasshcheplenii relyativistskikh chastits)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959, Vol 36, Nr 2, pp 617 - 618 (USSR)

ABSTRACT: The diffraction spallation of a deuteron on a black nucleus in deuteron energy interval $E_d \sim 100 - 200$ Mev was investigated in some papers (Refs 1-4). The nucleus is assumed to be black also at $E_d \gtrsim 6$ Bev. The author shows that the results of these papers remain valid also for a relativistic deuteron. The author begins with the investigation of the diffraction scattering of this deuteron. If the wave function of the free motion is denoted by φ, the wave function of the deuteron diffracted by the nucleus can be written down as $\psi = \varphi \mathfrak{A}(\vec{\rho}_n) \mathfrak{A}(\vec{\rho}_p)$. The indices n and p mean neutron and proton, respectively, $\vec{\rho}$ denotes the radius-vector of the particle

Card 1/3

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

On the Diffraction Splitting of Relativistic Particles SOV/56-36-2-42/63

in the plane perpendicular to the axis of the beam, and R - the radius of the nucleus. Moreover, it holds that $\Omega(\vec{\varrho})$ and $\Omega(\vec{\varrho}) = 1$ for $\varrho > R$ and $\varrho < R$, respectively. The author deduces an expression for ϱ in the system of reference, in which the deuteron moves as a [illegible] with the four-dimensional velocity u_μ. For a given value of $\kappa' = p_0 \theta R$, the deviation from the non-relativistic scattering amplitude is given by $\eta = \mu v / cMA^{1/3}$. p_0 denotes the initial momentum of the deuteron momentum, μ - the mass of the pion. A - the atomic number of the target nucleus. For A = 216, one finds $\eta \sim 1/80$. Diffraction spallation can be calculated in a completely analogous manner. According to these results, the previously deduced formulae of diffraction scattering and diffraction spallation can be applied to the case $E_d \gtrsim$ Bev. The same considerations can be applied also to diffraction production (for example, of a charged pion by a relativistic proton). Approximate quantitative estimates can be found by using the results which were found for the spallation of a deuteron. The author thanks Ye. L. Feynberg for advices.

Card 2/3

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

On the Diffraction Splitting of Relativistic Particles SOV/56-36-2-42/63

There are 6 references, 5 of which are Soviet.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva Akademii nauk SSSR (Physics Institute imeni P. N. Lebedev of the Academy of Sciences, USSR)

SUBMITTED: June 27, 1958

Card 3/3

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

9.4330 (1043,1143)
26.1631

89279

S/181/61/003/001/012/042
B006/B056

AUTHOR: Ivanchik, I. I.

TITLE: Theory of the degenerate p-n junction

PERIODICAL: Fizika tverdogo tela, v. 3, no. 1, 1961, 103-118

TEXT: The present paper, basing upon the conceptions of L. Esaki (Phys. Rev. Vol. 109, p. 603) on the band structure and the volt-ampère characteristic of p-n junctions (tunnel diodes), gives a detailed description of a theory that quantitatively describes the existing conditions. In § 1, the chemical potential of a homogeneous degenerate semiconductor is studied. This potential serves as a limit in the problem of the chemical potential of a degenerate p-n junction. Proceeding from the condition of electric neutrality (i.e., the number of ionized donors equals the number of electrons in the conduction band), an equation for determining the electronic Fermi level η_1 is derived, and the degeneracy parameter is estimated. The following relation is obtained:

$$n_d \exp\left(-\frac{\eta_1+\delta_1}{kT}\right) = \frac{(2m_1^*\eta_1)^{3/2}}{3\pi^2\hbar^3}, \quad \eta_1 = \mu - E_1,$$ where μ is the level of the

Card 1/6

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

89279

Theory of the degenerate... S/181/61/003/001/012/042
B006/B056

chemical potential; E_1 is the lower bound of the conduction band analogously, the Fermi level of the holes is given by $\eta_2 = E_2 - \mu$, where E_2 is the upper bound of the valence band; $E_1 - E_2 = \Delta$ is the forbidden band width; $\delta_1 = E_1 - E_d$; n_d is the donor concentration; $2m_1^* = p^2/E$. An estimate of the degeneracy parameter $\beta = \eta/kT$ with $n_d = 2.5 \cdot 10^{19} cm^{-3}$, $T = 300^oK$, $m_1^* = 0.25 \cdot 10^{-28}$ (Ge), $\delta = 0.01$ ev gives $\beta \sim 3.5$. It is found that a study of the temperature dependence of the current passing through a degenerate p-n junction supplies information on the band structure of a degenerate semiconductor. The contact potential in the junction is given by $e\varphi_0 = \Delta + \eta_1 + \eta_2$. § 2 deals with a study of the self-consistent potential for an electron-hole gas in a degenerate p-n junction. First, the equilibrium in the case of a zero current is studied. As a consequence of the charge not being compensated in the junction, grad $\varphi \neq 0$ even without an exterior potential difference; it is assumed that φ may be quasi-classically calculated, i.e., the electron energy equals $E + e\varphi$, where E denotes the energy without potential. The existence of φ causes a shift

Card 2/6

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

of the lower bound of the conduction band of the p-n junction by $e\varphi$. It is further assumed that the electron-hole gas is a Thomas-Fermi gas. The electron gas in the conduction band and the hole-gas in the valence band are assumed to be completely degenerate, and $\mu + e\varphi = \text{const}$. The following equations are obtained for φ:

electron range $(x > 0)$:

$$\frac{d^2\varphi}{dx^2} = -\frac{4\pi|e|}{\varepsilon}\left\{\frac{n_d}{1+\exp\frac{\eta_1+\delta_1-e\varphi}{kT}} - n_1\left(1-\frac{e\varphi}{\eta_1}\right)^{3/2}\right\}. \quad (6)$$

hole range $(x < 0)$:

$$\frac{d^2\varphi}{dx^2} = -\frac{4\pi|e|}{\varepsilon}\left\{\frac{-n_d}{1+\exp\frac{\eta_2+\delta_2-|e|(\varphi-\varphi_0)}{kT}} + n_2\left[1-\frac{|e|}{\eta_2}(\varphi-\varphi_0)\right]^{3/2}\right\}. \quad (8)$$

