SYRITSKIY, P.L.; GIL'DENBERG, Z.G.

Using annular kiln wastes in making wall stones. Stroi. mat. 5 no.10:24-25 O '59. (MIRA 13:2)

1.Direktor Nikol'skogo kirpichnogo zavoda (for Syritskiy).
2.Rukovoditel' laboratorii Vsesoyuznogo nauchno-issledovatel'skogo instituta novykh stroitel'nykh materialov Akademii stroitel'stva i arkhitektury SSSR (for Gil'denberg).
(Cinder blocks)

MOROZOV, N., kand. tekhn. nauk; SYPCHUK, P., kand. tekhn. nauk; SYRITSKIY, P.L.
ANAN'INA, N., inzh.-arkhitektor

One-story houses built of vibrated brick panels. Zhil. stroi. no.8:
6-9 '59. (MIRA 12:12)

1.Direktor Nikol'skogo kirpichnogo zavoda (for Syritskiy).
(Nikol'sk--Architecture,Domestic)
(Building blocks)

SYRITSO, L.F.

Bertrandite from the tungsten deposit of eastern Transbaikalia.
Vest. LGU 17 no.18:124-128 '62. (MIRA 15:10)
(Transbaikalia—Bertrandite)
(Transbaikalia—Tungsten ores)

SYRITSO, L.F.

Some data on uranium minerals in a pegmatite deposit. Vest. LGU no. 24:65-73 '62. (MIRA 16:2)
(Uranium ores) (Pegmatites)

SYRITSO, L.F.

Study of the distribution of rare-metal mineralization by the method of mathematical statistics. Zap.Vses.min.ob-va 92 no.4:434-444 '63.
(MIRA 17:2)

SYRITSO, L.F.;CHUYENKO, L.I.

Chillagite from the Spokoynoye deposit (eastern Transbaikalia).
Vest. LGU 19 no.12:162-165 '64 (MIRA 17:8)

SYRITSO, L.F.; SENDEROVA, V.M.

Problem of the existence of lillianite. Zap. Vses. min. ob-va 93 no.4:468-471 '64 (MIRA 18:2)

PETROV, V.I.; GOELEVSKAYA, M.V.; SYRKASHEVA, A.V.; RAYKHSHTAT, G.N.; SHAPIRO, A.A.; BERLOVICH, E.A.; KARASEVA, M.F.; RYUMINA, M.G. LEYKINA, R.S.; BROKER, T.N.; GITARIN, D.Yu.; MOSKOVENKO, D.F.; STASILEVICH, Z.K.; REUT, A.I., ALIYEVA, S.G.

Annotations. Zhur. mikrobiol., epid. i immun. 40 no.2:109-112 F '63. (MIRA 17:2)

1. Iz Dnepropetrovskoy gorodskoy sanitarno-epidemiologicheskoy stantsii (for Petrov). 2. Iz Saratovskogo meditsinskogo instituta i Saratovskoy gorodskoy sanitarno epidemiologicheskoy stantsii (for Godlevskaya, Syrkasheva). 3. Iz sanitarno-epidemiologicheskoy stantsii Sverdlovskogo rayona Moskovy (for Raykhshtat, Shapiro, Berlovich, Karaseva, Ryumina, Leykina, Broker). 4. Iz Instituta eksperimental'noy patologii i terapii AMN SSSR (for Stasilevich). 5. Iz Belorusskogo sanutarni-gigiyenicheskogo instituta (for Reut). 6. Iz Uzbekskogo nauchno-issledovatel'skogo kozhno-venerologicheskogo instituta (for Aliyeva).

KOVALEVSKAYA, I.L.; EPSHTEYN-LITVAK, R.V.; DMITRIYEVA-RAVIKOVICH, Ye.M.; KURNOSOVA, N.A.; SHCHEGLOVA, Ye.S.; FERDINAND, Ya.M.; KHOMIK, S.R.; MAKHLINOVSKIY, L.P.; PETROVA, S.S.; GOLUBOVA, Ye.Ye.; GONCHAROVA, Z.I.; SARMANEYEV, A.P.; SIZINTSEVA, V.P.; Prinimali uchastiye: MEDYUKHA, G.A.; OSOKINA, L.A.; RACHKOVSKAYA, Yu.K.; OSOVTSEVA, O.I.; DEDUSENKO, A.I.; KOVALEVA, P.S.; KARASHEVICH, V.P.; CHEBOTAREVICH, N.D.; CHIGIR', T.R.; SKUL'SKAYA, S.D.; KECHETZHIYEV, B.A.; DEMINA, A.S.; ZUS'MAN, R.T.; YESAKOV, P.I.; SYSOYEVA, Z.A.; ZINOV'YEVA, I.S.; FAL'CHEVSKAYA, A.A.; DENISOVA, B.D.; TIMOFEYEVA, R.G.; SYRKASOVA, A.V.; LYANTSMAN, S.G.

Reactivity and immunological and epidemiological effectiveness of alcoholic typhoid and paratyphoid fever vaccines in school children. Zhur. mikrobiol., epid. i immun. 33 no.7:72-77 Jl '62. (MIRA 17:1)

1. Iz Moskovskogo, Rostovskogo, Omskogo institutov epidemiologii i mikrobiologii, Stavropol'skogo instituta vaktsin i syvorotok i Ministerstva zdravookhraneniya RSFSR. 2. Rostovskiy institut epidemiologii i mikrobiologii (for Kovaleva). 3. Stavropol'skiy institut vaktsin i syvorotok (for Sysoyeva). 4. Kuybyshevskiy institut epidemiologii i mikrobiologii (for Zinov'yeva). 5. Saratovskaya gorodskaya sanitarno-epidemiologicheskaya stantsiya (for Lyantsman).

SYRKIN, A.

Problem of the nephrotic syndrome. Ter. arkh. 35 no.7:123-125 Jl '63 (MIRA 17:1)

SYRKIN, A.B.

RAMPAN, Yu. I., SYRKIN, A.B.

Combined use of actinoxanthin and sarcolysin on experimental sarcome 45 in rats [with summary in English] Antibiotiki 3 no.1:36-40 Ja-F'58 (MIRA 11:5)

1. Laboratoriya farmakologii Instituta eksperimental'noy patologii i terapii raka AMN SSSR.

(ANTIBIOTICS, effects
actinoxanthine with sarcolysin on exper. sarcoma 45 (Rus))
(CYTOTOXIC DRUGS, effects
same)

KUL'BERG, A.Ya.; SYRKIN, A.B.; SHARGORODSKAYA, D.Ya.

Influence of a tourniquet on the amount of phosporus and chlorides in the blood. Uch.zap. 2-go MGMI 17:215-218 '58.
(MIRA 13:7)

(BLOOD--CIRCULATION, DISORDERS OF)
(PHOSPHORUS IN THE BODY)
(CHLORIDES IN THE BODY)

SYRKIN, A. B., Cand ofMed Sci -- (diss) "Influence of Certain Pharmacological Measures on the Activity of Bopane and Sarcolizine According to Normal and Tumorogenic Skin," Moscow, 1959, 10 pp (Acad of Med Sci USSR (KL, 6060, 126)

SYRKIN, A.B. (Moskva, Podmoskovnoye shosse, d. 5, kv. 191)

Study on the effect of mercamine on the anti-tumor activity of dopane. Vop. onk. 5 no.1:47-51 '59. (MIRA 12:3)

1. Iz laboratorii farmakologii (zav. - kand. med. nauk. A.P. Belikova) Instituta eksperimental'noy patologii i terapii raka AMN SSSR (dir. - chlen-korrespondent AMN SSSR prof. N.N. Blokhin).
(MERCAPTOETHYLAMINES, effects,
2-aminoethanethiol, on anti-tumor activity of 5-beta-chloroethyl)-amino-4-methyl-uracil (Rus))
(NITROGEN MUSTARDS, effects,
5-beta-chloroethyl)-amino-4-methyl-uracil. carcinostatic eff., eff. of 2-aminoethanethiol (Rus))

BELOVA, A.P.; KUDRYAVINA, N.A.; RAMPAN, Yu.I.; SYRKIN, A.B.

Exporimental data on the effect of aurantin on the peripheral blood, cardiovascular system, and diuresis. Antibiotiki 5 no.2:44-50 Mr-Ap '60. (MIRA 14:5)

1. Laboratoriya farmakologii (zav. A.P.Belikova) Instituta eksperimental'noy i klinicheskoy onkologii AMN SSSR.
(ANTIBIOTICS) (CARDIOVASCULAR SYSTEM)
(DIURETICS AND DIURESIS) (BLOOD CELLS)

SYRKIN, A.B.

Effect of aminazine and dinitrophenol on the activity of dopan and sarcolysin. Vop. onk. 6 no.3:34-40 Mr '60. (MIRA 14:2)
(NITROGEN MUSTARDS) (CHLORPROMAZINE)
(PHENOLS)

SYRKIN, A.B. (Moskva)

Possible role of free radicals in carcinogenesis. Usp. sovr. biol. 49 no.3:305-319 My-Je '60. (MIRA 13:7)
(CANCER) (RADICALS (CHEMISTRY))

RAMPAN, Yu.I.; SYRKIN, A.B. (Moskva)

Smoking and lung cancer. Med.sestra 21 no.12:23-27 D '62.
(MIRA 16:4)

(SMOKING) (LUNGS--CANCER)

BELIKOVA, A.P.; KUDRYAVINA, N.A.; RAMPAN, Yu.I.; SYRKIN, A.B.

