

EDRYST, J.

Metals

✓ Steel pickling in acid solutions. J. Forst, *Prace Inst. Metal.*
Hutn., 1955, 7, 152-156.—The main drawbacks of acid pickling of
 steel are loss of material and diffusion of hydrogen into steel causing
 brittleness and sometimes blisters and discoloration. Addition
 of the pickling bath of L.H-13 (an anthracene fraction) and water
 with 66° Bé H₂SO₄ at 25°, or Tardiol D (dibenzyl sulfoxide),
 Tardiol F (1 part of Tardiol D, 1 part Maromat is proprietary surface
 active agent), 8 parts of anhydrous sodium carbonate or 8 parts of
 sodium chloride), prevents the harmful effects of acids. The
 mechanism of formation of brittleness and problems encountered
 in pickling of silicon steel are also discussed. S. KRÖL.

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FORYST, J.

Distr: 4E2c

27

Influence of the chemical composition of deoxidizer iron-manganese alloy aluminum on the quantity and chemical composition of nonmetallic inclusions in steel L. Ekwyl, W. A. Maciejewski, et al. Prace Instytutu Hutniczego (Gliwice, Poland). Prace Instytutu Hutniczego, 9, 10, 80 (1957) (English summary).—It was found that with the increase of Mn content in the deoxidizing alloy the quantity of nonmetallic inclusions in steel is rapidly decreased. F. explains the advantageous effect of Mn on the physicochem. properties of inclusions. It was also found that the addn. of Al causes the following changes: (1) SiO₂ inclusions are reduced by half, (2) Al₂O₃ is increased, (3) the amt. of FeO is slightly increased, and (4) the total amt. of nonmetallic inclusions increases or remains, at least, on the same level. The latter fact confirms the assumption that inclusions with a high content of Al₂O₃ have less ability to flow out from the steel.

P. J. Herdel

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FCRYST, J.

✓ Comparison of two methods of a preliminary isolation of
 inclusions of oxides of low-carbon steel by electrolysis.
 J. Foryst, J. Orzechowska, and W. A. ~~Wojcik~~ (Inst.
 Met., Gliwice, Poland). *Prace Inst. Metalurgii Hut-
 niczej* 7, 161-5 (1957).—The authors compared the method
 of Kilner and Koch with the method by Pittman as modi-
 fied by Lukaszewicz-Dusznarova, Lova, and Szepka and
 found that both methods when applied to nonalloyed steel
 are in fair agreement. The first method is an improved
 method of Lova and Benedict.
 F. J. Hendel

13

[Handwritten initials and scribbles]

FORYST, J.

TECHNOLOGY

PERIODICAL: HUTNIK, Vol. 25, no. 7/8, July/Aug. 1958.

FORYST, J. Research on nonmetallic inclusions in steel. p. 257.

Monthly List of East European (EEAI) LC Vol. 8, No.4 April, 1959, Unclass.

FORYST, J.

Distr: 4E2c

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¹
 Carbides in annealed and quenched high-speed steels.
 T. Malkiewicz, Z. Bojarak, and J. Foryst. *Prace Inst.
 Hutniczych* 11, 207-8(1956).—Carbides occurring in annealed
 and quenched high-speed steels (I and II) contg.: I, C 0.77,
 Mn 0.42, Si 0.21, P 0.027, B 0.020, Cr 4.00, W 18.79, V
 1.55, Mo 0.20, and II, C 0.81, Mn 0.13, Si 0.14, P 0.013, S
 0.014, Cr 4.54, W 8.52, V 2.20, and Mo 0.10% were examd.
 by metallographic methods, hardness measurements, and
 chem. and x-ray analysis of residue extd. by electrolytic
 methods. The specimens, 10 mm. in diam. and 40 mm. in
 length, were 1st heated to 1000°, then austenitized at 900,
 1000, 1100, or 1200° for 1, 5, 10, or 20 min., followed by oil
 quenching. The content of alloying elements in the matrix
 of both steels studied was the same for the as-annealed or
 for the as-quenched condition. The differences involved the
 phase compn. of carbides and the amt. present. Steel I
 when annealed contained the following types of carbides:
 M_6C , M_3C ; the former being present when quenching
 from 1300° was applied. In steel II in as-annealed condi-
 tion carbides of the type M_6C , M_7C , and MC were found,
 whereas after quenching from 1200° M_6C and MC could be
 observed. The basis phase constituent of the carbides
 present in steels studied appeared to be the M_6C carbide;
 however, its chem. compn. differed in both steels; the M_6C
 carbide present in steel I contained a higher amt. of W.
 During the austenizing annealing the most readily dissolved
 were M_7C and M_3C , the process being completed below
 1100°. A marked dissoln. of W and V in the steel matrix
 started at 1200°. W. Błaszczyk

FORYST, Juliusz, doc. dr; OREKI, Kazimierz, mgr inz.; ORZECOWSKA, J.,
mgr inz.; SELAZKIEWICZ, Jerzy

Testing physicochemical properties of inclusions originating
during deoxidizing steel by Fe-Si and Al deoxidizers. Biul
inf inst metal zel no.1,12-15 '64.

1. Department of Physical Chemistry of Steels of the Institute
of Iron Metallurgy, Gliwice.

FORYST, YU.T.

PAGE 1 BOOK REPAIRATION 207/1558 807/15-8-5

Abstracts book 8081. Institute metallurgii

Metallurgy, metallurgy, physical-chemistry, metal science, physical-chemical research methods in metallurgy and metal science. Issue No 8081, 1980. 521 p. (Series: Iss. Inst. 97. 3) First ed. 11p. Issued. 2,800 copies printed.

Sponsoring Agency: Academy of Sciences, Institute metallurgii, Lenin Av., Moscow, U.S.S.R. Rep. Ed.: I.P. Sereda, Academician (Deceased); Ed. of Publishing House: V.A. Il'mov; Tech. Ed.: T.P. Polubova.

Summary: This collection of articles is intended for metallurgists and metal researchers.

CONTENTS: The collection contains articles on metallurgy, metal science, and physical-chemical research methods. Separate articles discuss the structure and properties of some metals and alloys, the effect of cold treatment and lamellar on the properties of alloys are analyzed, and treatments and rolling, etc., and of oxides and sulfides in ores. Bol'nov, I.S., and A.M. Samarin. Study of the Sulfur Absorption Capacity of Magnesium Oxide and Calcium Oxide.

Por'ko, N.G., V.A. Khar'kovskii, and A.M. Samarin. Effect of Dissolution of Ferrite in Alloy of Vanadium, Silicon, and Aluminum on the Content and Composition of Oxide Inclusions in Steel.

Plakhotnykh, A.S. On the Problem of Filling the Gaps of Mechanical Stress for Increasing the Technology of Smelting and Casting of Steel. Zagreb, 1977. 67 p. On the Question of Crystallization of Some Metallic Inclusions in Steel, and of Oxides and Sulfides in Ores.

Vorlov, A.M. Relation of Coefficients of Ballast-Heat Emission and Radiant-Heat Exchange and a Diagram for Determining These Coefficients.

Magdala, V.S. On the Theory of Production of Iron Drip Cast in the Process of Compounding and Hot-Chamber Annealing.

Magdala, V.S. Crystallization of Sulfur Dioxide at Intermediate Metallurgical Plants.

Pravda, G.S., and Ye. I. Danilova. Comparison of Sulfur Dioxide With the Values and Character of Some of the Intermediate Metals.

Al'tshuler, O.Y., and G.S. Zvirinskaya. Interaction of Selenium With Oxidation of Iron.

Bel'skiy, M.Ye., Z.A. Syrdakubayeva, and L.G. Rozhnits. Study of the Kinetics of the Magnesium Phase of Some Magnesium-Base Alloys.

Sridharan, S.A., and A.L. Talsbender. Effect of Cold Treat on the Properties of Aluminum-Copper and Aluminum-Copper-Magnesium Alloys Under Various Aging Conditions.

Perlov, I.M., and V.Ta. Boris. Dependence of Metal Surface on Change of Deformation Sign During Cold Working.

Perlov, I.M., and V. Ta. Boris. Dependence of Tensile Strength, Notch Toughness, and Specific Elongation on Sign Change of Plastic Deformation of Metal.

Perlov, I.M., and V. Ta. Boris. Dependence of the Microstructure of a Metal on Change in the Plastic Deformation Sign.

Osipov, V.O. Plastic Deformations of Simple Steels.

Sorokina, I.I., and B.S. Polubova. Study of the Heat Resistance of Titanium Alloys With Vanadium, Zirconium, Niobium, Chromium, and Aluminum, by the Method of X-Ray.

Dem'chinskaya, A.Y., and V.O. Gromova. Feasibility Curve of the X-Ray of - α Iron Steels.

ADAMASZEK, Kazimierz; FORYTARZ, Bronislaw; BRAUN, Kazimierz

Pretended-twist spirals, a new device to make pretended-twist
in the drawing field of spinning frames. Przegl wlokien 16
no.2:96-98 F '62.

1. Bielska Fabryka Maszyn Wlokienniczych, Bielsko.

FORYTEK, Lumir

Increasing the efficiency of water blasting machines. Slevarenstvi
11 no.3:118-120 Mr '63.

1. Zavody V.I. Lenina, vyzkum slevarenskych stroju, Brno.

FOS, F. ;MIGLEVSKI, V.

