

SOV/79-29-2-45/71

Oxidoreduction Systems as Stimulants in the Radical Processes. IX. Mechanism and Actual Efficiency of Polyamine Systems in the Polymerization Process

the mechanism of the main and side reactions. It was shown that it is possible to employ the polyamine systems for producing a highly active polymerization process in emulsions at 5°.- There are 9 figures, 5 tables, and 25 references, 9 of which are Soviet.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut sinteticheskogo kauchuka (All-Union Scientific Research Institute for Synthetic Rubber)

SUBMITTED: December 19, 1957

Card 3/3

5(1)

AUTHORS:

Kutsenok, B. Ye., Kulakova, M. N., SOV/20-125-5-33/61
Tinyakova, Ye. I., Dolgoplosk, B. A., Corresponding
Member, AS USSR

TITLE:

Initiation of the Polymerization Process in Emulsions
Under the Influence of Isopropyl-benzene-hydroperoxide and SO₂
(Initsirovaniye protsessa polimerizatsii v emul'siyakh pod
vliyaniyem gidroperekisi izopropilbenzola i SO₂)

PERIODICAL:

Doklady Akademii nauk SSSR, 1959, Vol 125, Nr 5,
pp 1073-1076 (USSR)

ABSTRACT:

It was proved already earlier (Ref 1) that the reaction
between the substances mentioned last in the title proceeds
rapidly in hydrocarbon media. It leads to the formation of
unsaturated polymers or to the formation of polysulfone if
it proceeds in a styrene solution at SO₂ excess (Ref 2).

Therefrom it may be assumed that the reaction of hydroperoxide
and SO₂ proceeds through an intermediate stage of the free
radicals, in analogy to many other known redox reactions. The
present paper deals with the investigation of the effective

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Initiation of the Polymerization Process in Emulsions SOV/20-125-5-33/61
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mechanism of this reaction system as well as with the clarification of its possibility of use for initiating the polymerization of monomers in aqueous emulsions and acid media at low temperature. Investigation of the composition of the interaction products of isopropyl-benzene-hydroperoxide with SO_2 . The process mentioned proceeds instantaneously in an octane-water emulsion between 0 - 70°. SO_2 and hydroperoxide are consumed in equimolar quantities (Table 1). If the reaction proceeds in the presence of α -pentene or α -methyl-styrene, which are known to affiliate easily free radicals (Refs 3, 4), sulfo acids are detected in the interaction products (Table-2). Therefore the radical SO_3H forms one of the intermediate products of the reaction. The formation of sulfuric acid as a final product of the oxidation may be due to the reaction of the disproportionation of the radicals. If the acceptors of free radicals lack, the reaction proceeds readily in the direction of the formation

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Under the Influence of Isopropyl-benzene-hydroperoxide and SO₂

of sulfuric acid and carbinol. Initiation of the polymerization under the influence of hydroperoxide and SO₂. Since the interaction of the components in aqueous emulsions and in a homogeneous medium proceeds rapidly, the first experiments of the aforesaid initiation do not yield positive results. The high concentration of active centers at the beginning of the process caused short reaction chains and the end of polymerization. It is known that such systems may be used for initiating the polymerization only by regulating the rate of interaction of the components by different methods. This is achieved especially at 0° with a gradual dosage of the components. Figure 1 shows the yields of the polymer in the presence of 0.6% of the hydroperoxide mentioned (computed with respect to the styrene weight) and at an equivalent quantity of 0.1 N SO₂-solution according to the sequence of the addition of the components. This shows that with the addition of hydroperoxide and SO₂ the polymerization ceases instantaneously

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(at the beginning of the reaction) (Curve 1). The process is quickest at a gradual dosage of the two components. The yield amounts here to 87 % at 0° within 4 hours (Curve 2). Figure 2 shows the kinetic polymerization curves of styrene in the presence of various quantities of hydroperoxide. Above 0.3 % and more of the concentration of the latter the polymerization ceases practically. A complete consumption of hydroperoxide and SO_2 corresponds to this moment. The polymerization begins again at a temperature rise up to 30° (Fig 3). Therefore an intermediate compound is produced under certain conditions which is able to initiate the polymerization at higher temperatures. There are 3 figures, 2 tables, and 8 references, 4 of which are Soviet.

ASSOCIATION: Nauchno-issledovatel'skiy institut sinteticheskogo kauchuka
im. S. V. Lebedeva (Scientific Research Institute of
Synthetic Rubber imeni S. V. Lebedev)

SUBMITTED: January 5, 1959
Card 4/4

KOZLOVA, N.A.; KULAKOVA, M.N.

Effectiveness of seroprophylaxis for epidemic hepatitis in Leningrad in 1958-1959. Trudy LPMI 30:250-258 '63.

(MIRA 18:3)

1. Leningradskiy institut epidemiologii i mikrobiologii imeni Pastera (dir. M.Ya.Nikitina) i Leningradskaya gorodskaya sanitarno-epidemiologicheskaya stantsiya (glavnyy vrach V.Ye.Kovshilo).

RAFAL'SON, D.I.; KULAKOVA, M.N.; KRUTOGOLOVA, F.M.; TETERINA, Z.K.;
LAZAREVA, M.S.; ORLOVA, N.N.; BARANOVA, L.P.; NAZAREVSKAYA, O.V.;
SHIBA, Ye.P.; MEL'CHENKO, K.M.; ZELENKOVSKAYA, A.N.

Significance of blood transfusion in the transmission of
epidemic hepatitis. Zhur.mikrobiol., epid. i immun. 42
no.9:81-85 S '65. (MIRA 18:12)

1. Leningradskiy institut perelivaniya krovi, 1-ya, 2-ya i
3-ya gorodskiy stantsii perelivaniya krovi i Leningradskaya
gorodskaya sanitarno-epidemiologicheskaya stantsiya. Submitted
February 29, 1964.

ACCESSION NR: APS010522

UR/0056/65/048/004/1202/1204

AUTHOR: Akhmanov, S. A.; Kovrigin, A. I.; Kulakova, N. K.; Romanyuk, M. M.; Arukov, M. M.; Khokhlov, R. V.