Experimental data relative to the pharmacology of hippophaine (5-hydroxytryptamine hydrochloride. Farm. i toks. 25 no.6: 705-711 N-D '62. (MIRA 17:8)

1. Laboratoriya farmakologii (zav. - kand. med. nauk A.P. Belikova) Instituta eksperimental'noy i klinicheskoy onkologii AMN SSSR.

BELIKOVA, A.P.; KUDRYAVINA, N.A.; RAMPAN, Yu.I.: SYRKIN, A.B.

Pharmacology of fumagillin. Antibiotiki 8 no.6:546-550 Je'63
(MIRA 17:3)

1. Laboratoriya farmakologii Instituta eksperimental'noy i klinicheskoy onkologii AMN SSSR.

MARTYNOV, A.A.; SABANOV, V.D., podpolkovnik, redaktor; SYRKIN, A.D., redaktor; SOKOLOVA, G.F., tekhnicheskiy redaktor

[The glorious People's Liberation Army of China] Slavnaia Narodno-osvoboditel'naia armiia Kitaia. Moskva, Voen.izd-vo M-vo obor. SSSR, 1957. 157 p. (MLRA 10:10)
(China--Army)

SYRKIN, A. L.

USSR/Human and Animal Physiology - The Skin. V-12

Abs Jour : Ref Zhur - Biol., No 2, 1958, 9125

Author : A.L. Syrkin
Inst : -
Title : A Study of the Hydrophilia of the Skin with Radioactive Na^{24} (The Mechanism of the Blister Test).

Orig Pub : Terapevt. arkhiv, 1956, 28, No 5, 59-63

Abstract : Consideration having been given to certain inadequacies of the Aldrich-MacClure hydrophilic test, in particular the considerable subjectivism in the evaluation of results, a test is proposed which makes use of Na^{24}. Intracutaneous injection was made of 0.2 ml of physiological solution containing Na^{24} with an activity of $\sim$ 1 millicurie. The activity of the blister which formed and of the surrounding tissues was determined with a face counter situated at a distance of 2 to 3 cm from the blister. In addition, the time it took for the vesicle to disappear was

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1st Moscow Med. Inst. im Sechenov

SYRKIN, A.L.

SPESIVTSEVA, V.G.; SYRKIN,A.L.; SHISHOVA, A.M.

Rate and duration of secretion; the rate of ridding plasma of sodium-24 in some diseases; preliminary report. Terap.arkh. 28 no.7:43-50 '56. (MIRA 10:1)

1. Iz fakul'tetskoy terapevticheskoy kliniki (dir. - deystvitel'nyy chlen AMN SSSR prof. V.N.Vinogradov) I Moskovskogo ordena Lenina meditsinskogo instituta imeni I.M.Sechenova.

(SODIUM, metab.
rate of secretion in kidney dis. & cardiovasc.dis., determ. with radioactive sodium)
(KIDNEY DISEASES, metab.
sodium, rate of secretion, determ. with radioactive sodium)
(CARDIOVASCULAR DISEASES, metab.
sodium, rate of secretion, determ. with radioactive sodium)

SYRKIN, A.L.

Investigations on resorption of Na^{24} from intracutaneous deposits in rheumatism. Terap. arkh. 30 no.3:70-76 Mr '58. (MIRA 11:4)

1. Iz fakul'tetskoy terapevticheskoy kliniki (dir.-deystvitel'nyy chlen AMN SSSR prof. V.N. Vinogradov) 1-go Moskovskogo ordena Lenina meditsinskogo instituta imeni I.M. Sechenova.

(RHEUMATISM, metabolism,
radiosodium, resorption from intracutaneous deposits (Rus)
(SODIUM, metabolism,
resorption of radiosodium from intracutaneous deposits in rheum. (Rus)

SYRKIN, A. L.: Master Med Sci (diss) -- "The rate of resorption of sodium-24 from the skin in rheumatism and rheumatic heart defects, and its clinical significance". Moscow, 1959. 12 pp (First Moscow Order of Lenin Med Inst im I. M. Sechenov), 200 copies (KL, No 8, 1959, 139)

SYRKIN, A.L.

Pneumonia as a complication in corticoid therapy. Terap.arkh. 33 no.10:108-110 '61. (MIRA 15:1)

1. Iz fakul'tetskoy terapevticheskoy kliniki (dir. - deystvitel'nyy chlen AMN SSSR prof. V.N. Vinogradov) I Moskovskogo ordena Lenina meditsinskogo instituta imeni I.M. Sechenova.
(PNEUMONIA) (ADRENOCORTICAL HORMONES--TOXICOLOGY)

S/152/63/000/003/003/005
B117/B186

AUTHORS: Sokolov, F. A., Syrkin, A. M., Klimenok, B. V.

TITLE: Induction period of the complex formation of N-paraffins of petroleum fractions with aqueous carbamide solution

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Neft' i gaz, no. 3, 1963, 65-70

TEXT: The factors determining duration and character of the induction period were studied. Experiments were made at 25-26°C with filtrates obtained from paraffins of Tuymazy petroleum after extraction of the oil (boiling points up to 300-460°C). The induction period was calculated as the time from the beginning of mixing to the beginning of complex formation attended by a strong increase in temperature. The following processes occurred during this period: development of the contact surface of liquid phases which adsorb the tars from the oil and prevent a contact between the N-paraffin and carbamide molecules. Further dispersion of the system forms free surface and permits complex formation. Adsorbed tars are desorbed and pass over to the surface of the complex. Desorption of tars

and their removal from the contact surface enables new crystals to form which, on their part, adsorb tars from the contact surface of the liquid phase, and so forth. Thus an avalanche-like complex formation terminates the induction period. A higher weight ratio aqueous phase / oil shortens the induction period. It is the shorter the faster the surface development, and should be shortened by: (1) more intensive mixing; the contact surface of the liquid phase should be sufficiently large to remove the principal amount of tar from the oil; (2) reducing the viscosity and facilitating the emulsification by adding solvents and admixtures. Experiments with oils of different qualities and component ratios (oil, carbamide, water) showed that a repeated treatment of the oil with aqueous carbamide solution removed only part of the tars. This indicates that two types of tar are present in the petroleum: tar adsorbable on the crystal surface of the complex (I), and non-adsorbable tar (II). The strong inhibiting action of (I) is due to its high oxygen content. Addition of seeds reduced the induction period but did not fully eliminate it. Probably, they removed only (I) while (II) was left causing the short induction period. It is therefore recommended to add only the amount of seed required for removing (I) in order to reach maximum shortening of the induction period. There are 3 figures and 5 tables.

S/152/63/000/003/003/005
Induction period of the complex formation ... B117/B186

ASSOCIATION: Ufimskiy neftyanoy institut
(Ufa Petroleum Institute)

SUBMITTED: October 2, 1962

Card 3/3

BREN, Kh.; SYRKIN, G.; GONIKBERG, Ye.

Power steering of the ZIL-130 motortrucks. Avt.transp. 40 no.4:37-41 Ap '62. (MIRA 15:4)

1. Moskovskiy avtozavod im. Likhacheva.
(Motortrucks—Steering gear)

GINTSBURG, L.L., kand. tekhn. nauk; SYRKIN, G.A.

Hydraulic pumps of power steering boosters. Avt. prom. 29 no.7:27-30 Jl '63. (MIRA 16:8)

1. Gosudarstvennyy soyuznyy ordena Trudovogo Krasnogo Znameni nauchno-issledovatel'skiy avtomobil'nyy i avtomotornyy institut i Moskovskiy avtozavod imeni Likhacheva.
(Automobiles—Steering gear)

SYRKIN, G.M., mekhanik

Improved machines for cleaning steel pipes. Suggested by G.M. Syrkin. Rats.i izobr.predl.v stroi. no.13:83-84 '59.
(MIRA 13:6)

1. Uchastok No.2 stroitel'nogo upravleniya No.17 tresta Vostokspetsneftestroy.
(Pipe, Steel)

SYRKIN, G. Ye., Eng.

Hydrogenation

Some remarks on planning and constructing hydrogenation plants. Masl. -zhir. prom. 18, No. 3, 1953.

Monthly List of Russian Accessions, Library of Congress, June 1953. Uncl.

GUL'CHAK, G.S.; VERNER, E.O.; SYRKIN, G.Ye.; BUKHARIN, V.V., spetsred.; MURASHEVA, O.I., red.; KISINA, Ye.I., tekhn.red.

[Automatic control devices in the oils and fats industry] Avtomaticheskie reguliruiushchie pribory v maslozhirovoi promyshlennosti. Moskva, Pishchepromizdat. Pt.2. 1957. 31 p. (MIRA 12:1)
(Automatic control) (Oil industries--Equipment and supplies)

SYRKIN G.Ye.

SYRKIN, G.Ye., inzhener; PONOMARENKO, A.I., inzhener.

Small water heater. Masl.-zhir.prom. 23 no.1:40-41 '57.
(MLRA 10:1)

1. Rosglavraszhirmaslo (for Syrkin). 2. Saratovskiy zhirkombinat (for Ponomarenko).
(Water heaters)

SYRKIN, G.Ye., inzh.

Notes on designing and setting up of fat processing plants. Masl.-zhir. prom. 24 no. 8:6-9 '58. (MIRA 11:8)

1. Giprozhir.

(Oils and fats)

SYRKIN, G.Ye., inzh.; PONOMARENKO, A.I., inzh.

Producer of inert gas. Masl.-zhir.prom. 24 no.11:30-32 '58.
(MIRA 12:1)

1. Gosudarstvennyy institut po proyektirovaniyu masloboynoy, zhirovoy, mylovarennoy, parfyumernoy i margarinovoy promyshlennosti (for Syrkin). 2. Saratovskiy zhirovoy kombinat (for Ponomarenko).