Nomograms and their use in the textile industry. p. 415.
(Tekstil, Vol. 6, No. 5, May 1957, Zagreb, Yugoslavia)

SO: Monthly List of East European Accessions (MEAL) Lc. Vol. 6, No. 8, Aug 1957. Uncl.

FOSCA, V.

3583, Fosca, V., and Alexandrescu, A., Elastic deflection of beams with linear increase of depth (in Romanian), *Indust. constr. Mater. constr.* 7, 6, 351-362, 1956.

Beams having linear one-direction and symmetrical slopes are theoretically investigated. Simplified formulas similar to those with constant moment of inertia are derived and coefficients introduced depending on characteristic variables, such as maximum and minimum depth and moments of inertia, types of the cross section and spans. Values of these coefficients for typical cross sections are tabulated and presented in diagrams. References are made to other methods and publications by Filonenko-Barodici, G. G. Karlson, P. R. Voinea, Krilov. J. J. Polivka, USA

3

JM
MT

FOSEN, BAJEROVA, E.

SOURCE, given above

Country: *Czechoslovakia*

Acad. Post: *MD*

Affiliation: *Infectious Diseases Department (Infekcni oddeleni) Chief Dr. V. ZEMAN; and*

Pathological-Anatomical Department (Patologickoanatomicka oddeleni) Chief Dr. M. SCHNÖP-LESTRAIM; Orszeg Institute for People's Health (OIP), Public Health

Source: *Prague, Prakticky Lekar, Vol 41, No 13-16, Aug 21, 1961; pp 707-71*

Title: *"Unusual Medical Disease with Trifluorid Spora"*

ZEMAN, V. J. MD
FOSENBAJEROVA, E. graduate physician (prom. lekarna)
SCHNÖP-LESTRAIM, M. J. MD

ZIMAK, V.; FOSENBAUEROVA, E.; PEYCHL, L.

Post-vaccination encephalitis. Cas. lek. cesk 100 no.9:264-268 3 Mr '61.

1. Infekcni oddeleni OUNZ Teplice Lazne v Cechach, prednosta prim.
MUDr. V. Zimak.

(SMALLPOX immunol) (ENCEPHALITIS etiol)

PROHAZKA, Vladimir, inz.; FOSENBAUEROVA, Renata

Shape defects of porcelain flatware. Sklar a keramik 15 no.3:
84-86 Mr '65.

1. Research Worksite of the Karlovarsky porcelain National
Enterprise, Brezova.

FOSHER, O. A.

"The Influence Exercised by Microelements on the Growth, Development, and the Decorative Properties of Blossoming Plants."

dissertation defended for the degree of Candidate of Biological Sciences at the Inst. for Botany in V. L. Komarov.

Defense of Dissertation (Jan-Jul 1957)
Sect. of Biological Sciences
Vest. AN SSSR, 1957, v. 27, No. 12, pp. 115-117

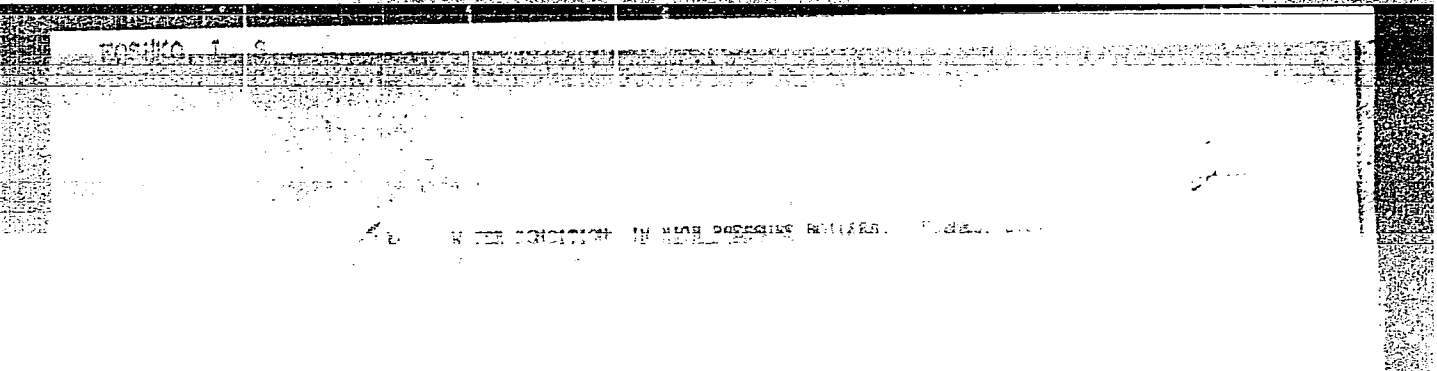
FOSHIN, Sergey Vladimirovich

KURITSKIY, Yeliazar Isayevich; FOSHIN, Sergey Vladimirovich; ANTIK, I.V.,
redaktor; FRIDKIN, A.M., ~~tekhnicheskii~~ redaktor.

[Safety measures in electric industry plants] Tekhnika bezopasnosti
na zavodakh elektrotekhnicheskoy promyshlennosti. Moskva, Gos.
energeticheskoe izd-vo, 1954. 336 p. (MIRA 8:4)
(Electric engineering--Safety measures)

GIRENKO, A.Kh., inzh.; FOSHKO, A.Ye., inzh.

Use of hydrazine in thermal electric power plants. Energ.
i elektrotekh. prom. no.1:51-53 Ja-Mr'64. (MIRA 17:5)



*for
MT*

FGSAKO, L.S.

3

Volumetric determination of sulfates, O. S. VARGHA AND
L. S. FOSBERG. Elek. Stantii, 27 (9) 54-55 (1950) -- Add 1.4 to
~~5-fold excess of~~ titrated solution of BaCl₂ to HCl acidified solu-
tion containing sulfates. Then add alkaline mixture and Tiron
B in an amount equivalent to the added solution of BaCl₂.
Titrate excess Tiron B in the presence of one of the indicators
used in the determination of water hardness with a solution of
magnesium chloride. The analysis requires 7 to 8 min.

Chem

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FOSHRC, L.S.

307/24-55-10-34/34

AUTHOR: Solonov, I. S.
TITLE: Conference on Water Preparation in Thermal Power Stations (O vodopodgotovke na teplovyykh elektrostaniyakh)
PERIODICAL: Investiya Akademii nauk SSSR Otdeleniye tekhnicheskikh nauk, 1958, Nr 10, pp 157-160 (USSR)
ABSTRACT: During June 24-27, 1958, a conference took place on problems of water preparation in thermal power stations of high, intermediate, super-HEM and super-critical pressures. The conference was convened by the Commission on Steam of Very High Parameters of the Power Research Institute, Academy of Sciences USSR, Irkutsk. The USSR Ministry of the Ministry of Power Stations USSR, the USSR Scientific-Technical Society of the power industry. Over 400 representatives of scientific research establishments and of power stations participated. In the action on design, setting and operation of combined plant with magnesium desalting, the following papers were read in setting up and operation of water treatment plants in desalting by means of magnesium, V. P. Syrtse, and tasks in the development of plant for magnesium desalting of water in thermal power stations, V. M. Kvyatkovskiy (VPI)
 1) Schemes of automation of plant with desalting by means of magnesium, Ye. N. Krasotkin and Ye. M. Kvyatkovskiy (VPI).
 2) Problems of designing combined cyclic water treatment plants with magnesium desalting, A. A. Krupnikitskiy (Khar'kovskoe otdeleniye IZM).
 3) Desalting of the water by means of filters, O. N. Sheryakin (VODSSO).
 4) Investigation of the process of magnesium desalting of water at elevated temperatures, L. M. Zhilov (VPI).
 5) Magnesium desalting of water, L. M. Zhilov (VPI).
 6) Investigation of the process of desalting water by means of filters, O. N. Sheryakin (VODSSO).
 7) Investigation of the process of desalting water by means of filters, O. N. Sheryakin (VODSSO).
 In the second section, "Experience in desalting" setting and operation of chemical desalting plant, the following papers were read:
 1) Results of investigations and of industrial tests of chemical desalting plants and prospects of their application in thermal power stations with super-HEM and sub-critical steam parameters, V. G. Fozdorov (VPI).
 2) New units for water preparation, V. G. Fozdorov (VPI) and prospects of their industrial manufacture, A. V. Markov (Institut Khimicheskoy Promyshlennosti, Ufa).
 3) Problems of design of filters for water treatment in power stations, I. M. Gurvich (VPI).
 4) Automation of the desalting process, V. G. Fozdorov (VPI).
 In addition to the above mentioned informative communications of various local representative water treatment plants, it is pointed that during recent years methods of magnesium desalting and of thorough technical desalting of water have gained widespread utilization in Soviet power stations and these plants are playing an important role in the desalting of water. Successful industrial tests of stepwise evaporation together with the application of other methods enabled them to solve the problem of desalting of high pressure steam in boilers, washing of steam generators and other equipment. Reliable and economic methods of desalting which operate with a large tonnage have been developed and also rational tests of the desalting process as well as methods for its design and operation have been developed.