TITLE: The threshold and line intensity of stimulated Raman scattering in liquids

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 48, no. 4, 1965, 1202-1204

TOPIC TAGS: stimulated Raman scattering, Raman scattering threshold, Raman scattering line intensity

ABSTRACT: Stimulated Raman scattering (SRS), at which coherent oscillation of molecules of the scattering medium is generated, has a threshold $\beta_{ci} E_0^2 \geq \delta_{ci}$, where E_0 is the field intensity of the incident wave, (frequency ω_0), β_{ci} is a value determined by the polarization of the molecule of the scattering medium at frequency $\omega_0 - \Omega = \omega_{ci}$ (Ω is the natural frequency of molecular oscillation), and δ_{ci} is the absorption coefficient of the medium at ω_{ci} frequency. Experiments on the excitation of SRS were performed with organic liquids (benzene) and

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cyclohexane) in order to establish the factors which determine the value of the threshold and line intensity in ranges shorter than that of ruby laser ($\lambda_0 \approx 0.69\mu$). The second harmonic of a neodymium glass laser ($\lambda_0 = 0.53\mu$) was used to excite SRS. The investigations showed a substantial decrease in SRS threshold in comparison to corresponding values at $\lambda_0 \approx 0.7\mu$. In benzene, SRS was approximately half that at $\lambda_0 \approx 0.7\mu$ under the same investigation conditions. This could be the result of the fact that 1) with the rise of operational frequency the value θ_{ci} increases or 2) the diameter of the focal spot of the generator of optical harmonics can be considerably smaller than that of the ruby laser, due to a smaller divergence of the harmonic beam. The intensity of SRS grows with the distance between the forward edge of the vessel and the focus. Generators of harmonics, in addition to their use for observation of SRS in the vicinity of electron absorption bands, can also be used for the investigation of SRS and nonlinear absorption effects in intensive biharmonic fields (including both Raman scattering of the harmonic field by coherent molecular oscillations excited by a wave of fundamental frequency and nondegenerated multiphoton absorption). Orig. art. has: 2 formulas and 2 tables.

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APPROXIMATE NR: AP5010522

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STATE NO: 004

OTHER: 005

ATD PRESS: 3245

Card 3/3

L 55908-65 EWT(1)/EWP(e)/EWT(m)/EPF(c)/EWP(i)/EEC(t) P1-4 IJP(c) WW/CG/WH
ACCESSION NR: AP5016544 UR/0056/65/048/006/1545/1553

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36
B

AUTHOR: Akhmanov, S. A.; Kovrigin, A. I.; Kulakova, N. K.

TITLE: Effect of the finite aperture of a light beam on nonlinear processes in an anisotropic medium 24

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 48, no. 6, 1965, 1545-1553

TOPIC TAGS: nonlinear optics, harmonic generation, second harmonic, anisotropy, beam divergence, Raman scattering, KDP crystal, wave interaction, laser beam

ABSTRACT: Data are presented on an investigation of the aperture effect of an incident beam on the generation of the second harmonic in an anisotropic medium. Experiments to show the spatial structure of the harmonic radiation were carried out with a beam from a ruby laser with external mirrors incident on a rotatable KDP crystal in which the second harmonic was generated. The experiments were performed with focused and unfocused laser beams at variable crystal and focal lengths. The anisotropy of the 1.6-cm-thick KDP crystals was varied by an external electrostatic field. The experimental data indicate the following: 1) variation

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I-55984-65

ACCESSION NR: AP5016544

of crystal anisotropy can be used for modulation of harmonic emission; 2) aperture effects play a decisive role in the process of second harmonic generation near the so-called synchronism direction; 3) the number of dark and light bands in the transverse cross section of the harmonic depends to a great extent on the divergence of the laser beam; and 4) the effect of crossed beams on the generation of the second harmonic is small. The experimental results obtained with the focused beam differ essentially from the theory developed by D. Kleinman (Phys. Rev., 128, 1962, 1761) of generation of the second harmonic in a diffraction-limited focus. Orig. art. has: 6 figures and 14 formulas. [YK]

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)

DEMITTED: 17Dec64

ENCL: 00

SUB CODE: SS, EC

NO REF SOV: 006

OTHER: 006

ATD PRESS: 4034

Card

12/2

KULAKOVA, N. S.

KULAKOVA, N. S. -- "Methods of Work on the Composition of the Word in the Fifth Class of Intermediate School (On the Material Contained in 'The Composition of the Word' and 'The Noun')." Moscow State Pedagogical Inst imeni V. I. Lenin. Moscow, 1955. (Dissertation for the Degree of Candidate in Pedagogical Sciences).

So.: Knizhnaya Letopis', No. 2, 1956.

1516 A BOKA, N. E.

The preparation of phosphotungstic acid
ether. E. A. Nikitina and N. E. Kuzikova. *J. Gen. Chem.*
U.S.S.R. 25, 2207-8 (1955) (English translation).—See *Chem. Abstr.*
50, 4890a. E. M. K.

KULAKOVA, N. E.

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The preparation of phosphotungstic acid without the use of ether. E. A. Nizina and N. E. Kulakova (I. V. Stalin 2nd Med. Inst., Moscow). *Zhur. Obshchei Khim.* 25, 2388-91 (1953). — To prep. $H_2[P(W_3O_{10})_4]$, mix 1.3 g. BaWO₄ (prepd. by pptg. Na₂WO₄ with BaCl₂) with 2.031 l. of boiling H₂O, add 28 ml. H₃PO₄ (87.0%) to the suspension, boil for 15 min., add 812.5 ml. of concd. HCl, and stir for ~2 hrs. Dissolve the Ba₂H₂[P(W₃O₁₀)₄] in boiling H₂O (1 kg.:5 l.) add 27 ml. of concd. H₂SO₄, boil with stirring for 1 hr., and filter off the BaSO₄. Evap. the filtrate to dryness in vacuo. The yield is 76%.
J. Rovtar Leach

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5(2)

AUTHORS:

Nikitina, Ye. A., Kulakova, N. Ye.

SOV/78-4-3-13/34

TITLE:

On the Preparation of Mono-, Di-, and Tribarium Phosphotungstates (O poluchenii odno-, dvukh-, i trekhzameshchennykh fosfornovol'framatov bariya)

PERIODICAL:

Zhurnal neorganicheskoy khimii, 1959, Vol 4, Nr 3, pp 564-570 (USSR)

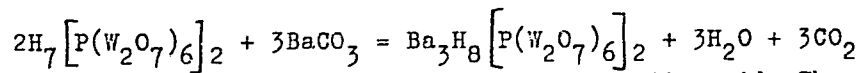
ABSTRACT:

The conditions of producing mono-, di-, and tribarium phosphotungstates from free phosphotungstic acid and various barium salts, such as the carbonate, acetate and chloride, have been determined. The monobarium salt can be synthesized only with the aid of sodium chloride by isothermal crystallization in a solution having a certain p_{H} -value. More highly substituted salts are formed when barium carbonate and barium acetate are used. Monosubstituted salts do not form in solutions containing carbonic acid and acetic acid. The dibarium salt of phosphotungstic acid can be synthesized only with the aid of free acids and barium chloride solution. The microphotograph of the disubstituted salt shows that a transformation takes place in this salt at 41° . The tribarium salt of phosphotungstic acid is synthesized by the reaction

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Phosphotungstates

SOV/78-4-3-13/34



with various barium salts and phosphotungstic acid. The temperature and the manner in which the barium salts are added are insignificant for the crystallization. The trisubstituted salt has the highest stability and is slightly soluble in water. There are 1 figure, 3 tables, and 11 references, 4 of which are Soviet.