(Gas producers)

BUKHARIN, V.V., inzh; SYRKIN, G.Ye.

Modern filter presses are needed. Masl.-zhir.prom. 25 no.4:4 '59. (MIRA 12:6)

1. Gosudarstvennyy institut po proyektirovaniyu masloboynoy, zhirovoy, mylovarennoy, parfyumernoy i margarinovoy promyshlennosti.
(Oil industries--Equipment and supplies)
(Filters and filtration)

SYRKIN, G.Ye., inzh.; MLODZEVSKAYA, N.V., inzh.

Proportioning apparatus in the oil industry. Masl.-zhir.prom. 25 no.4:29-33 '59. (MIRA 12:6)

1. Gosudarstvennyy institut po proyektirovaniyu masloboynoy, zhirovoy, mylovarennoy, parfyumernoy i margarinovoy promyshlennosti (for Syrkin, Mlodzevskaya).
(Oil industries--Equipment and supplies)

SYNAIN, L.A.

37542 Itogi I perspektivy izucheniya fizicheskogo razvitiya detey i podros tkov v SSSR v Sb:XII vsesoyuz s'yezd gigiyenistov, epidemiologov, mikrobiologov I infektsionistov. T.I.M., 1949, S 205-06

SO: Letopis'Zhurnal'nykh Statey, Vol. 37,1949

LUR'YE, Zakhar Solomonovich; SYRKIN, Lazar' Isaakovich; CHILAYEV, G.A., otvetstvennyy redaktor; RYKOV, N.A., redaktor izdatel'stva; ALADOVA, Ye.I., tekhnicheskiy redaktor

[Transport equipment and depots for coal benefication and briquette factories] Transportnye ustroistva i sklady na ugleobogatitel'nykh i briketnykh fabrikakh. Izd. 2-oe, ispr. i dop. Moskva, Ugletekhizdat, 1956. 322 p. (MLRA 10:3)
(Briquets (Fuel)) (Coal preparation)
(Mine haulage)

SYRKIN, L.N.

USSR /Electricity G

Abs Jour : Ref Zhur - Fizika, No 4, 1o57, No 9655

Author : Syrkin, L.N.
Inst : Institute of Chemistry of Silicates, Academy of Sciences USSR, Leningrad.
Title : Investigation of the form of the Potential Field for Ions in Crystals of the Perovskite Type

Orig Pub : Kristallografiya, 1956, 1, No 3, 274-286

Abstract : The potential energy of the ion in the field of the rigid lattice (approximate expression) is expanded into a series in terms of the small displacement parameter all the way to terms of the fourth order of smallness inclusive. Account is taken of the supplementary terms, occurring thanks to the polarizability of the ions in small ion displacement (U_p^1) and also the contribution due to the polarizability of the surrounding ions, which may turn out to be of the same

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USSR /Electricity G

Abs Jour : Ref Zhur - Fizika, No 4, 1957, No 9655

Abstract : order as U^{1}_{p}. The resultant expansion coefficients comprise functions of the atomic constants. Using a method employed by V.L. Ginzburg (Uspekhi fiz. nauk 1949, 38, 490) and generalized by M. Ya. Shirobokov and L.P. Kholodenko (Zh. eksperim. i teor. fiziki, 1951, 21, 1239, 1250), an investigation was made of the character of the potential field for the ion in the case of small displacements. The necessary and sufficient conditions for the existence of a stable equilibrium condition are derived. The computational results are applicable to $BaTiO_3$.

Card : 2/2

SUBJECT USSR / PHYSICS CARD 1 / 2 PA - 1352
AUTHOR SYRKIN, L.N.
TITLE On the Problem of the Temperature Dependence of Thermal Ion Polarization.
PERIODICAL Žurn.techn.fis, 26, fasc.6, 1163-1165 (1956)
Issued: 7 / 1956 reviewed: 10 / 1956

The usual theory of thermal ion polarization is based upon the condition $U \gg kT$. However, according to investigations made by V.A.IOFFE, Zurn.techn. fis, 24, 611 (1954) concerning the conductivity and the losses in dielectrica with thermal ion polarization, the height U of the potential barriers to be overcome by the ions on the occasion of polarization is often of the same order of magnitude as kT. Therefore also the cases $U \gtrsim kT$ and $U < kT$ must be investigated. Here the state with stable polarization is examined. The true potential relief of the ion is approximated by a onedimensional rectangular well. Such a model describes the polarization process with sufficient accuracy in some glasses and perhaps also in some seignette-electric crystals. On this occasion the ion (independently of the acting electric field) deviates only little from the fixed well on the occasion of oscillations and 'displacements". In the electric field the potential well is distorted.
Furthermore, an expression for the electric moment of the volume unit is given for the case that the dielectricum is anisotropic and that the electric field E includes an equivalent angle (here put equal to zero) with the directions of slight polarization for all investigated ions of the dielectricum. This ex-

pression is several times transformed. Furthermore, the formula for the moment I is specialized for the case that the condition $qE(a+b)kT = z\ (1+\partial\!\!\!/\ ) \ll$ is satisfied. Here q denotes the charge, a - the interior radius of the annular potential well, b - the width of this ring, $\partial\!\!\!/$ - b/a, z = qEa/kT.
This problem is investigated also shortly for a macroscopically isotropic dielectricum. In this case the directions of the slight polarization of the ions (or ion groups) are statistically distributed over the space. When computing I it is then necessary to average not only over all values of x, but also over all angles. The expression for I thus found is explicitly given and specialized also for the case $qE(a+b)/kT = z(1+\partial\!\!\!/\ ) \ll 1$. Only within the domain that is far from saturation (i.e. at $z \ll 1$) is the polarization process of an isotropic ion dielectricum described by the same expression that describes an anisotropic dielectricum.

If the potential well and the potential barrier have a comparable width, also the equivalent polarizability of the ions increases with increasing height of the potential barrier (activation energy) U_o. Naturally, the time necessary for the occurrence of polarization must increase on this occasion and the corresponding relaxation frequency must decrease.

INSTITUTION:

SYRKIN, L.N.

Vertical measuring generators used for investigating small ferromagnetic samples. Priborostroenie no.4:31 Ap '57.
(MLRA 10:5)

(Ferromagnetism--Measurement)

66332
SOV/181-1-10-7/21

~~24(7)~~ 24,2200

AUTHOR: Syrkin, L. N.

TITLE: On a Consequence of Similarity in Magnetization in Mixed Ferrites

PERIODICAL: Fizika tverdogo tela, 1959, Vol 1, Nr 10, pp 1538 - 1539 (USSR)

ABSTRACT: Ferromagnetic materials with similar chemical properties also show similarity with respect to magnetization. The coincidence of various characteristics of a number of magnetically soft materials (e.g. the characteristic $\mu/\mu_m = f(H/H_m)$, where the index m denotes the value corresponding to maximum permeability), may be explained by the similarity transformation of the magnetization curves. Similar rules apply also in the case of magnetization curves of a number of materials. Popper showed that in the nickel-zinc ferrite system (but also in the case of other mixed ferrites) the linear magnetostriction λ may be represented as a function of the magnetization I, namely by a curve of the kind that is shown in figure 1. If dimensionless variables (λ/λ_s and

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4

4

24(3)

AUTHOR: Syrkin, L. N. SOV/48-23-3-25/34

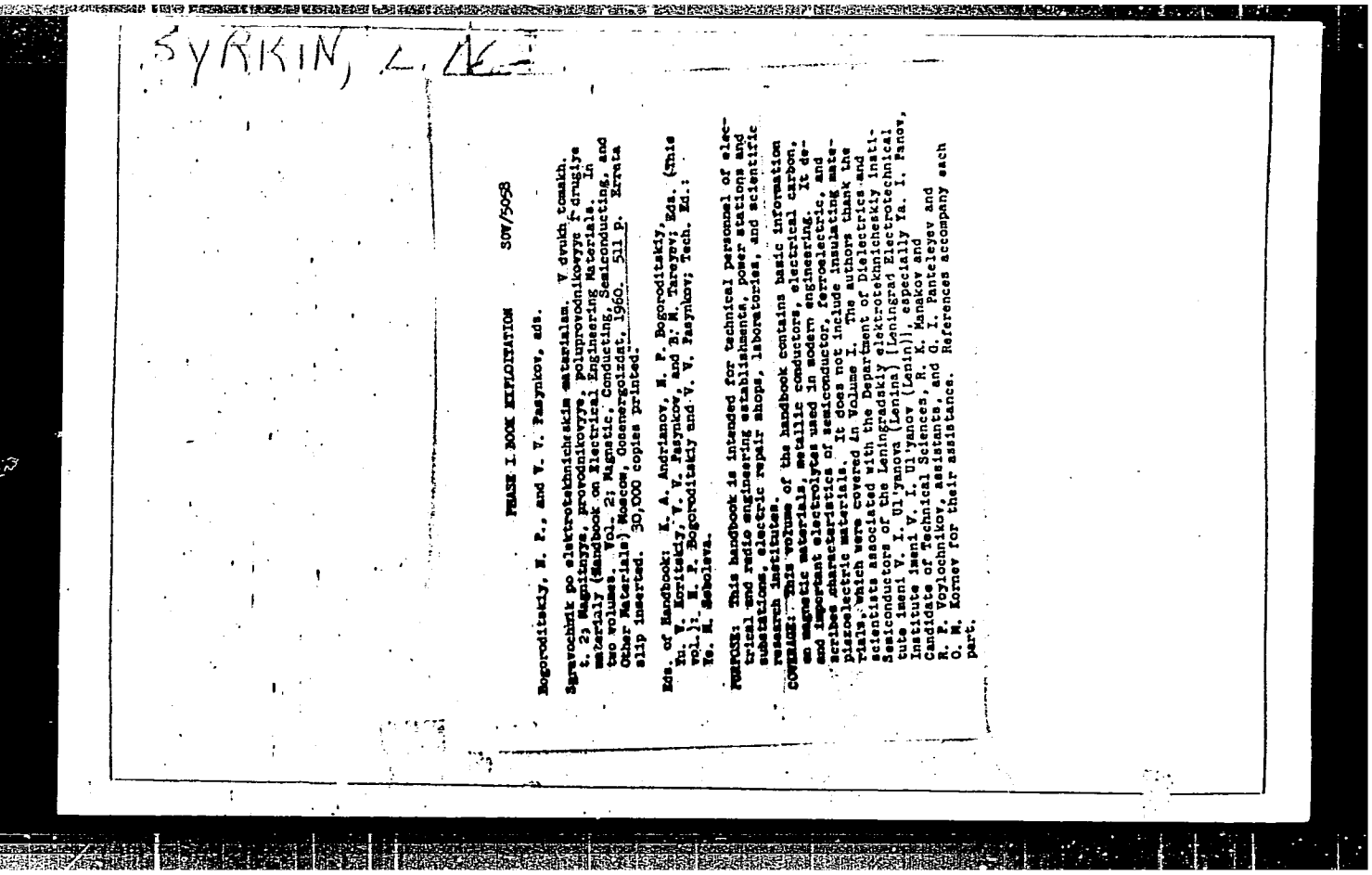
TITLE: Investigation of the Magnetoelastic Effect in Ferrites (Izucheniye magnitouprugogo effekta v ferritakh)