FOSHKO, L.S., insh.; LOSEV, A.S., insh.; PROKHOROV, F.G., kand.tekhn.
nauk

Conditioning water for industrial boiler installations and evaporators by the addition of sodium-chloride ions. Teploenergetika
6 no.1:44-48 Ja '59. (MIRA 12:1)

1. Donbassenergo - Vsesoyuznyy teplotekhnicheskii institut.
(Feed-water purification)

KVIATKOVSKIY, V.M., kand.tekhn.nauk; BAULINA, A.I., inzh.;
FOSHKOV, L.S., inzh.; LITVINOV, V.G., inzh.;
LOSEV, A.S., inzh.

Studying the hot liming process in water enriched with
magnesium compounds. Teploenergetika 7 no.10:47-52 0 '60.
(MIRA 14:9)

1. Vsesoyuznyy teplotekhnicheskiy institut i Donbassenergo.
(Feed water purification)

FOSIKIO, A.

"Improvement of the dynamic characteristics in cross-filed welding dynamos."

p. 340 (Electrotehnicki Vestnik. Electrotechnical Review) Vol. 25,
no. 9/10 Sept./Oct. 1957. Ljubljana, Yugoslavia

SO: Monthly Index of East European Accessions (EEAI) LC. Vol. 7, no. 4,
April 1958

RAYEVSKIY, A.N.; FOSKARINO, T. G.

Climatological characteristics of diurnal maximums of precipitation
in the southern part of the Ukraine. Trudy OGMI no.12:307-337 '58.
(MIRA 12:7)

(Ukraine--Precipitation (Meteorology))

FOSMAN, I.A., mayor meditsinskoy sluzhby

Suitcase for the military physician. Voen.-med. zhur. no.8:87
Ag '61. (MilitA 15:2)

(MEDICAL SUPPLIES)

GOMEL'SKIY, A.Z.; FOSS, E.I., redaktor; LIBERMAN, S.S., redaktor;
ANDREYEV, S.P., tekhnicheskii redaktor

[Workers on the apparatus used in the coke by-product industry]
Apparatchiki koksokhimicheskikh proizvodstv. 2-e izd. Moskva, Gos.
nauchno-tekhn. izd-vo lit-ry po chernoi i tsvetnoi metallurgii,
1953. 384 p. (MLRA 7:10)
(Coal tar products)

GLUZMAN, Igubov' Davydovna; EDEL'MAN, Ita Iosifovna; FOSS, E. I., otvetstvennyy redaktor; SINYAVSKAYA, Ye.K., redaktor izdatel'stva; LIBERMAN, S.S., redaktor izdatel'stva; ANDREYEV, S.P., tekhnicheskiy redaktor

[Laboratory control of the by-product coke industry] Laboratornyi kontrol' koksokhimicheskogo proizvodstva. Izd. 4-oe, perer. i dop. Khar'kov, Gos.nauchno-tekhn.izd-vo lit-ry po cherno i tsvetnoi metallurgii, 1957. 635 p. (MLRA 10:10)
(Coke industry)

KOLYANDR, Lev Yakovlevich; FOSS, E.I., otv.red.; LIBERMAN, S.S., red.
izd-va; ANDREYEV, S.P., tekhn.red.

[Refining of crude benzene] Pererabotka syrogo benzola.
Khar'kov, Gos.nauchno-tekhn.izd-vo lit-ry po chernoi i tsvetnoi
metallurgii, 1960. 319 p. (MIRA 13:9)
(Benzene)

PETRENKO, Dmitriy Sergeevich; FOSS, E.I., otv. red.; LIBERMAN, S.S.,
red. izd-va; ANDREYEV, S.P., tekhn. red.

[Production of pyridine bases in the by-product coke industry]
Proizvodstvo piridinovykh osnovanii na koksokhimicheskikh zavodakh. Khar'kov, Metallurgizdat, 1961. 175 p. (MIRA 15:12)
(Pyridine bases) (Coke industry--By-products)

LITVINENKO, Mikhail Semenovich; NOSALEVICH, Ivan Mikhaylovich; FCSS,
E.I., otv. red.; LIBERMAN, S.S., red. izd-va; ANDREYEV, S.P.,
tekh. red.

[Coke-plant chemicals for the production of polymerials] Khi-
micheskie produkty koksovaniia dlia proizvodstva polimernykh
materialov. Khar'kov, Metallurgizdat, 1962. 428 p.
(MIRA 15:4)

(Coke industry--By-products) (Polymers)

FOSS, G.V.

Prospects for the development of gold prospecting. Sov. geol. 2
no.6:136-138 Je '59. (MIRA 12:12)

1. Ministerstvo geologii i okhrany nedr SSSR.
(Gold ores) (Prospecting)

FOSS, G.V.

Unused reserves. Razved. i okh. nedr 27 no.4:24-26 Ap '61.
(MIRA 14:5)

1. Ministerstvo geologii i okhrany nedr SSSR.
(Gold ores)

FOSS, Gleb Vasil'yevich; POTAPOV, V.S., red. izd-va;
IYERUSALIMSKAYA, Ye., tekhn.red.

[Gold; types of deposits, history of mining, resources]
Zoloto; tipy mestorozhdenii, istoriia dobychi, syr'evye
bazy. Moskva, Gosgeoltekhizdat, 1963. 172 p.
(MIRA 16:6)

(Gold)

PODOL'NIY, Solomon Abramovich; FOSS, Nikolay Yevgen'yevich [deceased];
OPPENGEYM, D.G., red.; ROMANOVA, Z.A., tekhn.red.

[Assistance of the province hospital in organization and methods]
Organizatsionno-metodicheskaya rabota oblastnoi bol'nitsy. Moskva,
Gos.izd-vo med.lit-ry Medgiz, 1960. 81 p.

(MIRA 14:1)

(HOSPITALS--ADMINISTRATION)

Assisted

FOSS, V., inzh. (g.Krasnotur'insk)

Aerated flyash concrete. Izobr.1 rats. no.2:13-14 P '61.
(MIRA 14:2)
(Lightweight concrete)

MONASTYRSKIY, M.D., inzh.. Prinimali uchastiye: FRANK, G.A., inzh.;
FOSS, V.A., inzh.; KALUZHSKIY, M.Ye., inzh.; NAYDENOV, A.P.,
inzh.; POLUBNEVA, V.I., inzh., red.

[Large-panel house built of foamed cinder concrete hardened
without using autoclaves; practices of the "Bazstroi" Sverdlovsk
sovnakhov] Krupno-panel'nyi dom iz neavtoklavnogo zolopenobetona;
opyt tresta "Bazstroi" Sverdlovskogo sovnarkhoza. Moskva, 1959.
15 p. (MIRA 13:6)

1. Akademiya stroitel'stva i arkhitektury SSSR. Institut organi-
zatsii, mekhanizatsii i tekhnicheskoy pomoshchi stroitel'stvu.
Byuro tekhnicheskoy informatsii. 2. Upravlyayushchiy trestom
"Bazstroy" Sverdlovskogo sovnarkhoza (for Monastyrskiy). 3. Na-
chal'nik tsentral'noy laboratorii tresta "Bazstroy" (for Frank).
4. Nachal'nik otdela proizvodstvennykh predpriyatii tresta "Baz-
stroy" (for Foss). 5. Nachal'nik proizvodstvennogo otdela tresta
"Bazstroy" (for Kaluzhskiy). 6. Glavnyy tekhnolog tresta "Baz-
stroy" (for Naydenov).

(Sverdlovsk Province--Apartment houses) (Lightweight concrete)

FRANK, G.A., inzh.; FOSS, V.A., inzh.; LEVITSKIY, M.V., inzh.

Large cinder concrete blocks. Rats.i izobr.predl. v stroi.
no.10:19-22 '59. (MIRA 12:11)

1. Proyechnaya kontora Basstroyproyekt. (for Levitskiy).
Po materialam tresta Basstroy Sverdlovskogo sovnarkhoza.
(Cinder blocks)

Foss, V. L.

USSR/Chemistry - Synthesis

Card 1/1 Pub. 22 - 22/48

Authors : Lutsenko, I. F., and Foss, V. L.

Title : Reaction of ketene acetals with mercury acetate. Derivation of alpha-mercurated carboxylic acid esters.

Periodical : Dok. AN SSSR 98/3, 407-410, Sep 21, 1954

Abstract : The reaction between ketene acetals and mercuric acetate was investigated for the purpose of developing a general method for the synthesis of alpha-mercurated carboxylic acid esters. The physico-chemical properties of products obtained from such a reaction are described. The effect of metal chlorides (CdCl_2 , AlCl_3 and HF), on the polymerization of ketene acetals, is explained. The results obtained, with less reactive chloro- and bromoketene acetals, are listed. Nine references: 5-USA; 2-German and 2-USSR (1900-1953).

Institution : The M. V. Lomonosov State University, Moscow

Presented by: Academician A. N. Nesmeyanov, June 3, 1954

AUTHORS: Lutsenko, I. F., Badenkova, L. P. and Foss, V. L. 79-12-18/43

TITLE: Reaction of α -Alkoxyakrylnitriles with Mercury Acetate
(Vzaimodeystviye α -alkoksiakrilonitrilov s uksusnokisloy rtut'yu).
The Synthesis of Esters of Monomercury Acetate
(Polucheniye efirov monomerkurovannoy uksusnoy kisloty).