On the x-axis, points 0, $\bar{x}_1$, and $\bar{x}_2$ are then fixed, and the differential equations for the following four ranges are written separately:

1) $\bar{x}_1 < x < 0$; 2) $0 < x < \bar{x}_1$; 3) $\bar{x}_2 < x < 0$; and 4) $-\infty < x < \bar{x}_2$. Next, characteristic lengths (l_1, l_2) for n- and p-type materials, as well as new

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

denotations are introduced (see Eqs. (9) - (11)), and from the latter the equations

1) $\xi_1 < \xi_1 < +\infty$

$$\xi_1 - \xi_1 = \int_0^{\xi_1} \frac{d\zeta}{\sqrt{\frac{2r_1}{\beta_1} \ln \frac{1 + \exp(-\beta_1\zeta - \sigma_1)}{1 + \exp(-\beta_1 - \sigma_1)} - \frac{4}{5}(1 - \zeta^{5/2})}}; \qquad (12)$$

2) $0 < \xi_1 < \xi_1$

$$\xi_1 - \xi_1 = \int_0^{\xi_1} \frac{d\zeta}{\sqrt{\frac{2r_1}{\beta_1} \ln \frac{1 + \exp(-\beta_1\zeta - \sigma_1)}{1 + \exp(-\beta_1 - \sigma_1)} - \frac{4}{5}}};$$

$\xi_2 < \xi_2 < 0$

3)

$$\xi_2 - \xi_2 = \int_0^{\xi_2} \frac{d\zeta}{\sqrt{\frac{2r_2}{\beta_2} \ln \frac{1 + \exp(-\beta_2\zeta - \sigma_2)}{1 + \exp(-\beta_2 - \sigma_2)} - \frac{4}{5}}};$$

4) $-\infty < \xi_2 < \xi_2$

$$\xi_2 - \xi_2 = \int_0^{\xi_2} \frac{d\zeta}{\sqrt{\frac{2r_2}{\beta_2} \ln \frac{1 + \exp(-\beta_2\zeta - \sigma_2)}{1 + \exp(-\beta_2 - \sigma_2)} - \frac{4}{5}(1 - \zeta^{5/2})}}.$$

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

89279

are obtained for the four ranges. In the following, the band-to-band transition probability is studied (§ 3), and also a number of formulas are obtained; § 4 gives some formulas for the Esaki current J for the case in which the electron mean free path is large compared to l_1. Among other things, the formulas

$$J = J_0 \exp(-2\gamma\xi(\Phi)) \int_0^{\gamma} (1-z)\,dz \exp \times$$

$$\times \left\{ -\gamma \int_0^{z} \frac{d\zeta}{\sqrt{\frac{2r}{\beta} \ln \frac{1+\exp(-\beta\zeta-\sigma)}{1+\exp(-\beta-\sigma)} - \frac{4}{5}(1-\zeta^{5/2})}} - \right.$$

$$\left. -\gamma \int_0^{\gamma-z} \frac{d\zeta}{\sqrt{\frac{2r}{\beta} \ln \frac{1+\exp(-\beta\zeta-\sigma)}{1+\exp(-\beta-\sigma)} - \frac{4}{5}(1-\zeta^{5/2})}} \right\}.$$

and $J(\varkappa_0/\gamma) = J_0 \frac{\varkappa_0}{\gamma} \exp\{-2\gamma\xi(0)-1\}$ (29) are given. For the case in which the electron mean free path is small compared to l_1,

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

$$J\left(\frac{x_0}{\gamma}\right)=J_0\frac{x_0}{\gamma}\exp\left(-2\gamma\xi(0)-1\right), \qquad (29)$$

is obtained. Finally, results obtained from Eq. (29), where

$$x_0^{-1}=\frac{1}{\left(\frac{2r}{\beta}\ln\frac{1+\exp(-\sigma)}{1+\exp(-\beta-\sigma)}-\frac{4}{5}\right)^{1/2}}-$$

$$-\frac{1}{\left(\frac{2r}{\beta}\ln\frac{1+\exp\left(\frac{\beta\Delta}{2\eta}-\sigma\right)}{1+\exp(-\beta-\sigma)}-\frac{4}{5}\right)^{1/2}}; \qquad (28)$$

are compared with experimental values. The author thanks B. M. Vul for interest, A. A. Abrikosov for help, and L. V. Keldysh for discussions. There are 11 references: 6 Soviet-bloc and 4 non-Soviet-bloc.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva AN SSSR (Institute of Physics imeni P. N. Lebedev, AS USSR)

SUBMITTED: November 18, 1959 (initially)
June 18, 1960 (after revision)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

32090

S/181/61/003/012/025/028
B125/B108

94.7000 (1143, 1385, 1559)

AUTHOR: Ivanchik, I. I.