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1959, Vol 23, Nr 3, pp 414-415 (USSR)

ABSTRACT: In the present investigation μ_0 (initial permeability) was measured on two frequencies (50 and 100 kilocycles) and at a pressure of 65 atmospheres. The corresponding points of ascent and descent of the μ_0 curves are in agreement with one another. In the case of nickel-ferrite μ_0 increases with pressure (Fig 1). In Ni-Zn-ferrites with an initial permeability of 88 no dependence of μ_0 on p was found. In the ferrites concerned this is probably due to the decisive importance of the boundary shifts in narrow fields. In ferrites the character of magnetoelastic effects depends to a considerable extent on the experimental conditions. A comparison of the curves on figure 2 and 3 shows that, if no commutation is carried out, the steady magnetic state of the material is disturbed by a change of the external load as much as by

Card 1/2

a change of the magnetizing field. In this connection induction (magnetization) increases considerably in all cases. This is due to the reorientation of the domains caused by the elastic wave. As figure 2 indicates, a considerable magnetoelastic hysteresis is to be observed in nickel-ferrite. There are 3 figures and 2 references, 1 of which is Soviet.



SYRKIN, L. N.

PHASE I BOOK EXPLOITATION SOV/5958

Bogoroditskiy, N. P., and V. V. Pasynkov, eds.

Spravochnik po elektrotekhnicheskim materialam. V dvukh tomakh. t. 2: Magnitnyye, provodnikovyye i drugiye materialy (Handbook on Electrical Engineering Materials. In two volumes. Vol. 2: Magnetic, Conducting, Semiconducting, and Other Materials) Moscow, Gosenergoizdat, 1960. 511 p. Errata slip inserted. 30,000 copies printed.

Eds. of Handbook: K. A. Andrianov, N. P. Bogoroditskiy, N. V. Koritskiy, V. V. Pasynkov, and B. M. Tareyev; Eds. (this vol.): N. P. Bogoroditskiy and V. V. Pasynkov; Tech. Ed.: Yo. M. Sobolova.

PURPOSE: This handbook is intended for technical personnel of electrical and radio engineering establishments, power stations and substations, electric repair shops, laboratories, and scientific research institutes.

COVERAGE: This volume of the handbook contains basic information on magnetic materials, metallic conductors, electrical carbon, and important electrolytes used in modern engineering. It describes characteristics of semiconductor, ferroelectric, and piezoelectric materials. It does not include insulating materials which were covered in Volume I. The authors thank the scientists associated with the Department of Dielectrics and Semiconductors of the Leningradskiy elektrotekhnicheskiy institute imeni V. I. Ul'yanova (Lenina) [Leningrad Electrotechnical Institute imeni V. I. Ul'yanov (Lenin)], especially Ya. I. Fanov, R. K. Manakov and Candidate of Technical Sciences, N. I. Panteleyev and K. P. Voylochnikov, assistants, and O. M. Korneva for their assistance. References accompany each part.

TABLE OF CONTENTS:

PART I. MAGNETIC MATERIALS

SYRKIN, L. N.

PHASE I BOOK EXPLOITATION SOV/4393

Vsesoyuznoye soveshchaniye po fizike, fiziko-khimicheskim svoystvam ferritov i fizicheskim osnovam ikh primeneniya. 3d, Minsk, 1959

Ferrity; fizicheskiye i fiziko-khimicheskiye svoystva. Doklady (Ferrites; Physical and Physicochemical Properties. Reports) Minsk, Izd-vo AN BSSR, 1960. 655 p. Errata slip inserted. 4,000 copies printed.

Sponsoring Agencies: Nauchnyy sovet po magnetizmu AN SSSR. Otdel fiziki tverdogo tela i poluprovodnikov AN BSSR.

Editorial Board: Resp. Ed.: M. N. Sirota, Academician of the Academy of Sciences BSSR; K. P. Belov, Professor; Ye. I. Kondorskiy, Professor; K. M. Polivanov, Professor; R. V. Telesnin, Professor; G. A. Smolenskiy, Professor; N. N. Sholtis, Candidate of Physical and Mathematical Sciences; E. M. Saolyarenko; and L. A. Bashkirov; Ed. of Publishing House: S. Kholyavskiy; Tech. Ed.: I. Volokhanovich.

PURPOSE: This book is intended for physicists, physical chemists, radio electronics engineers, and technical personnel engaged in the production and use of ferromagnetic materials. It may also be used by students in advanced courses in radio electronics, physics, and physical chemistry.

COVERAGE: The book contains reports presented at the Third All-Union Conference on Ferrites held in Minsk, Belorussian SSR. The reports deal with magnetic transformations, electrical and galvanomagnetic properties of ferrites, the chemical and physicochemical analysis of ferrites, studies of ferrites having rectangular hysteresis loops and multicomponent ferrite systems exhibiting spontaneous rectangularity, problems in magnetic attraction, highly coercive ferrites, magnetic spectroscopy, ferromagnetic resonance, magneto-optics, physical principles of using ferrite components in electrical circuits, anisotropy of electrical and magnetic properties, etc. The Committee on Magnetism, AS USSR (S. V. Vonsovskiy, Chairman) organized the conference. References accompany individual articles.

S/181/60/002/008/031/045
B006/B063

The Theory of Magnetostriction Oscillations on Strong Excitation Inductions

also an asymmetric part for magneto-elastic media. The thermomagnetic and thermoelastic effects are also neglected. The general formulas obtained are applied to the following special cases: a) The directions of the magnetizations due to polarization and excitation coincide. b) The directions of the magnetizations due to polarization and excitation are perpendicular to each other. c) Two excitation magnetizations of different frequencies are applied in the direction of polarization magnetization. An experimental verification of the theoretical results is briefly discussed. Preliminary experiments indicated qualitative agreement. There are 5 references: 4 Soviet and 1 Dutch.

SUBMITTED: January 18, 1960

24.2200 (1144, 1137, 1164)

AUTHORS. Strelets, K. L., Syrkin, L. N., and

TITLE: Synthesis of multi-component ferrites
dynamic magnetostriction parameters

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya fizicheskaya.
v. 25, no. 11, 1961, 1426-1429

TEXT: Ferrites with high dynamic magnetostriction were investigated. Mixed ferrites were synthesized by usual powder-metallurgical methods. The pure oxides: NiO - ZnO - CuO - CoO - FeO_3 were used as raw material. The magnetostriction parameters (coefficient of electromechanical binding, K, and magnetostriction constant, a) were measured by the resonance-antiresonance method (Ref. 1: see below) with low exciting inductions ($B_m \approx 1$ gauss) and H_o = 10 oersteds. In the system $(Ni_{1-x-y}Zn_yCo_xFe_2O_4)$, the maxima of K and a were, independent of the $ZnFe_2O_4$ content, always close to x = 0.02. The optimum $ZnFe_2O_4$ content corresponded to

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Synthesis of multi-component ...

y_{opt} = 0.1 (a = (1.8-1.9)·10^4 dyne/gauss·cm^2, K = 0.26, composition no. 1). All formulas hold approximately: Similar relationships were observed for the system ($Ni_{1-x-y}Cu_yCo_xFe_2O_4$). In this case, however, the maxima were blurred, and corresponded to a value of x ranging from 0 to 0.01. In this system, a and K reached their maximum values at y = 0.15, x = 0.01 (a = 1.5·10^4 dyne/gauss·cm^2, K = 0.21, no. 2). Taking account of the experimentally obtained relations, it was found from

$$a = K\sqrt{E/4\pi\mu_r} = \Lambda E/4\pi\mu_r$$

(E - Young's modulus; μ_r - reversible magnetic permeability; Λ - sensitivity coefficient), that μ_r and Λ are determined by different energies of anisotropy. Consequently Λ/μ_r or K/μ_r depends on the anisotropy constant K_1. A system $Ni_{1-y}Co_yFe_2O_4(Fe_2O_3)_x$, consisting of several "subsystems", was synthesized to investigate the effect of the Fe_2O_3 excess on magnetostriction. The subsystem $\left[Ni_{0.98}Co_{0.02}Fe_2O_4(Fe_2O_3)_x\right]$ corresponded to the optimum $CoFe_2O_4$ content (y = 0.02). In this system α reached its