PERIODICAL: Zhurnal Obshchey Khimii 1957, Vol. 27, Nr 12, pp. 3261-3264
(USSR)

ABSTRACT: The acetals of ketene ($\text{CH}_2=\text{C}=\text{O}$) which show highly active double bond do not produce monomercury esters on the occasion of reaction with mercury acetate. It was interest to investigate whether such esters can be obtained by action of mercury acetate on α - alkoxyacrylustriles ($\text{CH}_2=\text{C}(\text{OR})\text{CN}$). In these compounds to be regarded as acetals of ketene with which one alkoxygroup is substituted by the nitrile group the double bond is considerably weakened in comparison with the acetals of ketene and even with the simple vinylesters. While vinylbutylesters with mercury acetate reacts strongly, the reaction with α - butooxyakrylnitrile takes several hours. The connection of the mercury acetate to the α - alkoxyakrylnitriles is interesting also because it is a "competing orientation

Card 1/2

Reaction of α -Alkoxyakrylnitriles with Mercury Acetate.
The Synthesis of Esters of Monomercury Acetate.

79-12-18/43

of addition" in the aliphatic order which is very little investigated. On the basis of the knowledge on this orientation in the aromatic series it could have been expected that the direction of addition will be determined by the alkoxy-group and that a mercury atom will thus bind with the CH_2 group of the α - alkoxyakrylnitrile. The organic compound of mercury occurring as intermediate product with three different substituents in one carbon atom continues its decay which leads to the ester of monomercuryacetate (see formula). Methyl-, ethyl-, propyl-, and butylesters of the monomercuryacetate were synthesized in this way. These compounds are precipitated from the methylalcoholic solutions as crystals and show distinctive melting point. There are 1 table, and two references, 1 of which is Slavic.

SUBMITTED: November 28, 1956

AVAILABLE: Library of Congress

1. Esters - Synthesis
2. α -alkoxyakrylnitriles - Chemical reactions
3. Mercury acetate - Chemical reactions
4. Cyclic compounds - Chemical reactions

Card 2/2

LUTSENKO, I.F.; FOSS, V.L.; IVANOVA, N.L.

Reaction of ketene with mercury salts. Dokl. AN SSSR 141 no.5:
1107-1108 D '61. (MIRA 14:12)

1. Moskovskiy gosudarstvennyy universitet im. M.V. Lomonosova.
Predstavleno akademikom A.N. Nesmeyanovym.
(Ketene) (Mercury salts)

FOSS, V.L.; KUDINOVA, V.V.; POSTNIKOVA, G.B.; LUTSENKO, I.F.

Derivatives of β -ketophosphinic acids. Dokl. AN SSSR 146 no.5:
1106-1108 0 '62. (MIRA 15:10)

(Phosphinic acid)

FCSS, V.L.; ZHADINA, M.A.; LUTSENKO, I.F.; NESMEYANOV, A.N.

Reaction of ketene with quasiocomplex compounds of mercury.
Zhur.ob.khim. 33 no.6:1927-1933 Je '63. (MIRA 16:7)

1. Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova.
(Ketene) (Mercury compounds)

FOSS, V.L.; BESOLOVA, Ye.A.; LUTSENKO, I.F.

Reaction of esters of antimonous acid with ketene. Zhur. ob.
khim. 35 no.4:759-760 Ap '65.

(MIRA 18:5)

ACC NR: AP7012427

SOURCE CODE: UR/0079/66/036/010/1863/186

AUTHOR: Kudinova, V. V.; Foss, V. L.; Lutsenko, I. F.

ORG: Moscow State University in. M. V. Lomonosov (Moskovskiy gosudarstvennyy universitet)

TITLE: New methods of synthesizing functionally substituted organic arsenic derivatives

SOURCE: Zhurnal obshchey khimii, v. 36, no. 10, 1966, 1863-1864

TOPIC TAGS: acetic acid, organic arsenic compound

SUB CODE: 07

ABSTRACT: The authors developed a number of methods for the preparation of alpha-arsenated ketones, esters, and amides of acetic acid. The first representative of alpha-arsenated ketones -- phenyldi (butanone-2-yl-1(arsine)) -- was prepared by boiling phenylarsenic sulfide with mercuribis-methyl ethyl ketone in xylene. The methyl ester of di(carboxymethyl)phenylarsine was prepared 1) by heating phenylarsenic sulfide with the methyl ester of mercuribisacetic acid and 2) by heating phenyldichloroarsine with the methyl ester of triethylstannylacetic acid. Other esters of di(carboxymethyl)-phenylarsines were prepared analogously. The diethylamide of dipropylarsylacetic acid was

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UDC: 547.242

09327 137c

ACC NR: AP7012427

prepared by the exothermic reaction of ketone with diethylaminodipropylarsine. The organoarsenic compounds were prepared in 50-60% yields, and their structures were confirmed by infrared spectroscopy. Orig. art. has: 4 formulas and 1 table. [JPRS: 40,422]

2/2

FOSSEL, M.

Phase contrast studies of spermatozoa. Mikroskopie 6 nos. 7-8:260-261
1951. (CINL 21:1)

1. Of the Institute of Forensic Medicine of Graz University.

MARCHENKO, Ye. Ya.; GONCHAROVA, Ye. I.; Prinimali uchastiye: CHASHKA,
A. I.; FOST, A. L.

Role of halogens in the formation and subsequent change of
monazite of pneumatolytic-hydrothermal genesis. Dokl. AN
SSSSR 155 no. 2:349-352 Mr '64. (MIRA 17:5)

1. Institut mineral'nykh resursov, Simferepol'. Predstavleno
akademikom V. S. Sobolevym.

FOST, 44. IV.

Ф. Е. Новиков

Проблемы теории и полупроводниковых диодов при прохождении через них в режиме выпрямления импульсов тока малой длительности

Л. С. Баран

Проблемы теории работы диодов при прохождении в полупроводниковых диодах при больших токах

А. И. Зарин

Исследования работы элементов полупроводниковых диодов в режиме инвертирования сигнала при больших токах (Шмак)

М. А. Вайс

Проблемы теории работы элементов полупроводниковых диодов

С. А. Герман

Полупроводниковые диоды с пространственной неоднородностью в их структуре и радиационной стойкости

(8 часов)

(с 10 до 18 часов)

Содержание лекции с анализом экспериментальных данных

В. И. Гурьев

Динамический режим работы полупроводниковых диодов

А. Ю. Герман

Е. В. Галанин

Е. И. Зарин

Г. В. Котельников

В. А. Калашин

Специальные вопросы теории полупроводниковых диодов

Л. В. Новиков

Т. И. Агапкин

В. С. Волков

В. А. Гурьев

В. И. Калашин

В. И. Зарин

А. Г. Фомин

В. И. Фост

Комплекс полупроводниковых диодов и их роль в полупроводниковых приборах

В. И. Калашин

Формы сигнала импульса в транзисторном контуре с обратной связью и учетом нелинейной емкости индуктора

report submitted for the Confidential Meeting of the Scientific Technological Society of Radio Engineering and Electrical Communications in. A. S. Popov (VNER), Moscow, 8-12 June, 1957

В. А. Гребенев,
В. Н. Косинин,
В. Н. Лобанов,
А. Г. Фельдман,
В. Н. Фост.

Комплекс ополупроводниковых элементов и узлы цифровой вычислительной техники

10 июня
(с 10 до 22 часов)

А. А. Исаев

Металлы резисторы устройства на ферритовых сердечниках

Ю. Н. Шамов

Одноконтурные резисторы с ферритовыми сердечниками и трансформаторный метод изготовления

И. В. Карамзин

В. С. Горюнов

Индуктивно-емкостные вычислительные элементы аркадного типа

А. А. Гинз

О резисторах с ферритовыми сердечниками

66

11 июня
(с 10 до 16 часов)

З. Н. Заволожко

Сеточки на ферритовых сердечниках

В. А. Манчин

Применение одноконтурных ферритовых резисторов с ферритовыми сердечниками в схемах вычислительной и коммутационной техники

И. В. Карамзин

Магнитный ферритовый сердечник для резистора магнитного элемента

С. И. Заволожко

В. Д. Водопьянов

Трехфазный импульсный источник питания сигнала для вычислительной техники на ферритах

11 июня
(с 10 до 22 часов)

В. Н. Шамов

Замкнутые цепи для вычислительной техники

66

Report submitted for the Centennial Meeting of the Scientific Technological Society of Radio Engineering and Electrical Communications in A. S. Popov (VPERE), Moscow, 6-18 June, 1959

FISI, Y.M.A.

Some properties and applications of dielectric capacitors with current
determined by the space charge. Izv. vys. shk. fiz. i matemat. 7
no. 3: 105-118. JJ-3-164. (NIRA 17:11)

L 08725-67 EWT(d)/EWP(1) IJP(o) BB/GG
ACC NR: AP6033216 SOURCE CODE: UR/0142/66/009/004/0492/0496

AUTHOR: Arkhangel'skiy, A. Ya.; Lebedev, V. I.; Post, Yu. N.