ASSOCIATION: 2-oy Moskovskiy meditsinskiy institut im. N. I. Pirogova
(Moscow Second Medical Institute imeni N. I. Pirogov)

SUBMITTED: October 30, 1957

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5(2)

AUTHORS: Nikitina, Ye. A., ~~Zakharova, N. Ye.~~ SOV/78-4-3-14/3A

TITLE: On the Preparation of Higher-substituted Barium Phosphotungstates (O poluchenii vysokozameshchennykh fosfornovol'framatov bariya)

PERIODICAL: Zhurnal neorganicheskoy khimii, 1959, Vol 4, Nr 3, pp 571-577 (USSR)

ABSTRACT: The syntheses of higher-substituted barium phosphotungstates have been found. Free phosphotungstic acid and various barium salts, such as the carbonate, acetate, and chloride were used. Tetrabarium phosphotungstate was produced from barium carbonate or acetate. Exact instructions for preparing $Ba_4H_6 [P(W_2O_7)_6]_2$ are given. The salt is purified by a slow isothermal crystallization of the solution. The yield is about 50-65%. The pentasubstituted salt $Ba_5H_4 [P(W_2O_7)_6]_2 \cdot xH_2O$ was produced by the action of free phosphotungstic acid on barium acetate or carbonate. The salt first forms a honeylike mass, which changes to the crystalline form when stored at room temperature. The hexasubstituted salt $Ba_6H_2 [P(W_2O_7)_6]_2 \cdot xH_2O$

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On the Preparation of Higher-substituted Barium
Phosphotungstates

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was detected in the solution but has not been isolated in solid condition. To prepare the salt in crystalline condition a freezing-out of the solution or low-temperature crystallization is necessary. The crystal formation of the hexasubstituted salt was microphotographed. The heptasubstituted salt $Ba_7[P(W_2O_7)_6]_2 \cdot xH_2O$ was isolated by the action of 5 equivalents $BaCO_3$ on free phosphotungstic acid. The action of 7 equivalents barium acetate or carbonate on phosphotungstic acid results in the formation of the bertholyt compound. The bertholyt compound of the heptasubstituted salt is difficultly soluble in cold water and unstable when stored. The aqueous solutions of tetra-, penta-, hexa-, and heptasubstituted salts have an acid reaction. There are 1 figure, 2 tables, and 11 references, 8 of which are Soviet.

ASSOCIATION: 2-oy Moskovskiy meditsinskiy institut im. N. I. Pirogova
(Moscow Second Medical Institute imeni N. I. Pirogov)

SUBMITTED: December 22, 1957
Card 2/2

5(2)

SOV/78-4-10-10/40

-AUTHORS:

Nikitina, Ye. A., Kulakova, N. Ye.

TITLE:

Thermographic Investigation of Barium-phosphotungstates

PERIODICAL:

Zhurnal neorganicheskoy khimii, 1959, Vol 4, Nr 10,
pp 2237-2241 (USSR)

ABSTRACT:

In an earlier paper (Ref 1) the method of synthesizing the phosphotungstates (PT) of barium was described. Now, the compositions of the individual salts, their thermal stability and the formation of various hydrates were investigated. The thermograms (Figs 1-7) were plotted by means of the Kurnakov-pyrometer. The following mono- up to hepta-substituted salts were investigated: $BaH_{12}[P(W_2O_7)_6]_2 \cdot 10.53 H_2O$; $Ba_2H_{10}[P(W_2O_7)_6]_2 \cdot 22.96 H_2O$; $Ba_2H_8[P(W_2O_7)_6]_2 \cdot 20 H_2O$; $Ba_4H_6[P(W_2O_7)_6]_2 \cdot 27.86 H_2O$; $Ba_5H_4[P(W_2O_7)_6]_2 \cdot 36.39 H_2O$; $Ba_7[P(W_2O_7)_6]_2 \cdot 34.24 H_2O$ and its berthollide compound. The thermograms of the mono- up to tri-substituted salts exhibit 1-2 endothermic effects due to loss of water of hydration. The thermograms of the higher (tetra-, penta- and hepta-) substituted salts show endothermic effects of dehydration and exothermic effects which can be explained

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Thermographic Investigation of Barium-phosphotungstates

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by decomposition of (PT) under salt formation between the decomposition products. This assumption is based on the fact that the thermograms of the free phosphotungstic acid show no exothermic effects. All (PT) of barium are less affected by temperature changes than is the free phosphotungstic acid and the bi-substituted sodium-(PT). The least stable is the berthollide of the hepta-substituted salt. Four new hydrates were found: the bi-substituted barium-(PT) with 9.95 and 2.10 molecules H_2O , the penta-substituted Ba-(PT) with 7.02 molecules H_2O and the hepta-substituted Ba-(PT) with 4.28 molecules H_2O . There are 7 figures and 10 references, 4 of which are Soviet.

ASSOCIATION: Vtoroy Moskovskiy meditsinskiy institut im. N. I. Pirogova
(Second Moscow Medical Institute imeni N. I. Pirogov)

SUBMITTED: May 16, 1958

Card 2/2

NIKITINA, Ye.A., KULAKOVA, N.Ye.

Equilibria in the systems barium phosphotungstates - water. Zhur.
neorg. khim. 5 no.4:969-977 Ap '60. (MIRA 13:7)

1. Vtoroy Moskovskiy meditsinskiy institut im. N.I. Pirogova.
(Barium phosphotungstate)

DANILOV, S.N.; SIDOROVA-TIKHOMIROVA, N.S.; KULAKOVA, O.M.

Emulsion xanthogenation. Zhur. prikl. khim. v. 31 no.5:765-771
My '58.

(Emulsions) (Xanthic acid)

(MIRA 11-6)

5(3)

SOV/80-32-3-19

AUTHORS: Klenkova, N.I., Kulakova, O.M.

TITLE: Esterification of Weakly Oxyethylated Cellulose (Esterifikatsiya slabooksietilirovannoy tsellyulozy)

PERIODICAL: Zhurnal prikladnoy khimii, 1959, Vol XXXII, Nr 3, pp 680-686 (USSR)

ABSTRACT: The introduction of a small quantity of hydrophobic groups into the cellulose structure leads to an increase of their hydrophilic properties [Ref. 1-4]. This is explained by the fact that the introduced radical substitutes the hydroxyl groups of the cellulose and breaks the hydrogen bonds of the adjacent hydroxyls. The treatment of alkal cellulose with ethylene oxide vapors has an especially strong activating effect. Esters of the activated cellulose may be obtained by its interaction with haloidalkyls of low activity. Butylcellulose may be produced in the same way. Its resistance to tear is two times higher than in the common type of cellulose. The acid resistance is also high, the hygroscopicity is low.