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maximum at x = 0.025 (a = (2.2-2.3)·10^4 dyne/gauss·cm^2, no. 3), and K (K = 0.3-0.32) within the range of variation 0.025 ≤ (x = x_{opt}) ≤ 0.035 (x_{opt} depends on the annealing temperature). The increase of K and a, obtained by the introduction of excessive Fe^{2+} ions is accompanied by an increase of electromagnetic and mechanical losses. The former can be considerably reduced by synthesis of multi-component ferrites with $CuFe_2O_4$, when a and K remain unchanged or are increased but little. Thus the system $(Ni_{0.85}Cu_{0.15})_{1-x}Co_xFe_2O_4$ was obtained by substitution of Cu^{2+} ions for part of the Ni ions in system A. A group of compositions, $Ni_{0.98-x}Co_{0.02}Cu_xFe_2O_4 \cdot (Fe_2O_3)_{0.025}$, was synthesized on the basis of no. 3. In this case, the composition no. 4 is very interesting with x = 0.075 (a = 2.5·10^4, K = 0.38). A further improvement of the chemical composition of Ni-Cu-Co-ferrites was effected by the system $(Ni_{0.925}Cu_{0.075})_{1-x}Co_x \cdot Fe_2O_4(CoFe_2O_4)_x$. In this system, the ferrite with x = 0.01 (no. 5) possessed the maximum values of a and K ($a_{max} \approx 2.9 \cdot 10^4$,

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Synthesis of multi-component ...

$K_{max} \approx 0.4$). Contrary to simple ferrite systems, different annealing temperatures corresponding to the maximum values of a and K are characteristic of a number of Ni-Zn-Cu-Co and Ni-Cu-Co ferrites. It is, therefore, possible to modify the properties of ferrites by changing this temperature. The optimum values of the annealing temperature are lowered on transition from pure to industrial raw materials. This is due to impurities contained which act as mineralizers. It was possible to produce new ferrites with higher values of K, a, and Λ than were formerly known. There are 4 figures and 8 references: 3 Soviet and 5 non-Soviet. The four references to English-language publications read as follows: Ref. 1: Van der Burgt C. M., Philips Res. Repts, 8, 91 (1953); Ditto, Philips Res. Repts, 12, 97 (1957); Ditto, Philips Techn. Rev., 18, no. 10. 285 (1956/57); Weil L., Compt. Rend., 234, 1351 (1952).

Card 4/4

SYRKIN, L.N.; IVUKINA, A.K.; PODKUYKO, T.S.

Investigating the magnetoelastic effect in ferrites. Fiz.met.i metalloved. 14 no.6:806-813 D '62. (MIRA 16:2)
(Ferrates—Magnetic properties)

VASILEVSKAYA, E.S.; SYRKIN, L.N.; SHAMOVSKAYA, M.A.

Methods and apparatuses for the measurement of dynamic magnetostruction parameters. Trudy inst. Kom.stand.mer i izm. prib no.64:311-320 '62. (MIRA 16:5)
(Magnetic measurements—Equipment and supplies)

L 17591-65 EPA(s)-2/EWI(m)/EWP(e)/EPF(n)-2/EPA(w)-2/EWP(b)/EWA(h) Pab-10/
Pt-10/Peb/Pu-4 AFWL/SSD/ASD(a)-5/AS(mp)-2/ASD(m)-3/AFETR WH
ACCESSION NR: AP4048393 S/0181/64/006/011/3235/3239

AUTHOR: Sy*rkin, L. N.; El'gard, A. M. B

TITLE: Investigation of the electromechanical properties of ceramic ferroelectrics in strong electric fields and under high pressures

SOURCE: Fizika tverdogo tela, v. 6, no. 11, 1964, 3235-3239

TOPIC TAGS: ceramic material, ferroelectric, barium titanate, piezoelectric property, piezoelectric modulus, electrostriction pressure dependence

ABSTRACT: The ferroelectric materials tested, which are widely used as piezoelectric transducers, were pure $BaTiO_3$, 95% $BaTiO_3$ + 5% $CaTiO_3$, 95% $BaTiO_3$ + 5% $CaTiO_3$ + 0.47% Co), 60% $PbNb_2O_6$ + 40% $BaNb_2O_6$, and $Pb_{0.95}Sr_{0.05}(Zr_{0.53}Ti_{0.47})O_3$ + 1% Nb_2O_5 (all percentages are by weight). The electromechanical properties of these materials were

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L 17591-65
ACCESSION NR: AP4048393

investigated by measuring (with a microphone) the sound pressure produced by the vibrating sample and by the sample excited with an electric field, using the test setup shown in Fig. 1a of the Enclosure. The effect of unilateral compression (equal to or more than 1400 kg/cm^2) and temperature on the piezoelectric properties of these materials was investigated in strong alternating fields, using the test setup shown in Fig. 1b of the Enclosure. The piezoelectric moduli and the electrostriction coefficient exhibit complicated dependences on the applied voltage, the frequency, the temperature, and the pressure, but all these dependences can be attributed to changes produced by these factors in the domain structure of the materials. Other varied parameters were the type of field (a-c or d-c) and the polarization. Orig. art. has: 5 figures.

ASSOCIATION: none

SUBMITTED: 28Apr64 ENC: 01 SUB CODE: EM, SS

NO REF SOV: 008 OTHER: 006 ATD PRESS: 3151

Card 2/3

L 17591-65
ACCESSION NR: AP4048393

ENCLOSURE: 01

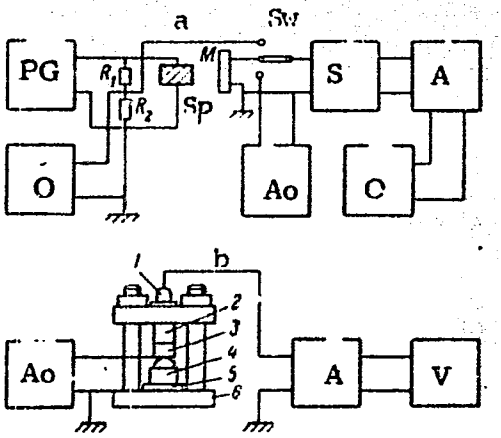

Fig. 1. Block diagram of setup for the investigation of the mechanical and electrical properties in strong electric fields (a) and under compressive stresses (b)

1 - Vibration pickup, 2 - sample, 3 - steel liner, 4 - dynamometer with wirewound transducer, 5 - insulating liner, 6 - screw press

PG - pulse generator
O - oscilloscope
S - spectrometer
A - amplifier
AO - audio oscillator
V - VTVM
M - microphone
Sp - specimen
Sw - switch

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SYRKIN, L.N.; EL'GARD, A.M.

Study of the electromechanical properties of ceramic ferroelectrics in strong electric fields at high pressures. Fiz. tver. tela 6 no.11:3235-3239 N '64. (MIRA 18:1)

L 51543-65 EWT(1)/EWP(e)/EPA(s)-2/EWT(m)/EWP(i)/EPA(w)-2/EEC(t)/EWP(b)
Pab-10/Pt-7/P1-4 IJP(c) GG/WH
ACCESSION NR: AP5010735 UR/0181/65/007/004/1206/1211

AUTHOR: Syrkin, L. N.; El'gard, A. M.

TITLE: Effect of domain structure of ceramic ferroelectrics on their mechanical properties

SOURCE: Fizika tverdogo tela, v. 7, no. 4, 1965, 1206-1211

TOPIC TAGS: ferroelectric material, ceramic ferroelectric, domain structure, mechanical property

ABSTRACT: The authors investigated the mechanical properties of ceramic ferroelectrics $BaTiO_3$ (composition I), 95% $BaTiO_3$ + 5% $CaTiO_3$ + 0.47% CoO (composition II), 60% $PbNb_2O_6$ + 40% $BaNb_2O_6$ (composition III), and $Pb_{0.95}Sr_{0.05}(Zr_{0.53}Ti_{0.47})O_3$ + + 1% Nb_2O_5 (composition IV). The tests were made over a wide range of variation of compression stresses (0--1200 kg/cm^2) and at different temperatures (20--150C). The stress was uniform in the sample, which was heated by means of a cylindrical electric oven. The strain was measured with a wire tension gauge. The results show that the time dependence of the deformation of ceramic ferroelectrics can be

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L 51543-65
ACCESSION NR: AP5010735

described with sufficient accuracy by an exponential function. The results are interpreted from the point of view that the time dependence of the deformation of the ferroelectrics is governed by the reorientation of the domains under the influence of mechanical stresses. The effect of the domain orientation in the different compositions of the ferroelectrics are discussed in detail. Orig. art. has: 5 figures and 2 formulas.

ASSOCIATION: None

SUBMITTED: 03Dec63 ENCL: 00 SUB CODE: SS, MT

NR REF SOV: 007 OTHER: 005

Card 2/2

L 10735-66 EWT(1)/EWP(e)/EWT(m)/EWP(b) IJP(c) GG/WH

ACC NR: AP5028129 SOURCE CODE: UR/0048/65/029/011/2096/2100

44,55 44,55 44,55

AUTHOR: Verbitskaya,T.N.; Syrkin,L.N.; El'gard, A.M.