ORG: none

TITLE: ^{16c} Register with silicon transistors in a microregime

SOURCE: IVUZ. Radiotekhnika, v. 9, no. 4, 1966, 492-496

TOPIC TAGS: computer memory, transistorized circuit, TRIGGER CIRCUIT

ABSTRACT: A low-power, solid-state dynamic register is described. The register (see Fig. 1.) uses P502 V transistors and D523 B diodes. MLT resistors R and R₁ are 30 and 100 kΩ, respectively. Each trigger uses about 1 mw of power; adjacent stages are coupled with diodes. The fan-out of the register is three (n = 3). A five-stage register was tested with n = 3 and 4. The lower limit of the clock oscillator pulse amplitude was raised (nominal amplitude is 8 v) for n = 4 at an operating temperature of 22C; it was further raised for a temperature of -60C. The operating temperature range of the register is +60C.

Card 1/2

UDC: 621.374.325.4:621.382.3

L 08725-67

ACC NR: AP6033216

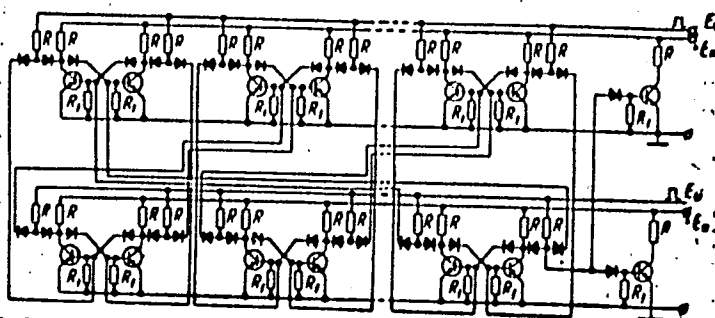


Fig. 1. Schematic diagram of an n-stage register

Resistor and supply voltage tolerances are $\pm 20\%$. The total power consumption of the register is 10 mw. Orig. art. has: 4 figures and 2 tables.

SUB CODE: 09/ SUBM DATE: 23Nov64/ ORIG REF: 001/ OTH REF: 004

Card 2/2 net

16.6.800

35889

S/044/62/000/002/087/092
G111/G333

AUTHOR: Foster, F. G.

TITLE: Queues with batch arrivals

PERIODICAL: Referativnyy zhurnal, Matematika, no. 2, 1962, 76,
abstract 2V431. ("Acta math. Acad. scient. hung.", 1961,
12, no. 1-2, 1-10)

TEXT: Into a single-channel system of mass service with exponentially distributed service time with the average μ^{-1} there enter in the moments τ_n exactly r demands each time, $\tau_{n+1} - \tau_n \geq 0$ are independent random variables

$$P\{\tau_{n+1} - \tau_n \leq x\} = F(x), \quad \varphi(s) = \int_0^{\infty} e^{-s\lambda} dF(x),$$

$$\alpha = \int_0^{\infty} x dF(x) < \infty,$$

$\lambda = \alpha^{-1}$, $\xi = \frac{r\lambda}{\mu} < 1$. Let $\xi(t)$ be the number of demands being in the system in the moment t ,
Card 1/3

Queues with batch arrivals

S/044/62/000/002/087/092
C111/C333

$$p_j = \lim_{t \rightarrow \infty} P \{ \sum_{n=1}^t (\tau_n - 0) = j \}, P(z) = \sum_{j=1}^{\infty} p_j z^j$$

$K(z) = \varphi(\mu(1-z))$. It is proved

Theorem 1: $P(z) = \prod_{j=1}^r \frac{1 - \delta_j}{1 - \delta_j z}$, where δ_j are the roots of the equation

$K(z) = z^r$ in the circle $|z| = 1$, where multiple roots are not excluded. As an example it is shown that in the case of a Poisson input flow the formula attains the form

$$P(z) = \frac{(1-r\rho)}{1-z} \frac{(1-z)}{\{1+\rho(1-z^r)\}}$$

for $P(z)$. If $\eta(t)$ is the waiting time of the first part in the group,

$$W(x) = P \{ \eta(\tau_n - 0) \leq x \}, \Omega(s) = \int_0^{\infty} e^{-sx} dW(x)$$

Card 2/3

J

Queues with batch arrivals

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then it is proved:

Theorem 2:

$$\Omega(s) = \prod_{j=1}^r \frac{1 - \gamma_j}{1 - \frac{\gamma_j \mu^j}{\mu + s}}$$

Finally, it is referred to the connection with the queue in a single-channel system, where the input flow has a bounded aftereffect and the service times have an Erlang distribution.

[Abstracter's note: Complete translation.]

Card 3/3

FOSTIKOV, A.T.

Project drawn up for terracing the slopes according to the expeditious survey data. Rev geodezie 7 no.3:56-64 '63.

1. Societatea tehnico-stiintifica pentru agricultura si sivilcultura din R.S.S. Moldoveneasca.

BOŠKOVIC, Radojka; FOŠTIKOV, Boris

Exacerbation in patients early treated with antibiotics.
Tuberkuloza, Beogr. 11 no.3:350-353 '59.

1. Gradska bolnica za grudobolne Bezanijska Kosa, Zemun, upravnik:
prim. dr Lj. Ilic.
(TUBERCULOSIS PULMONARY ther.)

FOSTIKOV, Boris; DRAGANIC, Julijana; VRANJESEVIC, Gordana

Complications in the treatment of pulmonary tuberculosis with
pyrizamide. Tuberkuloza 15 no.2:263-265 Ap-Je '63.

1. Gradska bolnica za grudobolne, Bezanijska Kosa - Upravnik:
prim. dr Ljubisa Ilic.

(PYRIZAMIDE) (TUBERCULOSIS, PULMONARY)
(LIVER DISEASES)

S

FRANJEVIC, Boris; DRAGANIC, Julijana; VRANJISEVIC, Gordana

Complications in the treatment of pulmonary tuberculosis with pyrazinamide. Srpski arh. celok. lek. 91 no.12:1157-1164 D '63.

1. Bolnica za grudobolne, Bezanijska Kosa - Zemun (Upravnik: prim. dr. Ljubisa Ilic).

Country : Romania H-28
Category :
Abs. Jour. : 7641
Author : Festirepci, A.; Rautu, R.
Institut. :
Title : Determination of Neutralizing Substances in Milk
Orig. Pub. : Igiena, 1957, 6, No 3, 230-235

Abstract : The possibility was investigated of utilizing the method of Fice and Pfeiffer (Dtsch. Milchz., 1935, 65, 437), Zerkow für Untersuchung der Lebensmittel, 1935, 65, 437), and Bernovskaya-Zelenkova (RZMZhM, 1955, No 19, 43312), for detection of neutralization of milk with curdles. It was found that in the instances when the first mentioned method yields uncertain results, the last mentioned method can be successfully used to establish the fact of neutralization of the milk (not, however, for a quantitative determination). -- A. Marin.

Notes:

RUMANIA / Chemical Technology, Chemical Products and Their Application, Part 1. - Water Treatment Sewage. H

Abs Jour: Ref Zhur-Khimiya, No 18; 1958, 61380.

Author : T. Ionescu, C. Fostiropol, M. Goruneanu, V. Cristoloveanu.

Inst : Polytechnical Institute Bucharest.

Title : Treatment of Water by Coagulation in Presence of Activated Silica.

Orig Pub: Bul. Inst. politehn. Bucuresti, 1956, 18, No 1 - 2, 59 - 64.

Abstract: Experimental results of water coagulation in the presence of activated silica (AS) are presented. $Al_2(SO_4)_3$, $Fe_2(SO_4)_3$ and $FeSO_4$ were used as coagulants. AS was prepared by adding 3%-ual H_2SO_4 drop by drop to a freshly prepared

Card 1/3

RUMANIA / Chemical Technology, Chemical Products and H
Their Application, Part 1. - Water Treatment
Sewage.

Abs Jour: Ref Zhur-Khimiya, No 18, 1958, 61380.

Abstract: aqueous Na_2SiO_3 solution at continuous stirring till alkalinity was partially or completely neutralized. The solution was aged till opalescence appeared and distilled water was added to it to the concentration of SiO_2 of 1% or less. Solutions with pH = 6 to 8 were used. Water of the hardness of 3.4 mg-equ. per liter and turbidity of 1000 to 1200° (artificially prepared and natural) was coagulated. It was found that coagulation with $\text{Al}_2(\text{SO}_4)_3$ without AS did not clear water completely even in 3 hours. In the case that AS was present simultaneously, the water turbidity dropped to 1° in 1 to 2 hours. The necessary consumption of

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9

BURLAKOV, Vasiliy Nikolayevich, inzh.; FOSTIY, Yevgeniy Aleksandrovich,
inzh.; REZNIKOV, V.T., inzh., retsenzent; SEMENENKO, M.D., inzh.
red. izd-va; BEREZOVYY, V.N., tekhn. red.

[Mine timberer]Krepil'shchik gornyykh vyrabotok. Kiev, Gos.izd-
vo tekhn. lit-ry USSR, 1962. 151 p. (MIRA 16:1)
(Mine timbering)

POST YELCHENKO, V.V.

Primeneniye Otboynykh Molotkov Na Kashpirskom Rudnike, Goryuchiye Slantsy,
1932, No. 10, 29;

SO: Goryuchiye Slantsy #1934-35, TN .871
G .74

ROTTER, Leo, FOCUM, Jiri

Properties of molding binding mixtures with water glass and bentonite. Slevarenstvi 12 no.11:444-448 N '64.