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SOV/80-52/3-39743

Esterification of Weakly Oxyethylated Cellulose

There are 6 tables and 12 references, 9 of which are Soviet,
1 English, 1 French and 1 German.

SUBMITTED: February 15, 1958

Card 2/2

KLENKOVA, N.I.; KULAKOVA, O.M.; TSIMARA, N.D.; KHLBOSOLOVA, Ye.N.

Effect of various alkaline treatments on the reactivity of cellulose during acetylation and reaction with caustic soda solutions. Zhur.-prikl.khim. 35 no.12:2778-2786 D '62. (MIRA 16:5)

1. Institut vysokomolekulyarnykh soyedineniy AN SSSR.
(Cellulose) (Alkalies) (Acetylation)

KLENKOVA, N.I.; KULAKOVA, O.M.; VOLKOVA, L.A.

Determination of the density and other properties of cellulose fibers characteristic of their structure in relation to reactivity. Zhur.-prikl.khim. 36 no.1:166-176 Ja '63. (MIRA 16:5)

1. Institut vysokomolekulyarnykh soedineniy AN SSSR.
(Cellulose)

KIENKOVA, N.I.; KULIKOVA, G.M.; VOLESOVA, I.A.

Structure characteristics of weakly hydroxyethylated cellulose
fibers as related to their high reactivity. Zhur. prikl. khim.
37 no.9:2023-2028 S 164. (MIRA 17:10)

1. Institut vysokomolekulyarnykh soyedineniy AN SSSR.

KHENKOVA. N.I.; MATVEYEVA, N.A.; KULAKOVA. O.M.

Changes in the structure and properties of methylamine-activated
cellulose fibers during their storage. Zhur.prikl.khim. 38 no.6:1360-
1367 Je '55. (MIRA 18:10)

1. Institut vysokomolekulyarnykh soyedineniy AN SSSR.

KLENKOVA, N.I.; KULAKOVA, O.M.; MATVEYEVA, N.A.; VOLKOVA, L.A.;
TSIMARA, N.D.

Effect of methylamine in various media on the structure and
reactivity of cotton fibers. Zhur. prikl. khim. 38 no.5:1077-
1084 My '65. (MIRA 18:11)

1. Institut vysokomolekulyarnykh soyedineniy AN SSSR.

KULAKOVA, O.

Woodworking equipment in the European countries and in the U.S.A. Bum. i der. prom. no.4:52-55 O-D '65.

Furniture in the Rumanian People's Republic. Ibid.:55-56

Characteristics of the development of the Danish furniture industry. Ibid.:56

(MIRA 18:12)

KULAKOVA, O.M.

Storage of chips in open yards. Bum. 1 der. prom. no.4:56-57
O-D '63. (MIRA 17:3)

SAR'YAN, A.Yu.; KULAKOVA, O.M.

New system of drying paper sheets. Bum. 1 der. prom. no. 1:52
Ja-Mr '64. (MIRA 17:6)

SAF'YAN, A.Yu.; KULAKOVA, O.M.

Ultrasonic waves in pulp processing. Bum. i der. prom. no.3:60-
62 J1-S '63. (MIRA 17:2)

GIMMERIKH, F.I.; KULAKOVA, R.I.

Lactic acid and hemoglycolysis. Izv. AN Kir. SSR Ser. biol. nauk
2 no. 5:99-101 '60 (MIRA 14:6)
(LACTIC ACID) (BLOOD ANALYSIS AND CHEMISTRY)

KULAKOVA, R.I.; GIMMERIKH, F.I.; AITKULOVA, A.U.

Mechanism of glucose therapy. Sov. zdrav. Kir. no.3:26-29 My-Je '62.

(MIRA 15:4

1. Iz kafedry propedevticheskoy terapii (zav. - dotsent M.M.Mirrahimov)
Kirgizskogo gosudarstvennogo meditsinskogo instituta i laboratorii biokhimii
Instituta krayevoy meditsiny AN Kirgizskoy SSR (zav. - dotsent F.I.
Gimmerikh).

(GLUCOSE)

KREYN, S.B.; KULAKOVA, R.V.; LUZHETSKIY, A.A.; KOPKIN, M.G.; ALEKSANDROV, A.N.

Chemical and electric stability of oils. Khim.i tekhn.tepl.no.2:60-68 F
'56. (Oil analysis) (MIRA 9:9)

KULAKOVA, R.V., kandidat tekhnicheskikh nauk; KREYN, S.E., doktor
tekhnicheskikh nauk.

Polar and neutral hydrocarbons of mineral oils. Vest.elektroprom.27
no.12:52-54 D '56. (MLRA 10:1)

1. Nauchno-issledovatel'skiy institut Kabel'noy promyshlennosti,
Ministerstvo elektropromyshlennosti.
(Hydrocarbons)

KULAKOVA, R.V., kandidat tekhnicheskikh nauk; VOYDENOVA, K.I., inzhener.

Insulating paper for high-voltage cables. Vest.electropron. 27
no.7:42-46 J1 '56. (MLRA 10:8)

1.Nauchno-issledovatel'skiy institut kabel'noy promyshlennosti.
(Electric insulators and insulation)

AUTHOR: Kulakova, R.V., Candidate of Technical Sciences, Mirzoyev, A.G., Engineer, UKstin, E.F., Engineer, Khudyakova, V.A., Engineer, and Makarova, L.I., Engineer.

TITLE: The electric strength of main communications cable with spiral styroflex insulation. (Elektricheskaya prochnost magistralnykh kabeley svyazi s kordelno-stirofleksnoy izolyatsiyey.)

PERIODICAL: "Vestnik Elektropromyshlennosti" (Journal of the Electrical Industry) 1957, Vol. 28, No. 4, pp. 31 - 35 (U.S.S.R.)

ABSTRACT: Spiralled styroflex insulation consists of styroflex tape wound in an open spiral on the core over which are wound further close spirals of styroflex tape. Cable of this kind has good high frequency characteristics which is very important in cutting down the number of repeater stations on communications cables. The article gives data of the electric strength of insulation of this kind with various kinds of applied voltage, namely, d.c., impulse, short and long term 50 c/s a.c. and information about the nature of breakdown in the insulation. The article also gives the results of determination of breakdown voltage of short lengths of cable with spiral styroflex insulation used in the frequency range up to 252 kc/s with short and long term application of d.c. and 50 c/s a.c. and gives a statistical treatment of the experimental data to apply to production lengths of cable. It also gives the results of investigations of over voltage on switching and during fault conditions on an experimental line in application to the remote

The electric strength of main communications cable with spiral styroflex insulation. (Cont.) ³⁹⁰

feeding system which has been developed. The electric strengths of the different brands of cable are considered in turn.