ORG: none

TITLE: Influence of pressure and a static electric field on the nonlinear properties of varicaps /Report, Fourth All-Union Conference on Ferroelectricity held at Rostov-on-the Don 12-18 September, 1964/

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v. 29, no. 11, 1965, 2096-2100

TOPIC TAGS: ferroelectricity, ferroelectric material, compressive stress, electric field, dielectric constant, nonlinear effect

21,44,55

ABSTRACT: The dielectric constants of VK-2 varicaps subjected to different preliminary treatments were measured at frequencies from 50 cps to 300 kc with field strengths up to 4-5 kV/cm in the presence of dc bias fields up to 5 kV/cm or under uniaxial compression up to 1000 kg/cm^2. The results are presented graphically and are compared with similar data for $BaTiO_3$. The measurements that did not involve compression were made with 0.1 mm thick varicap films (low-field capacity approximately 120 μμf), using 5 μ sec pulses at a repetition rate of 2 pps. For the measurements made under compression, cubic samples 5 mm on a side were employed. The preliminary treatments included natural aging, heating at 150° C for 1 hour followed by rapid cooling, slow cooling from slightly below the Curie point in the presence of a strong (up to 5 kV/cm)

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L 10735-66

ACC NR: AP5028129

ac or dc electric field, and application of a strong ac or dc field at room temperature. Heat treatment enhanced the nonlinear dielectric properties of the specimens, i.e., it increased the dependence of the dielectric constant on the strength of the measuring field, increased the nonlinearity coefficient K (the ratio of the maximum value to the low-field value of the dielectric constant), and decreased the intensity E_{max} of the measuring field at which the dielectric constant attained its maximum. "Hot" treatment in an ac field resulted in even more pronounced nonlinearity than did ordinary heat treatment alone. Preliminary treatment at room temperature with a strong electric field also increased the nonlinearity of naturally aged samples, but it reduced the nonlinearity of previously heat treatment samples, owing to formation of a piezoelectric texture. The dependence of the dielectric constant on the measuring field strength became less marked as the frequency increases, while E_{max} increased and the nonlinearity coefficient K decreased. The nonlinear dielectric properties of the specimens also became less marked when the dc bias field was increased. Application of mechanical compression reduced the dependence on the measuring field strength of the dielectric constant in the direction of the compression, and also reduced the field dependence of the tangent of the dielectric loss angle. This is ascribed to orientation of the domain walls perpendicular to the compression axis. The nonlinearity diminished to approximately the same extent with an increase of frequency from 50 cps to 300 kc as with an increase of bias from 0 to 3.2 kV/cm or an increase of compression from 0 to 1000 kg/cm^2. Orig. art. has: 4 figures. [15]

SUB CODE: 09/ SUBM DATE: 00/ ORIG REF: 008/ OTH REF: 002

ATD PRESS: 4164

Card 2/2

L 7819-66 EWT(l)/EWP(e)/EPA(s)-2/EWT(m)/EEC(k)-2/EWP(i)/EPA(w)-2/EWP(t)/EWP(b) IJP(c)
ACC NR: AP5028126 JD/GS/WH SOURCE CODE: UR/0048/65/029/011/2082/2085

AUTHOR: Syrkin, L. N.; El'gard, A. M.

ORG: none

TITLE: Electromechanical hysteresis and relaxation effects in piezoelectric ceramics /Report, Fourth All-Union Conference on Ferro-electricity held at Rostov-on-the Don 12-16 September 1964/

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v. 29, no. 11, 1965, 2082-2085

TOPIC TAGS: ferroelectric material, ceramic material, solid solution, piezoelectric ceramic, piezoelectric modulus, electric polarization, barium titanate, calcium, cobalt, lead, strontium, zirconium, niobium, relaxation process, electric field

ABSTRACT: The frequency dependence and relaxation of the piezoelectric modulus and deformation of polarized ferroelectric ceramics with the compositions 95% $BaTiO_3$ + + 5% $CaTiO_3$ + 0.47% CoO and $Pb_{0.95}Sr_{0.05}(Zr_{0.53}Ti_{0.47})O_3$ + 1% Nb_2O_5 (the indicated percentages are by weight) were measured in strong electric fields. The lead zirconate-titanate base material has a comparatively low ferroelectric hardness and high coercive field (>12 kV/cm), owing to the high mobility of the 90° domain walls. The specimens were in the form of 30 mm diameter, 1 mm thick rings. The deformations were measured with wire strain gauges with a sensitivity of 5×10^{-7}; strains greater than 5×10^{-6} could be followed with an instrumental time constant less than 1 second.

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ACC NR: AP5028126

Hysteresis loops were recorded by stepwise variation of the applied potential and the relations between the first harmonic of the potential and the deformation were derived by Fourier analysis, and from these the field amplitude dependence of the piezoelectric modulus d_{13} was obtained. The piezoelectric modulus was measured at ultrasonic frequencies by recording the acoustic pressure excited in the sample by an alternating field. The deformation of the specimens increased nonlinearly with the applied field. The piezoelectric modulus increased with increasing field when the field was in the direction of the polarization, and decreased when the field was in the opposite direction. When the applied field was close in magnitude but opposite in direction to the coercive field the deformation and the modulus fell rapidly to zero. This is ascribed to the onset of 180° reorientation of the domains with the resulting destruction of the piezoelectric domain texture. When the applied field was in the direction of the residual polarization the deformation was established too rapidly for its time dependence to be followed. When the field was applied in the direction opposite to the coercive field the deformation proceeded monotonically to saturation, but when the applied field was close to the coercive field the deformation increased rapidly to a maximum and subsequently decreased to the equilibrium value. This behavior is ascribed to the fact that 90° domain reorientation, which increases the deformation, proceeds more rapidly than 180° reorientation, which decreases the deformation. The decreases of the piezoelectric modulus in depolarizing fields close to the coercive field did not occur in high frequency fields. The decrease of the piezoelectric modulus under the influence of mechanical stress was characterized by approximately

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ACC NR: AP5028126

the same relaxation times as its decrease under the influence of depolarizing fields. This suggests that similar domain reorientations may be involved in both effects and that mechanical stress can be employed to polarize piezoelectric elements of ferroelectric ceramics having high Curie points. Orig. art. has: 4 figures.

SUB CODE: SS, EM, ME SUBM. DATE: 00/ ORIG. REF: 004 OTH REF: 003

Card 3/3

L 7356-66 EWP(e)/EPA(s)-2/EWT(m)/EWP(i)/EPA(w)-2/EWP(t)/EWP(b)/EWA(h) IJP(c)

ACC NR: AP5028128 JD/WH SOURCE CODE: UR/0048/65/029/011/2091/2095

55 44 55 44 55 44

AUTHOR: Syrkin, L. N.; Feoktistova, N. N.; El'gard, A. M.

ORG: none

69 B

TITLE: Reversible and irreversible changes of the piezoelectric texture in ferroelectric ceramics under compression /Report, Fourth All-Union Conference on Ferroelectricity held at Rostov-on-the Don 12-16 September 1964/

III, 44, 55

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v. 29, no. 11, 1965, 2091-2095

TOPIC TAGS: ferroelectric material, piezoelectric ceramic, solid solution, barium titanate, calcium, cobalt, piezoelectric modulus, irreversible process, compressive stress

21, 44, 55

ABSTRACT: The reversible and irreversible effects of compression on the piezoelectric modulus of a ferroelectric ceramic of the composition 95% $BaTiO_3$ + 5% $CaTiO_3$ + 47% CoO (the percentages are by weight) were investigated with experimental techniques that have been described elsewhere by V.A.Rotenberg (Fiz. tverdogo tela, 1, 1777 (1959)) and A.M.El'gard (Phys. tverdogo tela, 6, No. 8, 2502 (1964)). Fresh polarized samples were loaded up to 1200 kg/cm^2 in compression parallel to the axis of the piezoelectric texture and the time variation of the piezoelectric modulus was followed; the load was then removed and the recovery of the modulus was observed. The difference between the modulus before loading and a long time after the load was removed, divided by the

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L 7856-66

ACC NR: AP5028128

modulus before loading, is regarded as the relative irreversible change. The relative irreversible change was found to be independent of whether the modulus was measured statically or dynamically. The compressive load increased the resonance frequency and decreased the antiresonance frequency. Cyclic loading and unloading was found to be more efficient in producing irreversible changes in the piezoelectric modulus and less efficient in increasing the resonance frequency than prolonged static loading. The partial recovery of the piezoelectric modulus after removing the load, owing to the partial reconstitution of the initial piezoelectric texture, at first proceeded exponentially with a time constant of 10-25 min, and later more slowly. When the load was applied cyclically the initial relaxation time for recovery between cycles decreased for the first few cycles and then reached a constant value. The experimental data confirm the hypothesis that most of the irreversible changes that take place in a polarized piezoelectric ceramic under compression are due to a comparatively slowly acting domain processes. The reversible processes, however, are mainly due to the comparatively rapid 90° reorientation of the domains. Orig. art. has: 2 formulas and 5 figures.

SUB CODE: SS,ME,EM SUBM. DATE: 00/ ORIG. REF: 004 OTH. REF: 005

Card 2/2

VERBITSKAYA, T.N.; SYRKIN, L.N.; EL'GARD, A.M.

Effect of pressure and a constant electric field on the nonlinear properties of variable capacitors. Izv. AN SSSR. Ser. fiz. 29 no.11:2096-2100 N '65. (MIRA 18:11)

BEKKER, S.M.; YEVDOKIMOV, A.I.; KIRSHENBLAT, Ya.D.; KONSTANTINOV, V.I.; LEVI, M.F.; LUR'YE, A.Yu.; NIKOLAYEV, A.P., prof.; NOVOSEL'SKIY, V.A.; PANCHENKO, N.A.; SHAGAN, B.F.; SYRKIN, M.M., red.; GITSHTEYN, A.D., tekhred.