1. Smeralovy zavody, Brno and Zavody V.I.Lenina, Ceske Budejovice.

ROTTER, Leo; FOSUM, Jiri

Surface drying of molds made from binding molding mixture with water glass and bentonite. Stvarnost' 13 no.2:57-62 F '65.

1. Smeralovy zavody National Enterprise, Brno and Zavody V.I. Lerina National Enterprise, Ceske Budejovice.

RUMANIA/Farm Animals - Honey-Bees.

q-8

Abs Jour : Ref Zhur - Biol., No 1, 1958, 2675

Author : Iancu Fota

Inst : -

Title : The Flowers of the Edible Chestnut as an Important Source of Honey.

Orig Pub : Apicultura, 1957, No 2, 9-10

Abstract : In the Tisman mountains (Rumania) the chestnut trees begin to bloom in mid-June. The blossoms last for about 15 days. In 1953, 80 colonies of bees were brought to the forest and located in two places at a distance of 800 meters from each other. These colonies gathered 600 kilograms of honey which proved to be a satisfactory winter reserve for the bees.

Card 1/1

FOTACHE, Grigore, ing.

Let's manage the electric power with care. Constr Buc 15
no.728:2 21 D '63.

1. Seful serviciului energetic al Fabricii de ciment Bicaz.

L 47247-65 EWP(t)/EPI IJP(c) JD

ACC NR: A96034313

SOURCE CODE: RW/0017/66/000/002/0077/0079

AUTHOR: Fotache, I. (Engineer); Radulescu, I. (Engineer)

23

ORG: "Progresul" Works, Braila (Uzinele "Progresul")

B

TITLE: Use of molybdenite as a substitute for ferro-molybdenum

SOURCE: Metalurgia, no. 2, 1966, 77-79

TOPIC TAGS: metallurgic furnace, molybdenum steel

ABSTRACT: The authors report on the successful use of molybdenite in the smelting of molybdenum steels. Tests at the "Progresul" Works gave excellent results in electric furnaces, and under proper conditions and to a more limited extent also in Martin furnaces. Orig. art. has: 1 figure, 3 formulas and 1 table. [Based on authors' Eng. abst.] [JPRS: 36,867]

SUB CODE: 11, 13 / SUBM DATE: none / ORIG REF: 001

Card 1/1 *gl*

UDC: 669.15.28-194

BREZINA, B.; FOTCENKOV, A.A.

The influence of a surface layer on the 180° switching of BaTiO_3 single crystals. Chekosl fiz zhurnal 14 no.1:21-25 '64.

1. Institute of Physics, Czechoslovak Academy of Sciences, Praha 8, Lumumbova 8 (for Brezina).

2. Institute of Physics, Academy of Sciences U.S.S.R., Krasnoyarsk (for Fotcenkov).

FOTChENKO, G. T., Cand Agri Sci — (diss) "Certain data on the composition
and food value of corn and corn silage in the Omsk Oblast," Omsk, 1960, 18 pp,
200 cop. (Omsk Agricultural Institute im S. M. Kirov) (KL, 44-60, 132)

ACCESSION NR: AP4035J77

Z/0055/64/014/001/0021/0025

AUTHOR: Brezina, B.; Fotcenkov, A. A.

TITLE: The influence of a surface layer upon the 180 degree switching of BaTiO sub 3 single crystals

SOURCE: Chekhoslovatskiy fizicheskiy zhurnal, v. 14, no. 1, 1964, 21-25, 76a-b

TOPIC TAGS: switching, clamping, d-c restoration, switching diode, crystallography, BaTiO sub 3 crystal, anti-parallel domain, solid state physics, BaTiO sub 3-KF system, LiCl electrode

ABSTRACT: The effect of a BaTiO₃ single crystal surface layer on 180° switching was found. BaTiO₃ single crystals without admixtures, which were grown from a BaTiO₃-KF system, were used. Crystals with a perfect surface and without internal stress were c-dominated by a d-c electric field for a maximum of 1 sec. The crystals were examined by the microscopic method described by R. C. Millers and A. Savage (Journal of Applied Physics, 31 (1960), 662). A continually increasing voltage of a constant rate of 10 volts/min was applied to liquid LiCl electrodes in the direction of the crystal's c-axis. After the application

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ACCESSION NR: AP4035377

of the electric field, the nucleating and moving anti-parallel domain walls are visible when crossed Nicol prisms are used. The surface layer was successively etched from one or both sides simultaneously in concentrated H_3PO_4 at 140-150 C. The surface layer on $BaTiO_3$ crystals causes the formation of a large number of anti-parallel domains during switching by a d-c electric field. These domains extend sideways only insignificantly. Conversely, the switching in crystals without a surface layer is characterized by the formation of a small number of anti-parallel domains in which the sideways motion of the wall predominate. A long-term polarization (about 10 hours) with a d-c field of 10 to 15 kilovolts/cm has an effect which is similar to etching a surface layer on both sides. The maximum displacement rate of the 180° wall in etched crystals was in the direction of the crystallographic a axis. The minimum was in the direction forming a 45° angle with the a axis. Hence, primarily square domains with inwardly bending sides are produced from the original point domains. Authors conclude that they cannot at present make any further conclusive statements concerning the fact that the number of the nuclei of anti-parallel domains can be influenced by prolonged polarization of $BaTiO_3$ single

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ACCESSION NR: AP4035377

crystals by a d-c field. The relatively long periods of d-c field application which are necessary for the change described indicate the presence of ion exchange processes in the electric field which obviously effect the surface layer. "The authors thank J. Fousek C. Sc. and K. Patek C. Sc. for valuable discussions and H. T. Arend C. Sc. and J. Jary for preparing the crystals."
Orig. art. has: no graphics.

ASSOCIATION: Institute of Physics, Czech. Academy of Sciences, Prague;
Institute of Physics, Academy of Sciences, SSSR, Krasnoyarsk

SUBMITTED: 02Apr63

DATE ACQ: 26May64

ENCL: 00

SUB CODE: SS, EC

NO REF SOV: 000

OTHER: 011

Card 3/3

AUTHOR: Fotchenkov, A.A.

70-5-14/31

TITLE: Apparatus for Measuring Extremely Small Displacements of Oscillating Crystals (Ustanovka dlya izmereniya ves'ma malykh smeshcheniy koleblyushchikhsya kristallov)

PERIODICAL: Kristallografiya, 1957, Vol.2, No.5, pp. 653 - 657 (USSR)

ABSTRACT: The crystal plate specimen which is to be investigated is mounted behind the stationary mirror of a Michelson interferometer and is excited at an audio-frequency in a thickness mode by an alternating voltage applied across evaporated silver electrodes. The fringe system is projected onto a slit and one line is allowed to fall on a photomultiplier cathode. The photomultiplier current is amplified and the component at the frequency of the exciting oscillator is measured. The displacement of the fringe system is proportional to the change in thickness of the crystal specimen. The minimum displacement measurable is about 0.05 Å. The illumination employed is a cinema projection lamp of 300 W and the wavelength band between 5 100 and 5 290 Å is passed into the interferometer by an interference filter. The tuned amplifier has a pass band of 10 Kc/s (sic ! 10 c/s is probably meant) in the range 20 - 26 000 c/s. Electronically stabiliser power supplies are used. When Card1/3 conducting an experiment the interferometer is set to zero path

70-5-14/31

Apparatus for Measuring Extremely Small Displacements of Oscillating Crystals.

difference and the max. and min. values of I (the intensity of illumination falling on the cell) when the compensating plate is slightly moved are read. If dI represents the alternating component of light intensity, the displacement of the crystal is given by:

$$(dI)_{\max} \lambda / \pi (I_{\max} - I_{\min}) .$$

As a test, an X-cut plate of quartz, 2 mm thick and 18 mm in diameter was used. The modulus d_{11} was measured at

3 000 c/s using a voltage of 100 which produced a displacement of 3.1 Å. Acoustic and electrical interference limited the sensitivity to 0.5 Å but at night 0.05 Å could be attained.

d_{11} was found to be $6.57 \pm 0.07 \times 10^{-8}$ c.g.s.u. The method is recommended for measuring piezoelectric and electrostrictive effects, their temperature and frequency dependences and studying polarisation and phase transition phenomena in ferroelectrics. Acknowledgments to I.S. Zheludev and to colleagues of the Gorkiy Scientific Research Radio-Physics Institute (Gorkovskiy nauchno-issledovatel'skiy radio-fizicheskiy institut)

Card2/3

70-5-14/31

Apparatus for Measuring Extremely Small Displacements of Oscillating Crystals.

There are 2 figures and 5 Slavic references.

ASSOCIATION: Institute of Crystallography Ac.Sc. USSR.
(Institut Kristallografii AN SSSR)

SUBMITTED: May 24, 1957.

AVAILABLE: Library of Congress.
card 3/3

AUTHORS: Zheludev, I.S. and Fotchenkov, A.A. 70-3-3-9/36
 TITLE: The Electrostriction of Linear Dielectrics (Elektrostriktsiya lineynykh dielektrikov)
 PERIODICAL: Kristallografiya, 1958, Vol 3, Nr 3, pp 308 - 314 (USSR).