It is concluded that the short term electric strength of styroflex film 0.02 -- 0.05 mm thick with 50 c/s a.c. is of the order of 240 kV/mm. The long term electric strength to a.c. is 70 kV per millimetre. The short term electric strength of cable models with spiral styroflex insulation increases with increase in the thickness of the spiralled film and outer covering. Breakdown of one film in a cable pair reduced the electric strength by about 40% and when two films broke down the reduction in electric strength was 60 - 80%, depending on the nature of the applied voltage. The electric strength of spiralled styroflex insulation to impulse and d.c. was 20% greater than to a.c. The minimum breakdown voltage determined on short lengths of cable with long term application of d.c. was 3 700 V and with a.c. 2 100 V. Under operating conditions with direct current sixfold overvoltage may occur under fault conditions and three or fourfold under switching conditions.

On the basis of the investigations that have been carried out it is recommended to try out the cables under operating conditions with a maximum supply voltage to repeater stations of 700 volts d.c. or 400 volts a.c. 3 figures.

Kulakova, R.V.

110-12-4/19

AUTHOR: Kulakova, R.V., Candidate of Technical Sciences, Kresyn, S.E.
Doctor of Technical Sciences, and Zhuravleva, R.M., Engineer.

TITLE: An Investigation into the Decomposition of Oils, Individual
Groups of Hydrocarbons and their Mixtures in an Electric
Field. (Issledovaniye razlozheniya masel, otdel'nykh grupp
uglevodorodov i ikh smesey v elektricheskoy pole)

PERIODICAL: Vestnik Elektropromyshlennosti, 1957, Vol.28, No.12,
pp. 11 - 15 (USSR).

ABSTRACT: The reliable operation of oil-impregnated and oil-filled
cables is affected by the evolution of gas in the oil through
ionisation. The article describes work with a "gassing" cell
very similar to the old Pirelli cell; the inner electrode is
a tungsten rod 2 mm diameter; and the outer electrode is tin
foil on glass. Tests were made with atmospheres of air, hydrogen
and nitrogen; the results are given in Fig.2. Nitrogen gave
considerable gas evolution and air considerable absorption,
whilst hydrogen was more stable. Accordingly, a hydrogen atmos-
phere was used in the subsequent work. After assessing the
influence of experimental variables, a study was made of the
gassing properties of low and high viscosity oils from both
naphthenic and paraffinic crudes; the properties of the oils
Card1/2 are given in Table 1. The more viscous oils did not evolve gas

110-12-4/19

An Investigation into the Decomposition of Oils, Individual Groups
of Hydrocarbons and their Mixtures in an Electric Field.

but the low-viscosity oils were much more active. The curves given in Fig. 9 show how the degree of refinement of transformer oil influences the gas evolution. The results of gassing tests on naphthenic paraffinic fractions completely de-asphalted and freed of aromatics are given in Fig. 10; all were gas-evolving, but again the heavier oils were more stable. The effect of adding aromatic hydro-carbons in reducing the gas evolution of the fraction is shown by the data in Fig. 7. The oils were also analysed after exposure to ionisation, which was found to cause somewhat greater complication of the molecules. Because fractions from which the aromatics have been removed are more gas-evolving, it is concluded that the aromatics prevent gas evolution; further, that their addition reduces the tendency to gas-evolution. On exposure to ionisation, the dielectric properties of almost all the oils became worse. There are 10 figures, 2 tables and 12 references, 2 of which are Slavic.

ASSOCIATION: NII KP

SUBMITTED: December 20, 1956

AVAILABLE: Library of Congress
Card 2/2

KULAKOVA, R.V

15(5)

PHASE I BOOK EXPLOITATION

SOV/2866

Kreyn, Solomon Efraimovich, and Revekka Viktorovna Kulakova

Neftyanyye izolyatsionnyye masla (Petroleum Insulating Oils) Moscow, Gosenergoizdat, 1959. 143 p. 6,000 copies printed.

Ed.: B. V. Losikov; Tech. Ed.: N. I. Borunov.

PURPOSE: This booklet is intended for engineers and technicians engaged in the production and utilization of insulating oil.

COVERAGE: The booklet reviews the technology of insulating oil production and presents a comprehensive analysis of different types of insulating oil. Several methods of manufacturing insulating oils with dielectric and antioxidative properties are examined and discussed. Considerable attention is devoted to insulating oils with a low solidification point, and to oils used for impregnating and filling high-voltage cables. The effect of such additives as depressants and antioxidants, as well as additives to prevent the oil from emitting gas, is discussed. The chemical composition of insulating oils is analyzed and equipment used for production of insulating oil is shown. The

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p

Petroleum Insulating Oils

SOV/2866

authors thank Professor B. V. Losikov. There are 63 references:
47 Soviet, 13 English, and 3 German.

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Petroleum Insulating Oils

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Petroleum Insulating Oils

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Petroleum Insulating Oils

SOV/2866

Bibliography

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AVAILABLE: Library of Congress

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1-15-60
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KULAKOVA, R.V., kand.tekhn.nauk

Studying the mechanical and physical properties of insulating papers. Vest.elektroprom. 33 no.1:10-13 Ja '62. (MIRA 14:12)
(Electric insulators and insulation--Testing)

KULAKOVA, R.V., kand.tekhn.nauk

Types and sizes of a new series of electric power cables. Vest.
elektroprom. 33 no.64-11 Je '62. (MIRA 15:7)
(Electric cables)

KULAKOVA, R.V., kand.tekhn.nauk; MIRZOYEV, A.G., inzh.

Underground 500 volt cable networks for rural electric power
distribution. Vost. elektroprom. 33 no.9:7-10 S '62.

(MIRA 15:10)

(Electric lines--Underground) (Electric cables)
(Rural electrification)

KULAKOVA, R.V., kand.tekhn.nauk; KOPKIN, M.G., inzh.

Low-viscosity insulating oils for electric cables and equipment
carrying voltages in excess of 220 kv. Vest.elektroprom. 33
no.12:22-25 D '62. (MIRA 15:12)
(Insulating oils)

KULAKOVA, Ravekka Viktorovna; BELORUSSOV, N.I., retsenzent;
FEDOSEYEVA, Ya.G., red.; LARIONOV, G.Ye., tekhn. red.

[Electric-power cables with plastic insulation] Silovye
kabeli s plastmassovoi izoliatsiei. Moskva, Gosenergo-
izdat, 1963. 94 p. (MIRA 16:7)

(Electric cables)

(Electric insulators and insulation)

BREYTVAYT, Konstantin Vasil'yevich; KORITSKIY, Yuriy Vladimirovich;
KULAKOVA, Revekka Viktorovna; SOKOLOVA, Serafima
Leonidovna; RYZHIKHINA, Ye.G., red.; BUL'DYAYEV, N.A.,
tekh. red.