TITLE: Macroscopic theory of ferroelectrics

PERIODICAL: Fizika tverdogo tela, v. 3, no. 12, 1961, 3731 - 3742

TEXT: Various properties of thin, plate-shaped crystals (e.g., $BaTiO_3$) have been theoretically studied on the assumption that the spontaneous induction be screened only by a flow of charges from the interior of the crystal to its surface. The spontaneous induction of an unbounded, plate-shaped single-domain crystal of thickness L, which is in a vacuum, is supposed to be perpendicular to the plate (z-axis). Inside the crystal there may be an electric field, outside there is none. After elimination of u_{ik} in the expression

4

Card 1/6

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

$$F=\int dzF,$$

$$F=F_0+\frac{\varkappa}{2}\left(\frac{dD}{dz}\right)^2+\alpha D^2+\frac{\beta_1}{2}D^4+\frac{\gamma_1}{2}D^6+ \qquad (2)$$
$$+\frac{c_{11}}{2}(u_{xx}^2+u_{yy}^2+u_{zz}^2)+c_{12}(u_{xx}u_{yy}+u_{xx}u_{zz}+u_{yy}u_{zz})+$$
$$+\frac{c_{44}}{2}(u_{xy}^2+u_{xz}^2+u_{yz}^2)+q_{11}u_{xx}D^2+q_{12}(u_{yy}+u_{zz})D^2.$$

4

for the density of free energy per unit area of plate, the equilibrium conditions $E_i/4\pi = \delta F/\delta D_i$, $\partial\sigma_{ik}/\partial x^k = 0$ (E_i = field strength, D_i = spontaneous induction, F = free energy of the system, and $\delta/\delta D_i$ = variational derivative) are reduced to $E/4\pi = -\kappa(d^2D/dz^2) + aD + cD^3 + fD^5$. The strength of the electric field in the crystal is given by

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

32090

S/181/61/003/012/025/028
B125/B108

Macroscopic theory of ...

$E = (kT/2e^2 n_0) \frac{d\rho/dz}{\sqrt{1 + \frac{\rho^2}{(2en_0)^2}}}$. The spontaneous induction is calculated

from

$$\left(\varkappa + \frac{1}{4\pi}\frac{kl}{8\pi e^2 n_0}\frac{1}{\sqrt{1+\frac{\left(\frac{dD}{dz}\right)^2}{(8\pi e n_0)^2}}}\right)\frac{d^2D}{dz^2} = aD + cD^3 + fD^5. \qquad (6)$$

where ρ is the electric charge density at the point in question, n_0 the equilibrium density of electrons without a field, and e the electron charge. In the center of the crystal, the electric field strength is zero. The distribution of spontaneous induction satisfies

$$\frac{L}{2} = 4\pi\frac{\gamma ed}{kT}\sqrt{\frac{g-a}{2f}}\int_0^1 \frac{dt}{\sqrt{1+2\xi+\tau_1 Q(t) - \sqrt{(1+2\xi)^2 + 2\tau_1 Q(t)}}}. \qquad (12)$$

Card 3/6

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

and in simpler form also

$$L = L_0 \int_0^1 \frac{dt}{\sqrt{\tau(\Delta + \nu\tau)\left\{\left(\tau\sqrt{\frac{\nu\eta}{2\xi}} + \frac{\Delta}{2}\sqrt{\frac{\eta}{2\xi\nu}}\right)^2 + 1 - \frac{\Delta^2\eta}{8\xi\nu}\right\}}}. \quad (13)$$

$$L_0 = \frac{1}{4\pi}\sqrt{\frac{f}{(g-c)^2}\frac{kT}{e^2 n_0}}, \quad \nu = \frac{cd^3}{2(g-c)} + \frac{2d^4}{3};$$

For thin crystals, (13) can be reduced to $L = (1/\Delta d)\ln(4\eta/\nu\xi)\Delta^2$ with $l = (4kT/e)\sqrt{f^3/(g-c)^5}$. The conservation of ferroelectricity in $BaTiO_3$ consequently requires a minimum thickness of $\sim l$, i.e., $\sim 2 \cdot 10^{-6}$ cm. It follows from the thermodynamic theory of ferroelectrics that the domain structure is periodic. The spontaneous polarization and the domain thickness of ferroelectric crystals that have undergone a phase transition of the second kind are interrelated by

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

$$L=2\sqrt{\frac{2\varkappa^3}{4|a|+(2g-D)P_0^2}}\int_0^1\frac{dt}{\sqrt{(1-t^2)\left(1-\frac{DP_0^2t^2}{4|a|+(2g-D)P_0^2}\right)}}. \qquad (22)$$

There exist also numerous periodic solutions for the domain structures of ferroelectrics that have undergone a phase transition of the first kind. For the simplest case of the c-domain structure ($P_x = P_y = 0$) one finds

$$L=2\varkappa^{1/2}\int_0^1\frac{dt}{\sqrt{(1-t^2)\left\{\Delta+(1-t^2)\left(\frac{cP_0^2}{2}+\frac{fP_0^4}{3}\right)+(1-t^4)\frac{fP_0^4}{3}\right\}}}. \qquad (31)$$

E. I. Adirovich is thanked for critical remarks, V. L. Ginzburg, S. V. Bogdanov, and A. P. Levanyuk for discussions. There are 1 figure and 5 references: 3 Soviet and 2 non-Soviet. The two references to English-

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

32090
S/181/61/003/012/025/028
B125/B108

Macroscopic theory of ...

language publications read as follows: P. Peierls. The Quantum Theory of Solid Bodies, IL, M., 1956; W. J. Merz. Phys. Rev., 91, 513, 1953.

4

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva AN SSSR Moskva (Physics Institute imeni P. N. Lebedev AS USSR Moscow)

SUBMITTED: May 31, 1961 (initially), and July 27, 1961 (after revision)

Card 6/6

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

43125
S/181/62/004/011/025/049
B125/B186

AUTHOR: Ivanchik, I. I.