ABSTRACT: Four possible equations for the electrostriction of linear dielectrics are derived and lead to the examination of the new coefficients R_{ijmn} , G_{ijmn} (written C erroneously in one place) and H_{ijmn} . By the method of linearisation of electrostriction the electrostriction coefficients R_{ijmn} were measured for eskapon (GASH), NaCl and Z-cut quartz. In a non-piezo-electric dielectric the equations used are

$$r_{ij} = Q_{ijmn} d_m d_n / t_{ij} = 0, \quad t_{ij} = -H_{ijmn} E_m E_n / r_{ij} = 0,$$

$$r_{ij} = -R_{ijmn} E_m E_n / t_{ij} = 0 \quad \text{and} \quad t_{ij} = G_{ijmn} d_m d_n / r_{ij} = 0.$$

d_m is the induced electric induction, E_m is the electric
 Card 1/3

The Electrostriction of Linear Dielectrics

70-3-3-9/36

field, r_{ij} the mechanical deformation and t_{ij} the mechanical stress. Q , H , R and G can be expressed as derivatives,

$$\text{as: } Q_{ijmn} = -1/2 \frac{\partial^2 E_m}{\partial t_{ij} \partial d_n}, \text{ etc.}$$

Relations can also be found between the various electrostriction coefficients in terms of, for example, the dielectric susceptibility measured at constant stress, compliance for constant E and D , etc. The electrostriction tensor has 21 components and Laval's theory is not applied here. The notation is condensed by denoting $E_1 E_1$ by E_1 etc. $E_2 E_3$ by E_4 ,

$E_3 E_1$ by E_5 , $E_1 E_2$ by E_6 . This tensor is quite analogous to the compliance tensor s_{ij} .

The apparatus used for measurements has been described (Kristallografiya, 1957, Vol 2, Nr 5, pp 653 - 657) and works on the principle of modulation interferometry permitting the measurement of displacements to 0.05A.

Card2/3 For Z-cut quartz R_{33} was found to be $(0.1 \pm 0.05) \times 10^{-14}$ cgsu.

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for GASH $R_{11}=R_{22}=R_{33} = (0.8 \pm 0.05) \times 10^{-14}$ cgsu

$R_{12}=R_{13}=R_{23} = -(0.4 \pm 0.05) \times 10^{-14}$ cgsu

$R_{44}=R_{11}=R_{12} = (1.2 \pm 0.05) \times 10^{-14}$ cgsu

For NaCl $R_{11}=R_{22}=R_{33} = (0.9 \pm 0.05) \times 10^{-14}$ cgsu

$R_{12}=R_{13}=R_{23} = -(0.45 \pm 0.05) \times 10^{-14}$ cgsu

$R_{44} = (0.3 \pm 0.05) \times 10^{-14}$ cgsu

Acknowledgments to A.V. Shubnikov.

There are 6 figures and 13 references, 4 of which are Soviet and 7 English, 2 French.

ASSOCIATION: Institut kristallografii AN SSSR
(Institute of Crystallography, Ac.Sc.USSR)

SUBMITTED: March 14, 1958

Card 3/3

KOPOLENKO, A. A., Cand Phys-Math Sci -- (disc) "Investigation of piezo-effect and electro-contraction of crystals by modulation interferometry," Moscow, 1960, 20 pp, 220 cop (Institute of Crystallography, AS USSR) (KL, 43-60, 117)

85092

S/070/60/005/003/017/024/XX
E132/E460

9,2180

AUTHOR: Fotchenkov, A.A.

TITLE: The Dependence of the Monoclinic Piezoelectric Moduli of Rochelle Salt on the Degree of Unipolarity of the Crystal at Various Temperatures

PERIODICAL: Kristallografiya, 1960, Vol.5, No.3, pp.415-419 + 2 plates

TEXT: The tensor of the piezoelectric moduli of a crystal of the class 2 takes the following form:

$$\begin{vmatrix}
 d_{11} & d_{12} & d_{13} & d_{14} & 0 & 0 \\
 0 & 0 & 0 & 0 & d_{25} & d_{26} \\
 0 & 0 & 0 & 0 & d_{35} & d_{36}
 \end{vmatrix}$$

Rochelle salt in its ferroelectric region belongs to this class but outside it has the class 22 which is orthorhombic and for which the moduli above are zero except for d_{14} , d_{25} and d_{36} . The additional moduli which appear on the small displacements giving rise to the Card 1/4

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E132/E460

The Dependence of the Monoclinic Piezoelectric Moduli of Rochelle Salt on the Degree of Unipolarity of the Crystal at Various Temperatures

monoclinic structure are, however, some one or two orders of magnitude smaller than the others. Because of the high coupling between modes it is very difficult to measure these extra moduli. Measurements of these monoclinic moduli have been made at a temperature near the upper Curie point of 24°C and the domain pattern of the crystal has been simultaneously photographed. The measurements were made with an apparatus described earlier (Krist. 2, 653, 1957), in which a silvered face of the specimen forms one plate of a Michaelson interferometer. Periodic displacements of the crystal down to 0.05 Å can be measured. A special crystal holder taking specimens cut appropriately perpendicular to the X, Y and Z axes with dimensions about 5 x 10 x 20 mm was used. An alternating voltage at 1 Kc/s giving a field of 8.5 v/cm was applied across the silver electrodes and a constant polarizing field of up to 500 v/cm was superimposed. The piezoelectric moduli d_{11} , d_{12} and d_{13} were determined from the inverse piezoelectric effect by measuring the strain produced along

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The Dependence of the Monoclinic Piezoelectric Moduli of Rochelle Salt on the Degree of Unipolarity of the Crystal at Various Temperatures

the X, Y and Z axes when the alternating voltage was applied to the specimen. The variation of d_{11} with the polarizing field is shown. d_{11} takes the value of -0.28×10^{-6} c.g.s. units for zero polarizing field. This shows that the initial state of the crystal was unipolar, that is that the numbers of domains polarized parallel and antiparallel to the imposed polarization were not equal. The variation of d_{11} during a complete cycle of polarization reversal 0 to +500 to -500 volts/cm is plotted. The temperature variation of d_{11} through the transition point at +24°C was followed at several polarizations. The variations of d_{12} and d_{13} with temperature and polarization were found to be very similar, the values of these moduli being 3.8×10^{-7} and -3.78×10^{-7} c.g.s.u. respectively for saturation fields and at 9.2°C. The values found agree with the preliminary estimates by Wood and Mason. Acknowledgments to I. S. Zheludev for directing the work and to M. P. Zaytseva and E. S. Tursunova for their assistance.

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The Dependence of the Monoclinic Piezoelectric Moduli of Rochelle Salt on the Degree of Unipolarity of the Crystal at Various Temperatures

There are 5 figures and 4 Soviet references.

ASSOCIATION: Institut fiziki Sibirskogo otdeleniya AN SSSR
(Institute of Physics, Siberian Section AS USSR)

SUBMITTED: February 8, 1960

Card 4/4

9,2180(1331,1144,1063)

25893
S/070/61/006/004/005/007
E032/E314

AUTHORS: Fotchenkov, A.A., Zheludev, I.S. and Zaytseva, M.P.

TITLE: Electrostriction of Single Crystals of Rochelle Salt

PERIODICAL: Kristallografiya, 1961, Vol. 6, No. 4, pp. 576 - 581

TEXT: In distinction to linear dielectrics (Ref. 1 - Fotchenkov and Zheludev - Kristallografiya, 1958, Vol. 3, No. 3, pp. 308-314) ferroelectrics exhibit a much greater electrostriction effect. Up to now, the electrostriction coefficients of ferroelectrics have been largely measured by indirect methods. Allsopp and Gibbs (Ref. 11 - Philos. Mag. 1959, Vol. 4, No. 39, pp. 359-370), G. Schmidt (Ref. 10 - Z. Physik, 1956, 145, pp. 534-542; Ref. 12 - Naturwissenschaften, 1958, Vol. 45, No. 1, pp. 8-9) are said to have been the first to determine the electrostriction coefficients of barium titanate by direct measurement of the deformation which appears under the action of an electric field. In previous work, the electrostriction coefficients were determined
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EO32/E314

Electrostriction of

from the relation between the deformation of the specimen and the square of the spontaneous polarisation. No account was taken of the effects due to the reorientation of the domains in the electric fields. The present authors define the electrostrictional deformation of ferroelectrics as the deformation which is proportional to the square of the electric field independently of the mechanism giving rise to the deformation. The apparatus described by the first of the present authors in Ref. 13 (Kristallografiya, 1957, Vol. 2, No. 5, pp. 653 - 657) has been used to carry out a detailed study of the electrostriction properties of Rochelle salt. Particular attention was paid to electrostrictional deformation due to reorientation in the domain structure. In the present work, the degree of polarization of Rochelle-salt specimens and their phase-transition temperature were controlled with the aid of the hysteresis loop obtained in the "usual way". The Rochelle-salt specimens (5 x 10 x 20 mm along the X, Y and Z axis) were placed in a thermostated crystal holder described by the first of the present authors (Ref. 14 - Kristallografiya, 1960, Vol. 5, No. 3, pp. 415 - 419).

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Electrostriction of

The electrodes were in the form of silver foil and the deformation of the specimen was measured at twice the frequency of the applied sinusoidal voltage. Fig. 2 shows the dependence of the electrostriction of a Rochelle-salt specimen (X section) on the magnitude of the applied electric field (V/cm) at 600 kc/s and $T = 22^{\circ}\text{C}$. The thickness of the specimen was 2 mm. Curve 1 shows the electrostrictional deformation r'_{11} and Curve 2 the electrostriction coefficient r_{11} .