[Practical obstetrics; selected chapters] Prakticheskoe akusherstvo; izbrannye glavy. Kiev, Gos.med.izd-vo USSR, 1958. 565 p. (MIRA 12:2)

1. Deystvitel'nyy chlen Akademii meditsinskikh nauk SSSR (for Nikolayev).

(OBSTETRICS)

KUKOLEV, Yakov Vasil'yevich, prof.; SYRKIN, M.M., red.; POTOTSKAYA, L.A., tekhn. red.

[Genitourinary fistulae] Genital'nye svishchi. Kiev, Gos. med. izd-vo USSR, 1961. 144 p. (MIRA 15:2)
(GENERATIVE ORGANS, FEMALE--DISEASES)

PETCHENKO, Aleksandr Ivanovich, prof., doktor med. nauk; SYRKIN, M.M., red.; CHUCHUPAK, V.D., tekhn. red.

[Obstetrics] Akusherstvo; rukovodstvo dlia vrachei i studentov. Izd.2., ispr. i dop. Kiev, Gosmedizdat, USSR, 1963. 780 p. (MIRA 16:8)

1. Zavsduyushchiy kafedroy akusherstva i ginekologii lechebnogo fakul'teta Krymskogo meditsinskogo instituta (for Petchenko).

(OBSTETRICS)

SYRKIN, Miron Mikhaylovich; SAVITSKIY, V.M.[Savyts'kyi, V.M.], red.

[Diagnosis of pregnancy and determination of its duration] Diagnostyka vahitnosti i vyznachennia ii stroku. Kyiv, Zdorov'ia, 1964. 36 p. (MIRA 18:1)

PETCHENKO, Aleksandr Ivanovich, doktor med. nauk, prof.[deceased];
SINKIN, P.I., red.

[Clinical aspects and treatment of gynecological diseases in children] Klinika i terapiia ginekologicheskikh zabolevanii u detei. Kiev, Zdorov'ia, 1964. 205 p.
(MIRA 18:1)

SYRKIN, M. Ye.

"Some Problems of the Theory of Resonance in Multiphase Circuits," "Transactions of the Power Engineering Institute" (Trudy instituta energetiki), No 3, Power Engineering Institute, AS Uzbek SSR, 1949, 143 pp.

SYRKIN, M. Ye. and FAYNSHTEYN, E. G.

"Selecting Electric Machines According to Heating," "Transactions of the Power Engineering Institute" (Trudy instituta energetiki), No 3, Power Engineering Institute, AS Uzbek SSR, 1949, 143 pp.

SYRKIN, M. Ye.

178T41

USSR/Electricity - Three-Phase Systems Feb 51
Analysis

"Study of Sequence Filters," M. Ye. Syrkin, Cand Tech Sci, Power Eng Inst, Acad Sci Uzbek SSR

"Elektrichestvo" No 2, pp 68-71

Discusses application of gen theory of nonsym 3-phase circuits to study of sequence filters. Derives relationships between parameters of filters of pos and neg sequences. Submitted 19 Jan 50.

178T41

Gorev, A. A.; Tolvinskiy, V. A.; Shatelen, M. A.;
Alimov, R. A.; Toperverkh, N. I.; Fazylov, Kh. F.;
Rakhimov, G. R.; Syrkin, M. Ye.; Shabadash, B. I.

Professor N. N. Shchedrin

On His 60th Birthday and 30th Year of Scientific and
Pedagogical Leadership

Elektrichestvo, No. 1, 1952.

SO: Monthly List of Russian Accessions, Library of Congress, April 1952 /1653, Uncl.

SYRKIN, M. Ye.

Electrical Engineering Abstracts, v. 56, June 1953, Machines

2386. Determination of available power rating of transformers under non-symmetrical loads. M. E. Syrkin and L. M. Shnitser. Elekt. Stantsii, 1952, No. 11, 42-6. In Russian.

With maximum load in any phase of a transformer, under stable asymmetrical conditions, the amount of heat produced in this phase winding is equal to the nominal. Total amount of heat produced in all three phases is less than nominal, so that maximum temperature is reached either in the cooling oil or in the phase with greatest load. Under such conditions increase in phase rating is permissible. Formulae are derived for maximum asymmetrical loads in 2- and 3-winding transformers, which would not reduce service life.

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S/105/60/000/03/013/023
B007/B008

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8(2), 24(3)

AUTHOR: Syrkin, M. Ye., Candidate of Technical Sciences(Novosibirsk)

TITLE: Operation Under Maximum Power in a Circuit Containing a Nonlinear Element

PERIODICAL: Elektrichestvo, 1960, Nr 3, pp 68-72 (USSR)

ABSTRACT: The basic problems concerning maximum power operation in a circuit containing a nonlinear element are investigated here, d. c. circuits only being considered. The results obtained here are valid approximately for pure reactive current circuits (effective current circuits) with sinusoidal electromotive force or sinusoidal current (provided the harmonics developing in consequence of the nonlinearity of the circuit can be neglected). It is assumed that the load resistance r_2 and a nonlinear resistance $r_0(I)$ are connected in series (Fig 1a) and that the characteristic $U_0(I)$ is given for the nonlinear resistance. The main formulas for those cases where $r_0(I)$ and $r_0(U_0)$ are given, are derived in the appendices. Formulas (1)

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to (5) are written down. It can be seen from formula (5) that during maximum power operation, r_2 is equal to the dynamic resistance r_{oD} of the nonlinear element. If the load and the nonlinear element are connected in parallel (Fig 1b), the voltages and resistances in formulas (1) to (5) are to be replaced accordingly by the amperages and conductivities. Formula (5) is valid for 2 simple cases only: 1) r_{oD} = const in the investigated range, and 2) $r_{oD} \neq$ const, but the current $I = I'$, at which the apparatus has to operate, is given. For the general case, however, a parameter of the maximum power operation ($r_2^{(m)}$ or $I^{(m)}$) must be found for a known characteristic $U_o(I)$ and the given value of the electromotive force E. The upper index "m" corresponds to the maximum power operation. The solution of this task is done graphically with the help of formula (3). 2 graphic methods are shown here. The characteristic values of the maximum power are investigated next and formula (6) for the transmission efficiency, formula (7) for the maximum

SYRKIN, P.; YEVSEYEV, A.

In search of new developments. NTO no.1:45-47 Ja '59. (MIRA 12:2)

1. Predsedatel' soveta pervichnoy organizatsii Nauchno-tekhnicheskogo obshchestva Gor'kovskogo avtozavoda (for Syrkin). 2. Glavnyy metallurg Nauchno-issledovatel'skogo instituta transporta avtomobil'noy promyshlennosti (for Yevseyev).
(Gorkiy--Automobile engineering research)

MOZOKHIN, N.G.; SYRKIN, P.E.

Engine of the GAZ-13 "Chaika" automobile. Avt.pron. no.1: 4-8 Ja '60. (MIRA 13:5)

1. Gor'kovskiy avtozavod.
(Automobiles--Engines)

SYRKIN, P.E.; DOKUKIN, Yu.I.

Development of the designs of crankshaft rear end packing of the GAZ engines. Avt. prom. 30 no.3:13-14 Mr '64.
(MIRA 17:6)

1. Gor'kovskiy avtomobil'nyy zavod.

MOZOKHIN, N.G.; SYRKIN, P.E.

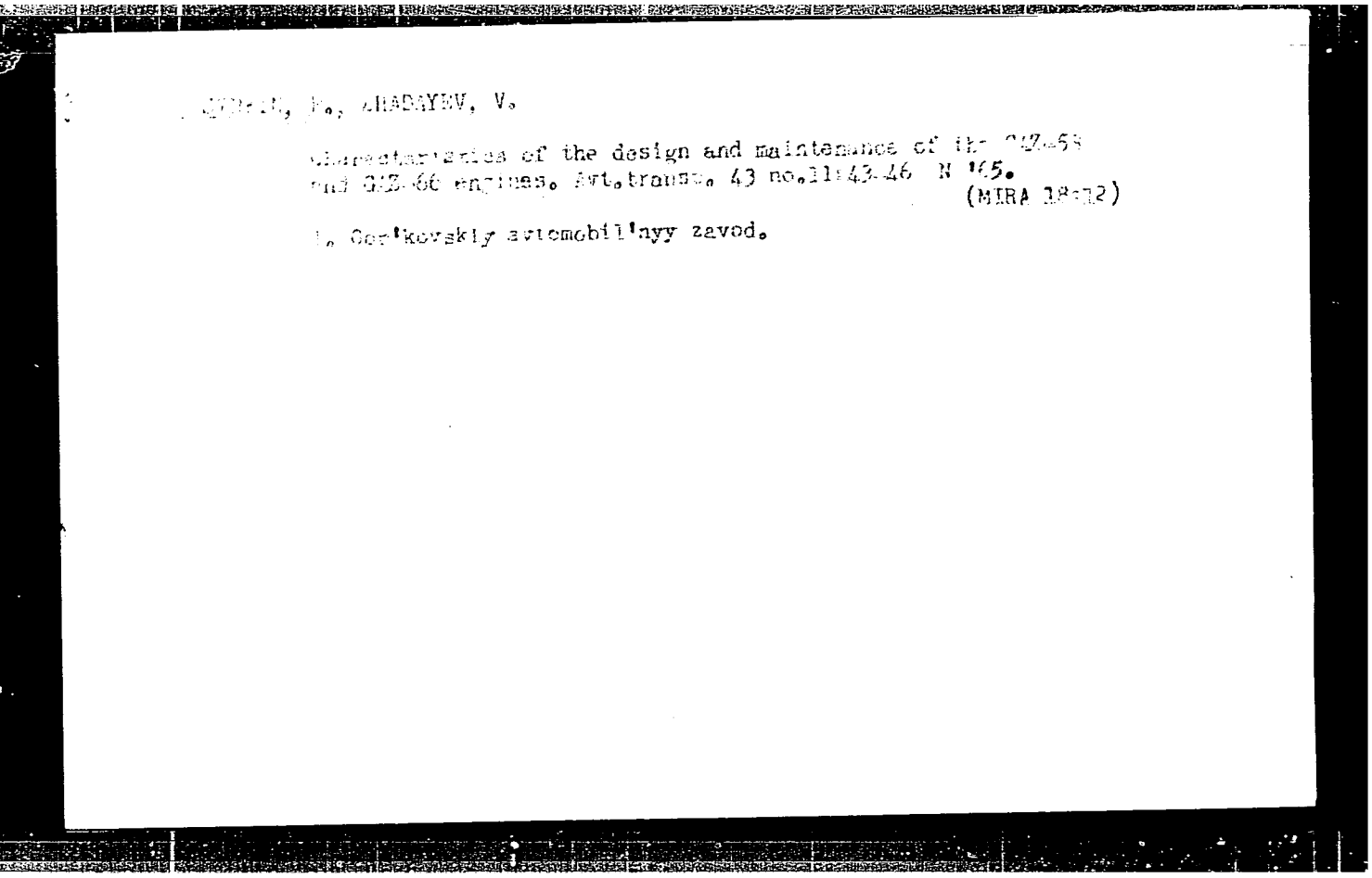
Engine of the GAZ-66 motortruck. Avt. prom. 30 no.7:3-5 Jl '64.
(MIRA 17:9)