TITLE: On a criterion of ferroelectricity in the microscopic theory

PERIODICAL: Fizika tverdogo tela, v. 4, no. 11, 1962, 3236-3239

TEXT: It is shown that the ferroelectric properties can be described satisfactorily at all temperatures by an improved theory of second-kind phase transitions (L. D. Landau, Ye. M. Lifshits, Elektrodinamika sploshnykh sred (Electrodynamics of massive media), GITTL, M. 1958; V. L. Ginzburg. ZhETF, 15, 739, 1945, 19, 36, 1949). Aside from this a criterion for the existence of ferroelectric properties is given in the framework of the microscopic theory. When the external charges are given, the properties of a system are described by the free energy $F(\vec{D})$. When the external electric field is given one has to replace the functional $F(\vec{D})$ by $\tilde{F}(\vec{E}) = F[\vec{D}(\vec{E})] - \vec{E}\vec{D}/4\pi$. This transition is equivalent to a transition from the Lagrangian to the Hamiltonian. In the ferroelectric phase ($\alpha < 0$, $\beta > 0$) it leads to $\tilde{F}(\vec{E}) = -\alpha D^2(E) - 3\beta D^4(E)$ with $E/4\pi = 2\alpha D + 4\beta D^3$. In the ferro-

Card 1/3

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

electric phase, the function $D(E)$ has two branching points at $D = \pm D_0$ and $E = \pm E_0$. Near the branching points, $\tilde{F}(E)$ can be expanded into a sum of two power series. The branching points of $\tilde{F}(E)$ turn into one at the origin when $\alpha \longrightarrow 0$ and when temperature approaches the Curie point. A system has ferroelectric properties when the logarithm of the trace of the statistical matrix of a system in an external magnetic field has branching points of the type $(E \pm E_0)^{1+\lambda}$ or $(E \pm E_0)^{1+\lambda} \ln(E \pm E_0)$. In the vicinity of $E = -E_0$, the relation $D = B + C((E + E_0)/4\pi)^{\lambda}$ is valid. The constant λ determines the "amount" of the dielectric constant. In the case of $0 < \lambda < 1$, the D-versus-E curve is a typical ferroelectric hysteresis loop. The narrow hysteresis loops of real ferroelectric single crystals can be explained by these considerations. To construct the microscopic theory of ferroelectrics it is sufficient to know the single-particle Green function. The nonlinear integral equations for the determination of the Green function and of the electrical induction vector of a ferroelectric shall follow in a subsequent paper. There are 2 figures.

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

On a criterion of ferroelectricity... S/181/62/004/011/025/049
B125/B186

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva AN SSSR, Moskva (Physics Institute imeni P. N. Lebedev AS USSR, Moscow)

SUBMITTED: June 25, 1962

Card 3/3

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

ACC NR: AP7003532 SOURCE CODE: UR/0386/67/005/001/0009/0012

AUTHOR: Guro, G. M.; Ivanchik, I. I.; Kovtonyuk, N. F.

ORG: Physics Institute im. P. N. Lebedev, Academy of Sciences, SSSR (Fizicheskiy institut Akademii nauk SSSR)

TITLE: Semiconducting properties of ferroelectrics

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki. Pis'ma v redaktsiyu. Prilozheniye, v. 5, no. 1, 1967, 9-12

TOPIC TAGS: barium titanate, ferroelectric material, pn junction, forbidden band, electric polarization, light emission

ABSTRACT: Using the known fact that a ferroelectric crystal such as $BaTiO_3$ is similar to a p-n junction in which the regions of high free-carrier density are separated by a broad dielectric gap, the authors estimate the free-carrier densities in the n and p regions, and the free-carrier and electric-field distributions over the thickness of a $BaTiO_3$ plate. The estimates are made separately for an ideally pure crystal and for a real crystal with impurities. Analysis based on the band structure and on calculations of the induced potential difference lead to the following conclusions. 1. A $BaTiO_3$ crystal connected in an electric circuit will behave like a p-n junction with symmetric current-voltage characteristic. The symmetry of the characteristic is a result of repolarization, which causes the current to flow in one direction relative to the p-n junction. 2. During repolarization, nuclei of the opposite phase

Card 1/2

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

ACC NR: AP7003532

grow through the crystal. At the instant when opposite ends of nuclei meet, recombination takes place and is accompanied by emission of light. The frequency of such emission can be of the order of the width of the forbidden band, corresponding to violet light in the case of $BaTiO_3$. The emission should take place over the entire volume of the crystal and is flash-like. Work aimed at observing this emission is now under way. 3. Thin layers with anomalously high free-carrier density should exist near the surfaces of crystals not equipped with electrodes. Thus, the electric conductivity along the surface should be much higher than in the direction perpendicular to the surface. The authors thank B. M. Vul, V. A. Rassushin, and N. A. Penin for a discussion of the results. Orig. art. has: 3 figures and 4 formulas.

SUB CODE: 20/ SUBM DATE: 29Sep66/ ORIG REF: 002/ OTH REF: 004

Card 2/2

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

188100 1138, 1418, 1454

23758
S/170/61/004/006/014/015
B129/B212

AUTHOR: Ivanchikhin, G. Ye.

TITLE: Experimental investigation of heat conduction and electric conductivity of steel X18H9T(ЭЯ1T) (Kh18N9T(EYa1T))

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, v. 4, no. 6, 1961, 128-131

TEXT: For the experimental investigation of the heat conduction and electric conductivity of steel the author selected the method suggested by Kohlrausch; d - c is applied to a rod located in a cylindrical furnace. First, the author calculates the coefficient of heat conduction and that of the electric conductivity. The experimental setup is shown in Fig. 1. It consists of a thin-walled (0.15 mm) cylindrical furnace a made of tungsten. A test rod (120 mm long and 4.5 mm diameter) is located inside the furnace. Electric heaters are used to diminish the temperature difference between the ends and the center of the rod (at temperatures above 600°C); the heaters are mounted in the sleeves b. The uninterrupted heat removal by the sleeves is done by cooling them with a coolant passing

Card 1/3

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

23758

S/170/61/004/006/014/015
B129/B212

Experimental investigation...

through c. The temperature is measured at three points of the rod (in the center and at distances of 30 cm from it) with Pt - Pt Rh thermocouples with a wire thickness of 0.15 mm. The rod with the welded on thermo-elements is well fitted into a casing made of porous firebrick. Between the electrically heated cylinder and the ceramic part there is a 3 mm air gap across the whole length, which shall prevent an non-uniform heat exchange between them. The whole device is placed into a housing kept under a vacuum of 10^{-4} - 10^{-5} mm Hg. 2800 amperehours were sent through the rod, which were obtained from batteries. A commutator could change the direction of the current. The heat conduction and the electric conductivity had been measured for the steel Kh18N9T up to 1100°C. The coefficient of the heat conduction was measured to be: at 207°C - 15.4; at 389 - 18.55; at 688 - 22.93; at 901 - 26.30 and at 1102°C - 29.58 kcal/m hr °C. There are 2 figures and 3 Soviet-bloc references.