Fig. 3 shows the dependence of the electrostriction coefficient R_{11} for Rochelle salt as a function of a (constant)

polarizing field (V/cm) with $E_{\sim} = 140 \text{ V/cm}$ and $T = 12^{\circ}\text{C}$. Consideration of this figure shows that even small constant fields remove from the polarization reversal process a large fraction of the domains. A comparison is then made between the electrostriction coefficient R_{11} for Rochelle salt

and the coefficient Q_{11} as reported by Mason (Ref. 2 - Piezo-electric Crystals and Their Application in Ultra-acoustics. Izd. IL, Moscow, 1952).

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The two coefficients are related by:

$$R_{11} = (\epsilon_{11}^t / 4\pi)^2 Q_{11}$$

where ϵ_{11}^t is the dielectric constant. It was found that with $E_{\sim} = 380$ V/cm, $\epsilon_{11}^t = 160$. For the same field $R_{11} \approx 0.07 \times 10^{-6}$ CGSE and hence $Q_{11} \approx 430 \times 10^{-2}$. This is greater by a factor of 5 than the value reported by Wood and Mason. It is stated that the discrepancy may be due to some unknown errors in the results of Wood and Mason, who measured the spontaneous polarisation from the hysteresis loops while the spontaneous deformation was measured in the polydomain state. Fig. 4 shows the temperature dependence (heating) of the electrostrictional deformation of Rochelle salt (X section) for different values of the alternating field (Curve 1 - $E_{\sim} = 110$ V/cm; Curve 2 - $E_{\sim} = 90$ V/cm; Curve 3 - $E_{\sim} = 70$ V/cm). The traces on the right were obtained

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Electrostriction of

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with $E_{\sim} = 110$ V/cm; temperatures are indicated below the loops. Finally, Fig. 5 shows the temperature dependence of R_{11} , calculated from the data shown in Fig. 4 (Curves 1, 2 and 3 correspond to $E_{\sim} = 110, 90$ and 70 V/cm, respectively). The general conclusion is that all the relationships obtained can be explained on the basis of the behaviour of the domain structure in an electric field. A schematic representation of the deformation of a ferroelectric in an alternating electric field is shown in Fig. 1, in which Curve 1 shows the applied field and Curve 2 the deformation as a function of time. The diagrams below the graphs illustrate the mechanism of the deformation of the crystal and the domain-reorientation process. Acknowledgments to I.M. Sil'vestrova and L.A. Skopina for carrying out the experiments. There are 5 figures and 15 references: 8 Soviet and 7 non-Soviet. The four latest English-language references quoted are: Ref. 3 - W.P. Mason - Phys. Rev., 74, 1131-1147, 1948; Ref. 5 - M.E. Caspari, W.J. Merz - Phys. Rev., 80, 1082-1089, 1950; Ref. 7 - W.H. Bond, W.P. Mason and
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Electrostriction of

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E032/E314

H.J. McSkimin - Phys. Rev., 82, 442, 1951:
Ref. 11 - A.H. Allsopp, D.F. Gibbs - Philos. Mag., 4, 39,
359-370, 1959.

ASSOCIATION: Institut fiziki Sibirskogo otdeleniya AN SSSR
(Institute of Physics of the Siberian Branch
of the AS USSR)
Institut kristallografii AN SSSR (Institute of
Crystallography of the AS USSR)

SUBMITTED: January 9, 1960

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13507

S/070/62/007/006/014/020
E132/E435

AUTHORS: Fotchenkov, A.A., Zaytseva, M.P.
TITLE: The converse piezoelectric effect in triglycine sulphate (TGS)

PERIODICAL: Kristallografiya, v.7, no.6, 1962, 934-937

TEXT: In crystals of Y-cut TGS the dependence of the modulus d_{22} on the magnitude of the alternating field, the temperature (for various polarizations) and the magnitude of the polarizing field used in the process of repolarization was measured. The observations are due to the domain structure of TGS. It was found that almost all specimens of Y-cut TGS were unipolar. At 22°C, d_{22} was found to lie between 10 and 60 x 10⁻⁸ cgsu but the majority of specimens were between 20 and 26 x 10⁻⁸ cgsu: d_{23} was found to be 46 x 10⁻⁸ cgsu for an exciting a.c. field of 10 V/cm. The decrease in d_{22} found with increasing amplitude of applied a.c. field is due to the action of the field in changing the sign of some of the domains in the preferred direction which determine the piezoelectric effect. A graph is given of the temperature dependence of the d_{22} which shows a peak of about Card 1/2

The converse piezoelectric ...

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300 to 600 x 10⁻⁸ cgsu with a width of about 5°C at 44°C. The height of the peak depends on the polarizing field. The dependence of d_{22} on polarizing field (dc) is of the form of a hysteresis loop. Saturation does not occur until fields of above 1200 V/cm are applied. There are 3 figures.

ASSOCIATION: Institut fiziki Sibirskogo otdeleniya AN SSSR
(Institute of Physics, Siberian Section AS USSR)

SUBMITTED: February 28, 1962

Card 2/2

FOTCHENKOV, A.A.; ZAYTSEVA, M.P. THEREBTSOVA, L.I.

Electrostriction of triglycine sulfate. Kristalografiia 8 no.5:
724-728 S-0 '63. (MIRA 16:10)

1. Institut fiziki Sibirskogo otdeleniya AN SSSR.

L 57027-65 EWT(1)/EPA(s)-2/EWT(m)/EPF(c)/EWP(j)/EEC(t) Ps-4/Pr-4/Pt-7/
FL-4 IJP(c) G3/RM

ACCESSION NR: AFS016126

UR/0048/65/029/006/0948/0950

AUTHOR: Zaytseva, M.P.; Zheludev, I.S.; Zharebtsova, L.I.; Potchenkov, A.A.

TITLE: On the strength of the electric field capable of inducing a polarization equal to the spontaneous value /Report, 4th All-Union Conference on Ferroelectricity, Rostov-on-the-Don 12-18 Sept 1964/

SOURCE: AN SSSR. Izvestiya. Ser.fizicheskaya, v.29, no.6, 1965, 948-950

TOPIC TAGS: ferroelectricity, pyroelectric effect, piezoelectric effect, electric field

ABSTRACT: The electric field E_s capable of inducing a polarization equal to the spontaneous value was determined for Y-cut ferroelectric triglycine sulfate crystals and for the linear pyroelectric L-rhamnose. The piezoelectric modulus in the direction of the spontaneous polarization was measured as a function of an applied electric field and the value of the bias field (determined by extrapolation) for which the

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ACCESSION NR: AP5016126

piezoelectric modulus vanishes was taken as E_g . For γ -rhamnose the value $(1.9 \pm 0.1) \times 10^5$ V/cm was obtained for E_g . For triglycine sulfate the measurements were made at several temperatures. From room temperature to about 37°C , E_g was constant and equal to $(3.25 \pm 0.15) \times 10^5$ V/cm. Above this temperature E_g decreased rapidly with increasing temperature but was still approximately 10^5 V/cm at the Curie point (47.5°C) and was appreciable even at 60°C . The appearance of nonvanishing values of E_g above the normal Curie point is ascribed to the shift of the Curie point toward higher temperatures under the influence of the bias field, and to possible inhomogeneities of the crystal. The ferroelectric crystals (triglycine sulfate) were more strongly polarized and more highly deformed in the electric field than were the linear dielectric crystals (γ -rhamnose). It is suggested that this may be typical for ferroelectric and linear dielectric crystals in general. "The authors are grateful to K.S.Aleksandrov for much valuable advice during the conduct of the experiment and for a discussion of the results." Orig.art.has: 3 figures.

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L 57027-55

ACCESSION NR: AP5016126

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ASSOCIATION: Institut fiziki Sibirskogo otdeleniya Akademii nauk SSSR
(Institute of Physics, Siberian Section of the Academy of Sciences of
the USSR); Institut kristallografi Akademii nauk SSSR (Institute of
Crystallography, Academy of Sciences of the USSR)

SUBMITTED: 00

ENCL: 00

SUB CODE: SS,EM

NR REF SOV: 007

OTHER: 001

RR
Card 3/3

L 57569-20 EWT(1)/I/EEC(b)-2 P1-4 IJP(c) GG

ACCESSION NR: AP5016132

UR/0048/65/029/006/0973/0977

AUTHOR: Anistratov, A.T.; Fotchenkov, A.A.; Aleksandrov, K.S.

TITLE: Measurement of the linear electro-optical effect in crystals by a dynamic procedure /Report, 4th All-Union Conference on Ferroelectricity held in Rostov-on-the-Don 12-18 Sept 1964/

SOURCE: AN SSSR. Izvestiya.Ser.fizicheskaya,v.29,no.6,1965, 973-977

TOPIC TAGS: ferroelectric crystal, Rochelle salt, double refraction, phase transition

ABSTRACT: The authors describe a method for measuring the electro-optical constants of a crystal with the aid of an apparatus which they have described elsewhere (Pribery i tekhnika eksperimenta No.3, 193,1965). An alternating electric field is applied to the crystal and the consequent modulation of a light beam traversing the crystal between crossed Nicols is observed. The theory of this method is developed and it is shown that when the Nicols are crossed (90°) the

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