1. Gor'kovskiy avtozavod.

SYRKIN, P.

Engine of the GAZ-66 motortruck. Avt. transp. 42 no.9:42-45 S '64.
(MIRA 17:11)

1. Vedushchiy konstruktor Gor'kovskogo avtomobil'nogo zavoda.



[illegible], P., AMBARYAN, V.

Characteristics of the design and maintenance of the ZIL-164 and ZIL-166 engines. Avt.transp. 43 no.11:43-46 N '65. (MIRA 18:12)

1. Cherkovskiy avtomobil'nyy zavod.

L 40826-66 EWT(d)/EWT(l)/EWT(m)/EWP(c)/EWP(v)/T/EWP(t)/ETI/EWP(k)/EWP(h)/EWP(l)

ACC NR: AP6020976 IJP(c) WW/JD/WB SOURCE CODE: UR/0113/66/000/003/0031/0033

AUTHOR: Verner, K. A.; Doronin, V. M.; Buynov, A. F.; Syrkin, P. E.; Letchford, N. I.

ORG: NAMI; "Elektrodetal'" Plant (Zavod "Elektrodetal'"); Gor'kiy Automobile Plant (Gor'kovskiy avtozavod)

TITLE: Chrome-manganese-nickel steel with nitrogen for internal combustion exhaust valves

SOURCE: Avtomobil'naya promyshlennost', no. 3, 1966, 31-33

TOPIC TAGS: internal combustion engine, valve, high temperature steel, chromium, manganese, nickel, hardness, durability, engine reliability, CHROMIUM STEEL, MANGANESE STEEL, NICKEL STEEL, EP303 HIGH TEMPERATURE STEEL

ABSTRACT: The authors discuss and criticize various grades of steel used for valve production. A comparison of existing grades of steel for valve production shows that EP303 steel is best suited for this purpose. It retains its hardness at temperatures of 700-900°C. This shows that it can withstand temperatures from 50 to 100 degrees higher than EI69 and EP48 steels. EP303 steel was tested for thermal stability to determine its resistance to scale formation in air and corrosion resistance in lead oxide at 900°C. EP303 steel compares favorably with the other grades of steel tested. The test results were used as a basis for trying out this steel in the mass production of valves. The manufacturing process is discussed. Valves made from EP303 and EP48

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L 40826-66
ACC NR: AP6020976

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steels were then compared on test stands and under operating conditions. These tests were carried out at the Gor'kiy Automobile Plant. The valves were tested in GAZ-51, GAZ-51a and GAZ-21d engines and others. High octane gasoline was used throughout the test since it develops high temperature conditions. Tests showed that valves made from EP303 steel retain their clearances throughout the test period in contrast to those made from EP48 steel. The data acquired during stand testing are in agreement with operational data. Valves made from EP303 steel have a hardness of HRC 38. These valves operate very well in GAZ engines and improve engine reliability. The service life of the new valves is triple that of valves with a built up VKhN-1 facing, and more than four times that of valves made from EP48 steel. The production of EP303 steel has been adopted by the Gor'kiy Automobile Plant for making the exhaust valves of GAZ and ZMZ engines. Orig. art. has: 4 figures, 1 table.

SUB CODE: 13/ SUBM DATE: none/ ORIG REF: 007/ OTH REF: 001

Card 2/2 MLP

L 52323-65 EEC(b)-2/EWA(h)/EWT(1) Pi-4/Pk-4/Pn-4/Peb

ACCESSION NR: AP5015699 UR/0025/64/000/010/0028/0031 22 B

AUTHOR: Syrkin, V. (Candidate of technical sciences)

TITLE: A chemical reaction produces a radio microcircuit 25

SOURCE: Nauka i zhizn', no. 10, 1964, 28-31

TOPIC TAGS: circuit microminiaturization, carbonyl iron

Abstract: Description, in popular terms of the methods of preparation, structure and properties of iron pentacarbonyl, $Fe(CO)_5$, and nickel tetracarbonyl, $Ni(CO)_4$, and their applications as magnetodielectrics in microcircuits. It is claimed that the Soviet Union produces the best metal-carbonyl powders in the world for electronic applications. Orig. art. has 1 figure.

ASSOCIATION: none

SUBMITTED: 00 ENCL: 00 SUB CODE: EC, IC

NO REF SOV: 000 OTHER: 000 JPRS

Card 1/1 mb

FRAYMAN, R.S., kand.tekhn.nauk; SYRKIN, V.G., kand.tekhn.nauk; VOLKOV, V.L., doktor tekhn.nauk

Investigating the process of the separation of fine metal powders in a cyclone bank. Khim.mashinostr. no.6:20-22 N-D '63. (MIRA 17:2)

KOSTIN, I.S.; SYRKIN, V.G.

Some economical problems of corn irrigation. Zemledelie 4 no.6: 76-79 Je '56. (MLRA 9:8)

1. Engel'skaya opytno-meliorativnaya stantsiya.
(Corn (Maize)) (Irrigation farming)

FRAYMAN, R.S., kand.tekhn.nauk; SYRKIN, V.G.; VOLKOV, V.L., doktor tekhn.nauk

Separation of finely dispersed powder fractions in a battery of cyclones. Khim. prom. no.7:494-498 Jl '61.
(MIRA 14:7)

(Separators(Machines))

S/193/63/000/001/002/008
A004/A101

AUTHOR: Syrkin, V. G.

TITLE: Class P-100 (R-100) carbonyl powder iron for use in radio engineering

PERIODICAL: Byulleten' tekhniko-ekonomicheskoy informatsii, no. 1, 1963, 9 - 10

TEXT: For producing cores of induction coils operating in a frequency range of 50 - 100 Mc, a new class R-100 (CTY -12 [STU-12] No. 10-210-62) carbonyl iron has been developed that possesses superior qualities compared with the class R-50 powder. The quality of this highly dispersive powder was improved by gas separation in a system of cyclones connected in series. This type of separator makes it possible to segregate from the polydispersive powder the carbonyl iron of a narrow fraction in the range of 0.5 - 2.0 μ, which precipitates in the last cyclone and final filter. The greatly increased quality of the powder permitted the reduction of the overall dimensions of the components made of this powder. On the other hand, the cost price of the R-100 powder increased by a factor of 3 compared to the R-50 powder due to the additional separation process. The following table shows the comparative electromagnetic parameters of varicus classes of carbonyl powder iron used in radio engineering.

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Class P-100 (R-100) carbonyl powder iron for...

Parameters	Powder Class		
	R-50	R-100 produced by separation	R-100 produced by means of atomizers
Insulation	Polystyrene	4% bakelite resin + 0.2% water glass	4% bakelite resin + 0.2% water glass
Relative quality	%	1.12	0.97 - 1.1
Effective permeability	0.9	1.64	1.78 - 1.82
Initial permeability	1.4	10.3	10.9
Hysteresis loss factor in the Raleigh range	9.2		
Loss factor by eddy currents and viscosity	$0.16 \cdot 10^{-3}$	$0.11 \cdot 10^{-3}$	$0.09 \cdot 10^{-3}$
Hysteresis loss factor in the initial range of magnetizing	$1.5 \cdot 10^{-9}$	$0.9 \cdot 10^{-9}$	Less than $0.25 \cdot 10^{-9}$
	$0.21 \cdot 10^{-3}$	$0.15 \cdot 10^{-3}$	$0.15 \cdot 10^{-3}$

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FRIDENBERG, A.E. [deceased]; SYRKIN, V.G. (Moskva); TOLMASSKIY, I.S. (Moskva); FRAYMAN, R.S. (Moskva)

High dispersion iron carbonyl powder for high frequency magnetic dielectrics. Porosh. met. 3 no.1:33-41 Ja-F '63. (MIRA 16:3)
(Metal powders) (Iron carbonyl) (Dielectrics)