ASSOCIATION: Aviatsionnyy institut, g. Moskva (Aviation Institute, Moscow)

SUBMITTED: December 27, 1960

Card 2/3

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

IVANCHIKHIN, G. Ye.

Experimental study of the electric and thermal conductivity of X18N9T (EIaIT) steel. Inzh.-fiz. zhur. 4 no.6:128-131 Je '61. (MIRA 14:7)

1. Aviatsionnyy institut, Moskva.
(Steel)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

IVANCHIKOV, M. F.

"Mange of Agricultural Animals"
Moscow-Leningrad. Sel'khozgiz, 1951. 40 pages with illustrations.

SO: Vet., Jan. 1952, Unclassified.

The author of this boolet sets as his goal to acquaint wide masses of animal husbandry workers with the agent of mange, with the methods of its spread, with the prevention of the illness, with its timely recognition, treatment and quick eradication on farms.

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

IVANCHIKOV, M. F.

IVANCHIKOV, M. F.: Ringworm in farm animals. Moscow-Leningrad. Agricultural Publishing House, 1952. 40 pages with illustrations. Price 50 kopeks. 30,000 copies.

SO: Veterinariya; 30; (3); March 1953; Uncl. TABCON

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

KUZ'MIN, V.V. and IVANCHIKOV, M.F.

Co-authors, "Laboratory-practical studies in veterinary microbiology." Moscow-Leningrad, Agricultural Publishing House,1953. 116 pages with illustrations; price 3 rubles; bound; 15,000 copies (Textbooks and school equipment for veterinary technical schools).
SO:Veterinariya;Vol. 28;No.11;Nov 1951 uncl deg
TABCON

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

IVANCHIKOV, N. F.

IVANCHIKOV, N. F. - "Some clinical observations and experimental investigations of the effect of penicillin on the organism of animals". Leningrad, 1955. Leningrad Veterinary Inst, Min Higher Education USSR. (Dissertation for the Degree of Candidate of Veterinary Science.)

SO: Knizhnaya Letopis', No. 43, 22 October 1955. Moscow

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

USSR/Farm Animal - General Problems. Q-1

Abs Jour : Ref Zhur - Biol., No 18, 1958, 83319

Author : Ivanchikov, M.F.

Inst : Leningrad Institute of Veterinary Medicine.

Title : Effects of Penicillin upon Sugar and Phosphorus Contents in Blood.

Orig Pub : Sb. rabot Leningr. vet. in-ta, 1957, vyp. 16, 137-140.

Abstract : Intramuscular penicillin injections were administered to 2 groups of cows, consisting of 3 cows each. The 1st group received 2000 units and the 2nd group 3000 units per 1 kg of live weight (a total of 600 thousand to 1 million units). Penicillin caused a decrease in sugar and anorganic phosphorus contents in blood. Amplitudes of blood sugar content fluctuated between +5 and -45 mg percent. Amplitudes of phosphorus blood serum content fluctuated between +0.4 and

Card 1/2

Card 2/2

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

GUBAREVICH, Yakov Grigor'yevich, prof.; IVANCHIKOV, Mikhail Fedorovich, kand.vet.nauk; GOL'DSHTEYN, S.A., red.; CHUNAYEVA, Z.V., tekhn.red.

[Practical manual on veterinary obstetrics, gynecology, and artificial insemination] Praktikum po veterinarnomu akusherstvu, ginekologii i iskusstvennomu osemeneniiu. Moskva, Gos.izd-vo sel'khoz.lit-ry, 1958. 149 p. (MIRA 12:5)
(Veterinary obstetrics) (Artificial insemination)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

SHMIDT, V.A.; IVANCHIKOV, N.A.

Resistance of coarsely porous concrete to the force of impact. Izv.AN Turk.SSR.Ser.fiz.-tekh., khim.i geol.nauk no.3:48-52 '61. (MIRA 14:7)

1. Institut antiseysmicheskogo stroitel'stva AN Turkmenskoy SSR.
(Concrete--Testing)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

IVANCHIKOV, S.

IVANCHIKOV, S.; BORISENKO, M.

Suggestions of readers. Avt.transp. 32 no.7:35 Jl '54.(MLRA 7:9)
(Motor trucks)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

IVANCHIKOV, S., avtolyubitel'

"Vacation" of an automobile. Za rul. 19 no.12:31 D '61. (MIRA 14:12)

(Automobiles--Maintenance and repair)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

06524 SOV/141-58-1-14/14

AUTHOR: Ivanchikov, V. I.