[Manufacture, properties, and application of cellulose
electric insulating papers and cardboards] Proizvodstvo,
svoistva i primeneniye elektroizoliatsionnykh tselliuloz-
nykh bumag i kartonov. [By] K.V.Breitveit i dr. Moskva,
Gosenergoizdat, 1963. 319 p. (Polimery v elektroizoliatsion-
noi tekhnike, no.7) (MIRA 17:2)

KULAKOVA, R.V., kand. tekhn. nauk

Principal means for improving 6-35 kv. power cables.
Elek. sta. 35 no.2:45-47 F '64. (MIRA 17:6)

KULAKOVA, R.Ye., kand.tekhn.nauk; MIRZOYEV, A.G., inzh.; SKOROSPELOVA, Ye.V.,
inzh.

Power cables with polyethylene insulation for 10 kv. voltage. Vest.
elektroprom. 31 no.3:41-45 Mr '60. (MIRA 13:6)
(Electric insulators and insulation)
(Electric cables)

KULAKOVA, S. A.

KULAKOVA, S.A., pomoshchnik epidemiologa (Moskva)

Work of the assistant epidemiologist with active public health
workers. Fel'd. i akush. 22 no.12:29-31 D '57. (MIRA 11:2)
(PUBLIC HEALTH)

KLEBANOV, M.A., prof. (Kiyev); Prinsipalni uchastiye: BEREZITSKIY, A.V. (Kiyev);
PEKAR', P.P.; SAVENKOV, D.I.; TARANENKO, M.I.; MELAMED, M.A.;
BORSHCHEVSKIY, M.L. (Odessa); VIL'NYANSKIY, L.I. (Khar'kov);
SOKOLOVA, Yu.I. (Khar'kov); ABERMAN, A.A.; KULAKOVA, S.A. (Simferopol');
FUKS, R.A. (Dnepropetrovsk); BEZNOVA, Zh.A. (Vinnitsa); KUKLINA,
N.P. (Zhitomir); SIDORENKO, G.P. (Chernovitsy); D'YACHENKO, N.S.
(Stanislav).

Reduction in the periods of therapeutic pneumothorax following its
use in combination with antibacterial therapy. Vrach. delo no.12:
36-40 D '60. (MIRA 14:1)

1. Ukrainskiy institut tuberkuleza imeni F.G.Yanovskogo (for Klebanov).
2. Dispanser Yugo-Zapadnykh zheleznykh dorog (for Aberman).
(PNEUMOTHORAX) (TUBERCULOSIS)

ACCESSION NR: AR4032174

S/0058/64/000/002/D055/D055

SOURCE: Ref. zh. Fiz., Abs. 2D434

AUTHORS: Kulakova, S. N.; Yaskolko, V. Ya.

TITLE: Thermoluminescence of $\text{CaSO}_4\cdot\text{Mn}$, $\text{CaSO}_4\cdot\text{Sm}$, and $\text{CaSO}_4\cdot\text{Mn,Sm}$

CITED SOURCE: Nauchn. tr. Tashkentsk. un-t, vy*p. 221, 1963, 82-83

TOPIC TAGS: thermoluminescence, calcium sulfate manganese phosphor, calcium sulfate samarium phosphor, light sum, temperature maximum, activator concentration

TRANSLATION: The authors investigated the concentration dependence of the positions of the temperature maxima of the light sums and thermoluminescence spectra of the crystal phosphors $\text{CaSO}_4\cdot\text{Mn}$, $\text{CaSO}_4\cdot\text{Sn}$, and $\text{CaSO}_4\cdot\text{Mn,Sn}$ excited by β particles from Sr and by

Card 1/2

ACCESSION NR: AR4032174

x-rays. The concentration of the activators varied from 0.0001 to
1 mol. %. T. Razumova.

DATE ACQ: 31Mar64

SUB CODE: PH

ENCL: 00

Card 2/2

MIKHAYLOV, V.Ya.; Prinimali uchastiye: DMITRIYEV, V.K.; BELYAYEVA, N.M.;
KULAKOVA, T.A.; SHAROVA, T.V.

Study of deformations of aerial films. Trudy TSNIIGAİK no.142:
97-122 '61. (MIRA 15:8)

(Photography--Films)

AVANESOVA, A.G., dotsent; KULAKOVA, T.V., ordinator; KOZLOVA, N.M.,
ordinator

Side-effects of antibiotic action during treatment of dysentery
in children. *Pediatriia* no.2:69-73 '62. (MIRA 15:3)

1. Iz kafedry detskikh infektsionnykh zabolevaniy (zav. - prof.
D.D. Lebedev) II Moskovskogo meditsinskogo instituta imeni N.I.
Pirogova (dir. - dotsent M.G. Sirotkina).
(ANTIBIOTICS--TOXICOLOGY) (DYSENTERY)

KULAKOVA, T.V.

Seminar on the exchange of work experience in children's provincial hospitals in Lipetsk. Zdrav.Ros.Feder. 6 no.12:34-35 D '62.
(MIRA 16:1)

(LIPETSK--CHILDREN--HOSPITALS)

KURAKOVA, V.A.; KULAKOVA, T.V.

Board of the Ministry of Public Health Service in the R.S.F.S.R.
Zdrav. Ros. Feder. 7 no.8:45-46 Ag '63. (MIRA 16:10)
(KUYBYSHEV PROVINCE--PEDIATRICS)

KULAKOVA, T.V.

Some problems of improving medical care of children in a
village. Med.sestra 22 no.2:5-9 F '63. (MIRA 16:5)

1. Iz Ministerstva zdravookhraneniya RSFSR, Moskva.
(CHILDREN—CARE AND HYGIENE)

1,1,1,1-Tetrachlorobutane

1,1,1,1-Tetrachlorobutane

4

100%

KULAKOVA V.N.

467

AUTHORS:

Zinov'yev, Yu. M.; Kulakova, V. N.; Soborovskiy, L. Z.

TITLE:

Reaction of Phosphorus Pentachloride with Certain Halogeno Olefines (Vzaimodeystviye pyatikhloristogo fosfora s nekotorymi galoidolefinami)

PERIODICAL:

Zhurnal Obshchey Khimii, 1957, Vol. 27, No. 1, pp. 151-156 (U.S.S.R.)