TITLE: On the Problem of Reflection of Electromagnetic Waves from Irregularities of the Epstein Layer Type (K voprosu ob otrazhenii elektromagnitnykh voln ot neodnorodnostey tipa sloyev Epshteyna)

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika, 1958, Nr 1, pp 150-152 (USSR)

ABSTRACT: It is known that when an electromagnetic wave is incident obliquely on a layer whose dielectric constant changes according to the law given by Eq (1), the reflection coefficient is given by:

$$R = \frac{\Gamma(2a)\Gamma(-a-b+d)\Gamma(1-a-b-d)}{\Gamma(-2a)\Gamma(a-b+d)\Gamma(1+a-b-d)}$$

where

$a = is\sqrt{\varepsilon_1 - p^2} = ia'$, $b = is\sqrt{\varepsilon_2 - p^2} = ib'$,

$d = \frac{1}{4} - \sqrt{\frac{1}{4} + \varepsilon_3 S^2}$, $\zeta = kz/S$, $S = 2\pi l/\lambda$, $k = 2\pi/\lambda$

and $p = \sqrt{\varepsilon_1}\cos\varphi$. In the general case when $\varepsilon_2 - \varepsilon_1 \neq 0$,

Card 1/3

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

06524 SOV/141-58-1-14/14

On the Problem of Reflection of Electromagnetic Waves from Irregularities of the Epstein Layer Type

$\varepsilon_3 \neq 0$ and d is real, the reflection coefficient is given by Eq (2). Thus, it is relatively easy to calculate the reflection coefficient for any layer of the family given by Eq (1) if total internal reflection is absent. If $\varepsilon_3 = 0$ and $\varepsilon_2 - \varepsilon_1 \neq 0$ or, conversely, $\varepsilon_2 - \varepsilon_1 = 0$ and $\varepsilon_3 \neq 0$, the reflection coefficient is given by Eqs (3) and (4). Curves 1, 2 and 3 in Fig 1 were plotted, using Eqs (2), (3) and (4). They represent the dependence of the reflection coefficient on the grazing angle φ, for a symmetric, non-symmetric and transition layer respectively. It follows from these calculations that for angles for which the reflection coefficient for a symmetric layer changes between 10% and 100%, the transition layer remains practically non-reflecting. As the symmetric layer degenerates into a transition layer, the range of grazing angles in which high reflection takes place becomes smaller. When the intensity of reflections from plane layered irregularities of the Epstein type are calculated,

Card 2/3

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

06524 SOV/141-58-1-14/14

On the Problem of Reflection of Electromagnetic Waves from Irregularities of the Epstein Layer Type

the true (non-symmetric) ε-profile cannot be replaced by a symmetric profile without introducing considerable errors. The difference between the reflection coefficients for a symmetric and non-symmetric layer for glancing angles between 25' and 35' is $\gg$ 50%. There are 3 figures and 8 references, of which 5 are Soviet, 2 German and 1 English.

ASSOCIATION: Issledovatel'skiy fiziko-tekhnicheskiy institut pri Tomskom universitete (Physico-technical Research Institute of Tomsk University)

SUBMITTED: September 24, 1957.

Card 3/3

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

IVANCHIKOV, V.I., red.; OSOVSKIY, A.T., tekhn.red.

[Papers delivered at the conference devoted to the 100th anniversary of the birth of A.S.Popov] Doklady IUbileinoi nauchno-tekhnicheskoi konferentsii, posviashchennoi 100-letiiu so dnia rozhdeniia A.S.Popova. Tomsk, Izd-vo Tomskogo univ., 1959. 31 p. (MIRA 14:4)

1. Yubileynaya nauchno-tekhnicheskaya konferentsiya, posvyashchennaia 100-letiyu so dnya rozhdeniya A.S.Popova. Tomsk, 1959.

(Radio--Congresses)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

24868 S/109/61/006/007/008/020
D262/D306

9.9000 (1046)

AUTHOR: Ivanchikov, V.I.

TITLE: Some problems of the theory of refraction of electromagnetic waves

PERIODICAL: Radiotekhnika i elektronika, v. 6, no. 7, 1961, 1100 - 1105

TEXT: On the basis of wave concepts the author investigates the determination of incident angles of electromagnetic radiation, when the latter is propagated in a plane - laminated inhomogeneous medium. Starting from the wave-equation

$$\frac{\partial^2 E}{\partial x^2} + \frac{\partial^2 E}{\partial z^2} + k_0^2 \varepsilon(z) E = 0, \qquad (1)$$

a relationship is obtained:

$$\sqrt{[\varepsilon(z) - \varepsilon_0 \sin^2 \vartheta_0]\left[1 + \Theta\left(z, \lambda, \frac{d\varepsilon}{dz}, \vartheta_0\right)\right]^2 + \varepsilon_0 \sin^2 \vartheta_0 \sin \vartheta(z)} = \sqrt{\varepsilon_0} \sin \vartheta_0. \qquad (10)$$

Card 1/5

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

which is an analogue of Snell's law for the case under investigation

$$\theta(z, \lambda, \frac{d\varepsilon}{dz}, \vartheta_0)$$

is a function to be defined later. When

$$\theta(z, \lambda, \frac{d\varepsilon}{dz}, \vartheta_0) \longrightarrow 0$$

one has the extreme case of geometrical optics, where Snell's law holds. The expression under the roots can be treated as the effective dielectric permeability. Then the change in the horizontal range of propagation can be expressed

$$x_0 - x = p \int_{z_0}^{z} \frac{\theta(\zeta)\, d\zeta_0}{[1 + \theta(\zeta)] \sqrt{\varepsilon(\zeta) - p^2}} \qquad (14)$$

The form of the function

$$\theta(z, \lambda, \frac{d\varepsilon}{dz}, \vartheta_0)$$

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

completely determines how the angles and distances depend on wavelength. If $\gamma(z)$ denotes the difference between angles of incidence: $\gamma(z) = \pm[\vartheta_0 - \vartheta(z)]$ then at $\Theta = 0$ and $\vartheta_0 \longrightarrow \pi/2$

$$\operatorname{tg} \gamma_{0\,\text{макс}}(z) = \mp \sqrt{\frac{\varepsilon(z) - \varepsilon_0}{\varepsilon_0}}. \tag{18}$$

At $\Theta \neq 0$ and $\vartheta_0 \longrightarrow \pi/2$

$$\operatorname{tg} \gamma_{\text{макс}}(z) = \mp \sqrt{\frac{\varepsilon(z) - \varepsilon_0}{\varepsilon_0}} \left[1 + \Theta\left(z, \lambda, \frac{d\varepsilon}{dz}, \vartheta_0 = \frac{\pi}{2}\right)\right]; \tag{19}$$

In the case, when

$$\operatorname{tg} \gamma_{\max.}(z) \simeq \gamma_{\max}(z), \quad \operatorname{tg} \gamma_{0\,\max.}(z) \simeq \gamma_{0\,\max.}(z) \tag{21}$$

$$\Theta\left(z, \lambda, \frac{d\varepsilon}{dz}, \vartheta_0 = \frac{\pi}{2}\right) = \frac{\Delta\gamma(z)}{\gamma_{0\,\text{макс}}(z)}. \tag{22}$$

Depending on the ε-profile, Θ can be monotonously increasing or can

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

have extrema. Two examples are then given: 1) Linear ε-profile. a) Case of slowly changing refractive index

$$\left(\frac{d}{k_0} = \frac{1}{2\pi}\frac{d\varepsilon}{dz} \text{ - small}\right)$$

and ϑ_0 not too near to 90°, and b) Case of significant gradients of dielectric permeability and small angles of slide, when θ becomes more complicated. To compare the magnitude of θ for the so-called standard refraction with the case of deep subrefraction and sliding incidence (same wavelength), two further examples are given, where 1) $z = 50$ m, $\vartheta_0 = 89^\circ$, $\varepsilon_1 = 1{,}000645$, $\lambda = 4$ m, $a = d\varepsilon/dz = -8 \cdot 10^{-8} \frac{1}{m}$, and 2) $z = 25$ m, $\vartheta_0 = 90^\circ$, $\lambda = 4$ m, $a = d\varepsilon/dz = 4 \cdot 10^{-7} \frac{1}{m}$. It is proved for small angles of slide that the form of the function of the propagation of dielectric permeability has a determining influence on radiorefraction. All the above relationships can easily be transformed for the case of elastic waves. There are 5 references: 4 Soviet-bloc and 1 non-Soviet-bloc. The reference to the English-

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

24868 S/109/61/006/007/008/020
D262/D306

Some problems of the theory ...

language publication reads as follows: P. Epstein, Reflection of waves in an inhomogeneous absorbing medium. Proc. Nat. Acad. Sci. U.S.A., 1930, 16, 627.

ASSOCIATION: Laboratoriya radiofiziki Sibirskogo fiziko-tekhnicheskogo instituta pri Tomskom gosudarstvennom universitete im. V.V. Kuybysheva (Radiophysics Laboratory of the Siberian Physical-Technical Institute at the Tomsk State University im. V.V. Kuybyshev)

SUBMITTED: September 25, 1960

Card 5/5

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

LEVI, S.M.; SMIRNOV, O.K.; IVANCHIKOVA, A.E.; KOCHNEVA, S.N.

Comet preventing action of wetting agents in the coating of photographic emulsions. Part 5. Comet preventing action of acid esters of the sulfosuccinic acid and their effect on the kinetic wetting. Zhur.nauch. i prikl. fot. i kin. 8 no.2:87-91 Mr-Ap '63. (MIRA 16:3)

1. Nauchnyy institut organicheskikh poluproduktov i krasiteley (NIOPiK) i Vsesoyuznyy nauchno-issledovatel'skiy kinofotoinstitut (NIKFI).
(Photographic emulsions) (Wetting agents) (Succinic acid)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

SMIRNOV, O.K.; LEVI, S.M.; Prinimali uchastiye: PSHENOVA, M.G.; IVANCHIKOVA, A.F.; KOCHNEVA, S.N.; STEPANOVA, T.K.; SHVADCHENKO, L.P.; AVERBAKH, K.O.

Relation between the structure of surface-active substances and their adsorptive capacity. Part 2: Esters of sulfosuccinic and sulfopropionic acid (Na-salts). Koll. zhur. 26 no.3:350-355 My-Je '64. (MIRA 17:9)

1. Nauchno-issledovatel'skiy kino-fotoinstitut i Institut organicheskikh poluproduktov i krasiteley, Moskva.

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

IVANCHIKOV, E. I.

USSR/ Miscellaneous - Publications

Card : 1/1 Pub. 123 - 18/19

Authors : Feoktistova, V, Ivanchikova, E. and Tsinman, M.

Title : Publications of the Acad. of Sc. Kaz. SSR for the years 1952-1953

Periodical : Vest. AN Kaz. SSR 12, 107 - 141, December 1953

Abstract : List of books and periodicals covering various scientific fields, published by the Academy of Sciences Kaz. SSR during the years 1952-1953.

Institution : Acad. of Sc. Kaz. SSR, Alma-Ata

Submitted : ...

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

IVANCHIKOVA, E.I.

DEMESHEVA, G.A.; IVANCHIKOVA, E.I.; KRIVOSHAPKIN, M.A.; LEYCHIK, V.M.; OVSYANKINA, V.I.; FEOKTISTOVA, V.P.; TSINMAN, M.Z.; BEKKULOVA, S.N.; SUBKHANBERDINA, K.Kh.; RUBAKOV, P.I., laureat Stalinskoy premii, spetsial'nyy redaktor; BALANINA, O.V., kandidat sel'skokhozyaystvennykh nauk, spetsial'nyy redaktor; SAKHAROVA, V.M., spetsial'nyy redaktor; KOSENKO, V.V., spetsial'nyy redaktor; ZHIZNEVSKIY, F.V., otvetstvennyy redaktor; BURLACHENKO, L.A., redaktor; ALFEROVA, P.V., tekhnicheskiy redaktor

[Experience of agricultural leaders of Kazakhstan; an annotated bibliography] Opyt peredovikov sel'skogo khoziaistva Kazakhskoi SSR; annotirovannyi ukazatel' literatury. Alma-Ata, 1955. 290 p. (MIRA 9:12)