ABSTRACT:

The possibility of adding phosphorus pentachloride to certain chlorine-substituted olefins - vinyl chloride, vinylidene and allyl chlorides - was investigated. The reaction carried out under soft conditions (20°) showed that the PCl₅ has practically not reacted with the chloro-olefins listed but in a more rigid reaction (heated to 110° under pressure and without a solvent) the PCl₅ reacted in 100%, but the reaction mixture showed no traces of organo-phosphorus compounds. The reaction of vinyl chloride with PCl₅ yielded, in addition to the non-reacted olefins, PCl₃, 1,1,2-trichloroethane and a chlorinated hydrocarbon with double number of carbon atoms which was identified as the hitherto unknown 1,1,4,4-tetrachloro butane. From allyl chloride with 1,2,3-trichloropropane, by an analogous method, 2,5,6-tetrachlorohexane was obtained. The formation of olefine chlorination products

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Reaction of Phosphorus Pentachloride with Certain
Halogeno Olefines

with double bond is easily explained by the chlorinating effect of PCl_5 . The possibility of the formation of such polychloroalkanes with double the number of carbon atoms from phosphorus chloralkyltetra chlorides was proven by thermal decomposition of P-2-chlorpropyltetrachloride obtained from propylene PCl_5 . Upon heating this tetrachloride to $100-110^\circ$, the reaction products showed PCl_3 , 1,2-dichloropropane and hydrogen chloride plus a small amount of tetrachlorohexane. The latter could have been formed as a result of chlorination of the alkyl radical at the phosphorus, separation of the C - P bond and combination of the newly originated radicals into a molecule with doubled carbon chain. By dehydrochlorination of 1,1,4,4-tetrachlorobutane, the authors obtained new 1,4-dichlorobutadiene-1,3 and 1,1,4-trichlorobutene-3.

One graph. There are 13 references, of which 5 are Slavic.

ASSOCIATION:

PRESENTED BY:

SUBMITTED: January 28, 1956

AVAILABLE:

Card 2/2

AUTHORS: Zinov'yev, Yu. M., Kulakova, V. N., 307/79-28-6-25/63
Soborovskiy, L. Z.

TITLE: The Synthesis of Organophosphorus Compounds of Hydrocarbons and Their Derivatives (Sintez fosfororganicheskikh sovedineniy iz uglevodorodov i ikh proizvodnykh) VII. Oxidizing Chlorophosphination With Alkoxy- and Dialkylamidodichlorophosphines (VII. Okislitel'noye khlorfosfinirovaniye alkoksi-i dialkilamidodikhlorfosfinami)

PERIODICAL: Zhurnal obshchey khimii, 1958, Vol. 28, Nr 6, pp. 1551 - 1554 (USSR)

ABSTRACT: Contrary to the method (Ref 1) employed in an earlier paper by the authors they now prove that alkoxydichlorophosphines and dialkylamidodichlorophosphines can be used as phosphination agents, i.e. compounds in which the hydrocarbon radical is combined with the phosphorus by means of a third element:
$$RH+2R'XP(Cl)_2+O_2 \longrightarrow RP(O)(XR')Cl+R'XP(O)Cl_2+HCl$$
, where R and R' are hydrocarbon radicals and where X is equal to O or to N. By means of the mentioned reagents the oxidizing chlorophosphination of cyclohexane with ethoxydichlorophosphine and vinylchloride

Card 1/3

The Synthesis of Organophosphorus Compounds of Hydrocarbons and Their Derivatives. VII. Oxidizing Chlorophosphination With Alkoxy- and Dialkylamidodichlorophosphines

SOV/79-28-6-25/63

with methoxydichlorophosphine and dimethylamidodichlorophosphine was carried out. The corresponding chlorine anhydrides containing a phosphorus-hydrocarbon bond were separated as final products. The chlorophosphination of cyclohexane with ethoxydichlorophosphine lead to a mixture of compounds the separation of which by fractionation was difficult. In order to prove that this reaction actually takes place according to the above mentioned scheme the mass obtained was hydrolyzed and the cyclohexanephosphinic acid was separated from the products of hydrolysis. Also with the compounds of the ethylene series oxidizing chlorophosphination with alkoxydichlorophosphines takes place in a manner similar to the reaction carried out with phosphorus trichloride; the vinyl chloride was used for this purpose. The chlorine anhydride and the ethyl ester of dimethylamidodichloroethanephosphinic acid, the dimethyl ester of dichloroethanephosphinic acid and the methyl ester of dichloroethanephosphinic acid were synthesized. There are 3 references, which are Soviet.

SUBMITTED:

May 12, 1957

Card 2/3

The Synthesis of Organophosphorus Compounds of SOV/79-28-6-25/63
Hydrocarbons and Their Derivatives. VII. Oxidizing Chlorophosphination With
Alkoxy- and Dialkylamidodichlorophosphines

1. Phosphorus compounds (organic--Synthesis
2. Hydrocarbons--Chemical reactions

Card 3/3

L 41353-66 EWT(m)/EWP(j) RM
ACC NR: AP6021421 SOURCE CODE: UR/0413/66/000/011/0021/0021 33
B

INVENTOR: Ivin, S. Z.; Zinov'yev, Yu. M.; Kulakova, V. N.; Drozd,
G. I.

ORG: none

TITLE: Preparation of alkoxyalkyldifluorophosphoranes. Class 12,
No. 182158 15

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki,
no. 11, 1966, 21

TOPIC TAGS: organic synthetic process, organic phosphorus compound,
fluorinated organic compound

ABSTRACT: The subject of this invention is a method for the prepara-
tion of alkoxyalkyldifluorophosphoranes by reaction of alkylphosphonous
difluorides with alcohols at -35 to -50C and in the presence of
tertiary amines, e.g., dimethylaniline. [JK]

SUB CODE: 07/ SUBM DATE: 26Feb65

Card 1/1 11b

UDC: 547.419.1.07

SHAPIRO, K.Ya.; KULAKOVA, V.V.

Hypochlorite treatment of lean molybdenum intermediate products.

TSvet. met. 36 no.9:88-89 S '63.

(MIRA 16:10)

SHAPIRO, K.Ya.; GLEBOV, Yu.M.; TARAKANOV, B.M.; KULAKOVA, V.V.; KAPKAYEVA, Kh.

Production of ammonium paratungstate from autoclave solutions by
an acid-free method. TSvet. met. 36 no.1:54-57 Ja '63.

(MIRA 16:5)

(Ammonium tungstate) (Hydrometallurgy)

SHAPIRO, K.Ya.; YURKEVICH, Yu.N.; KULAKOVA, V.V.

System $\text{Na}_2\text{WO}_4 - \text{NH}_4\text{Cl} - \text{HCl} - \text{H}_2\text{O}$ at 25°C and pH 7.0. Zhur. neorg.
khim. 10 no.4:961-964 Ap '65. (MIRA 18:6)

SHAPIRO, K.Ya.; YURKEVICH, Yu.N.; KULAKOVA, V.V.

Solubility in the system ammonium paratungstate ammonium chloride-
water at 25°C. Zhur. neorg. khim. 10 no.2:555-557 F '65.
(MIRA 18:11)

1. Submitted Nov. 18, 1963.

RELAHOVA, V. Ya., Geol-Mineral Sci -- (Giss) "Lipovsk deposits of
medicinal mineral waters in the Urals," Perm, 1960, 19 pp (Perm State
Univ in A. M. Gor'kiy) (RL, 33-60, 144)

KULAKOVA, V.Ya.

Radon waters of the Urals as a hydromineral basis for health resort
construction. Trudy Inst. geol. UPAN SSSR no.69. Gidrogeol. sbor.
no.3:87-98 '64. (MIRA 17:11)

KULAKOVA, V.Ya.