1. Akademiya nauk Kazakhskoy SSR, Alma-Ata. TSentral'naya nauchnaya biblioteka. 2. TSentral'naya nauchnaya biblioteka Akademii nauk Kazakhskoi SSR. (for Demesheva, Ivanchikova, Krivoshapkin, Leychik, Ovsyankina, Feoktistova, TSinman)
(Bibliography--Kazakhstan--Agriculture)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

IVANCHIKOVA, E.I.; KOLESNIKOVA, M.T.; KONOBRITSKAYA, Ye.M.; KUURYASHOVA, M.M.; KUL'BAYEVA, Sh.N.; MEDVEDEVA, S.G.. Prinimali uchastiye: ABDULLINA, M.N.; KLIMENKO, K.M.; OVSYANKINA, V.I.; SOKOLOV, M.V.; URAZOVA, M.I.; VOROB'YEVA, G.P.. AKHMEDOVA, N.B., otv.red.; NOVOKHATSKIY, I.P., red.; SHEVCHUK, T.I., red.; AYTMUKHAMBETOVA, S.; ROROKINA, Z.P., tekhn.red.

[The Karaganda Economic Administrative Region; bibliography] Karagandinskii ekonomicheskii administrativnyi raion; bibliograficheskii ukazatel' literatury. Alma-Ata, 1959. 458 p. (MIRA 13:2)

1. Akademiya nauk Kazakhskoy SSR. Alma-Ata. TSentral'naya nauchnaya biblioteka.
(Bibliography--Karaganda Economic Region)
(Karaganda Economic Region--Bibliography)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

TROSTOYANSKAYA, Ye.B.; VENKOVA, Ye.S.; Prinimali uchastiye: IVANCHIKOVA, M.S.; POPKOVA, R.M.

Hardening of epoxide adhesive compositions and compounds. Plast. massy no.8:16-18 '61. (MIRA 14:7)
(Epoxy resins) (Adhesives)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

TROSTYANSKAYA, Ye.B.; VENKOVA, Ye.S.; PAVLOVA, A.P.; IVANCHIKOVA, M.S.

Synthesis of hardening polyester acrylates in the presence of insoluble polyelectrolytes. Plast.massy no.2:12-13 '63. (MIRA 16:2)

(Acrylic acid) (Esters) (Electrolytes)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

IVANCHIKOVA, Ye.I.; STAROSTINA, V.N.

Doubling capron thread with cotton on automatic circular hosiery knitting machines. Obm.tekh.opyt. [MLP] no.36:16-17 '57.
(Knitting, Machine) (Hosiery) (MIRA 11:11)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

IVANCHIKOVA, M.; KOKOREVA, A.

Food industry products. Sov. torg. no.8:30-35 Ag '56. (MLRA 9:10)

(Food industry)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

IVANCHIKOVA, N.

FEDOTOV, V.; IVANCHIKOVA, N.; VARNAKOV, I.

Food products in the first volume of the "Commercial Dictionary." A review by V. Fedotov, N. Ivanchikova, I. Varnakov. Sov.torg. no.6:57-59 Je '57. (LDRA 10:8)

1.Glavnyy tovaroved Moskovskogo torga "Gastronom" (for Fedotov). 2.Nachal'nik Moskovskogo upravleniya Gosprodinspektsii (for Ivanchikova). 3.Prepodavatel' Uchebnego kombinata Moskovskogo torga "Gastronom" (for Varnakov).
(Commercial products--Dictionaries)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

IVANCHIKOVA, M. A.

4584. IVANCHIKOVA, M. A. podgotovka stekloposudy i rasfasovka likero - vodochnoy produktsii. m., pishchepromizdat, 1954. 108 s. s ill. 21 sm. (ucheb. posobiye dlya podgotovki kadrov massovykh professiy). 2.000 ekz. 1 r. 75 k.-bibliogr. v kontse knigi. - /55-174/p

663.54/663.84/683.54/016.37

SO: Knizhnaya Letopis', Vol. 1, 1956

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

IVANCHIN, A.A.

8

Pumice stone of the Kabardino-Balkar region. A. A. IVANCHIN. *Mineral. Suiv'a* 5, 1393-1400(1930), *Chem. Zentr.* 1931, I, 2187. The deposit is unsuitable for technical use. Analyses of a series of pumice stones from the region are tabulated. M. G. M.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

1. IVANCHIN-PISAREVA, N. A.

2. USSR (600)

4. Ural Mountains - Coal

7. Regularities of arrangement changes of the petrographic composition of the Mesozoic coal seams in the eastern slope of the Ural Mountains. (Abstract.) Izv.Glav.upr.geol.fon. no. 2, 1947

9. Monthly List of Russian Accessions, Library of Congress, March 1953, Unclassified.

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

IVANCHINOV, A., inzhener.

Enlarged ring loader of the "Donbass" cutter-loader. Mast.ugl. 3 no.11:19-20 N'54. (MLRA 8:3)
(Coal-mining machinery)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

IVANCHINOV, A.

IVANCHINOV, A., inzhener; YUDIN, N., inzhener.

New cutter-loaders in Karaganda. Mast.ugl. 6 no.9:20-21 S '57. (MIRA 10:11)

(Karaganda Basin--Coal mining machinery)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

Ivanchinov, A.M.

MATONIN, P.K.; YUDIN, N.P.; IVANCHINOV, A.M.

Coal mining with a single bar cutter-loader. Mekh.trud.rab. 11 no.1:12-15 Ja '57. (MLRA 10:5)

1.Glavnyy inzhener tresta Kirovugol' (for Matonin). 2.Nauchnyye sotrudniki Karagandinskogo nauchno-issledovatel'skogo ugol'nogo instituta (for Yudin, Ivanchinov).
(Coal mining machinery)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0

IVANCHINOV-MARINSKIY, N.N., student V kursa.

Oscilloscopic indicator for a wave meter. Trudy MEI no.27: 294-299 '58. (MIRA 13:4)
(Microwaves)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618930004-0"