Genesis of radon waters as exemplified by the Lipovka deposit.
Razved. i okh. nedr 26 no.7:38-41 JI '60. (MIRA 15:7)

1. Sverdlovskiy nauchno-issledovatel'skiy institut kurortologii
i fizioterapii.
(Lipovka region (Sverdlovsk Province)—Mineral waters)
(Radon)

KULAKOVA, V.Ya.

The radon-bearing medicinal waters of Lipovskoye in the Urals.
Trudy Gor.-geol. inst. UFAN SSSR no.48:3-46 '60. (MIRA 14:2)
(Lipovskoye—Mineral waters) (Radon)

KULAKOVA, V.Ya.

Mineral water resources of the Lipovskoye springs of medicinal
radon waters in the Urals. Vop. kur., fizioter. i lech. fiz.
kul't. no.6:556-557 '63. (MIRA 17:8)

1. Iz Sverdlovskogo instituta kurortologii i fizioterapii
(dir. N.V. Orlov).

KULAKOVA, Ye.

Soviet regime did this for us. Rab.i sial. 34 no.11:20 H '58.
(MIRA 11:12)

(Women--Employment)

KULAKOVA, Ye.P., vruch; DORODKOVA, K.S.

Experience in the treatment of cervical erosion and endocervicitis with diathermocoagulation. Sbor. nauch. rab. Sar. gos. med. inst. 44:344-348 '64. (MIRA 18:7)

1. Ginekologicheskoye otdeleniye dorozhnoy klinicheskoy bol'nitsy Privolzhskoy zheleznoy dorogi, Saratov. 2. Glavnyy akusher-ginekolog dorozhnoy klinicheskoy bol'nitsy Privolzhskoy zheleznoy dorogi, Saratov.

L 3776-66 EWT(m)/EWA(m)-2 IJP(c) GS
ACCESSION NR: AT5007947

S/0000/64/000/000/0693/0697

44
35
27

AUTHOR: Zinov'yev, L. P.; Issinskiy, I. B.; Kotov, V. I.; Kulakova, Ye. M.;
Pavlov, N. I.; Myznikov, K. P.

TITLE: The utilization of parametric resonance in the 10-Bev synchrotron for
particle output

SOURCE: International Conference on High Energy Accelerators. Dubna, 1963.
Trudy. Moscow, Atomizdat, 1964, 693-697

TOPIC TAGS: high energy accelerator, electron paramagnetic resonance, focusing
accelerator

ABSTRACT: Accelerated particles with pulse length of less than 100 μ sec are of
great importance in current physical experiments. Great interest is shown in the
possibility of applying the parametric (half-integral) resonance. Such a possibi-
lity has been discussed in the literature especially in application to conditions
of weak-focusing and strong-focusing accelerators. Utilization of the resonance
 $\nu_x = 1/2$ for the rapid hurling of the accelerated beam against the target in a
small 70-Mev synchrotron permitted one to obtain good results. The present report
discusses the results of investigations conducted on the synchrotron at the

Card 1/3

L 3776-56

ACCESSION NR: AT5907947

Joint Institute of Nuclear Research to clarify the expediency of artificially exciting the resonance $\nu_x = 1/2$ for hurling the accelerated particles against the target and for extracting the proton beam from the accelerator's chamber. The resonance conditions were created by way of variation in an identical manner of the field index n in two neighboring quadrants such that the mean value of n in the accelerator corresponded to the condition of resonance. The resonance force here is determined by the magnitude of the first harmonic of the excitation (A. A. Kolomenskiy, A. N. Lebedev, *Teoriya tsiklicheskikh uskoriteley* (Theory of Cyclical Accelerators), Moscow, Fizmatgiz, 1962). Under real conditions the exciting field was created with the help of windings arranged inside the accelerator's vacuum chamber. The inductance of the windings arranged to about 3 mega-henries, which limited the rate of growth of the excitation. Numerical calculations carried out on an electronic computer on the exact equations of motion of the particles in the magnetic field showed that, for obtaining the resonance conditions, it is necessary to create the configuration of the magnetic field such that the index n in the excited quadrants reach values close to 0.9 for a duration of 300 microseconds (about 400 revolutions). The following topics are discussed: the dependence of the field index n upon the radius for currents of 340 amperes and none in the ex-

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L 3776-66

ACCESSION NR: AT5007947

9
citer winding; radial hurling of particles on the target 10 cm and 20 cm from the target; dependence of the duration of beam collision with the target upon the radial position of the target relative to the orbit for various excitations; dependence of the depth of hurling upon excitation and radial position of the target; the angle of flight of the particles into the gap of the deflector as a function of the moment of flight. "The authors thank Academician V. I. Veksler for his helpful discussions; L. A. Smirnova and N. N. Govorun for their help in the numerical computations; V. N. Buldakovskiy, A. I. Kryukov, Yu. F. Kusagin, V. S. Mironov, M. I. Mikitayev, et al., for their participation in developing and adjusting the emulsion experiments." Orig. art. has: 8 figures.

ASSOCIATION: Ob"yedinennyy institut yadernykh issledovaniy, Dubna (Joint Institute of Nuclear Research)

SUBMITTED: 26May64

ENCL: 00

SUB CODE: NP

NO REF SOV: 004

OTHER: 003

Card 3/3

S/0120/65/000/001/0033/0038

SESSION NR: AP5007020

AUTHOR: Zinov'yev, L. P.; Issinsky, I. B.; Kotov, V. I.; Kulakova, Ye. M.; Myznikov, K. P.; Pavlov, N. I.

TITLE: Fast extraction of the proton-synchrotron¹⁹ beam to the target

48
39
B

SOURCE: Pribory i tekhnika eksperimenta, no. 1, 1965, 33-38

TOPIC TAGS: particle beam, proton synchrotron, beam extraction

ABSTRACT: Fast extraction of the beam and sending it to a target located near maximum-deflection azimuth was achieved by creating parametric-resonance conditions in the weak-focusing 10-Gev proton-synchrotron. The resonance conditions were ensured by windings placed inside the vacuum chamber. A bank of capacitors was discharged at 10 kv into the winding; by the end of the acceleration cycle, the (thyatron-switched) winding current rose step-wise to a maximum and then (also thyatron-switched) fell-off exponentially. The system ensured a

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beam-extraction time as low as 30 nsec. "The authors wish to thank V. I. Veksler for a useful discussion; L. A. Smirnova and N. N. Govorun for their great help in calculations; and V. N. Buldakovskiy, A. I. Kryukov, Yu. F. Kusagin, V. S. Mironov, M. I. Nikifayev, and others who took part in the development and alignment of the equipment." Orig. art. has: 6 figures and 1 formula.

ASSOCIATION: Ob'yedinennyy institut yadernykh issledovaniy (Joint Nuclear Research Institute)

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