L 15135-65   EWT(m)/EPF(c)/EPR/EWP(j)   Pc-4/Pr-4/Ps-4   RPL   RM/BW/WW/JW/JFW

ACCESSION NR: AP4046080   S/0076/64/038/009/2198/2203

AUTHOR: Skorokhodov, I. I.; Nekrasov, L. I.; Kobozev, N. I.   L

TITLE: Hydrogen superoxide and frozen radicals. 9. reactions of atomic hydrogen
with ozone and oxygen in the gas phase

SOURCE: Zhurnal fizicheskoy khimii, v. 38, no. 9, 1964, 2198-2203

TOPIC TAGS: hydrogen superoxide, hydrogen peroxide, free peroxide radical,
hydrogen oxidation, gas phase oxidation, liquid phase oxidation, ozone oxidizer,
oxygen oxidizer

ABSTRACT: In connection with the search for an efficient method of synthesizing
hydrogen superoxide, H_2O_4, the gas-phase reactions of atomic hydrogen with ozone
and oxygen have been investigated. The purpose of the study was to confirm an
earlier assumption concerning the particular role played by the liquid ozone film
in the formation of H_4O_4 in the reaction of atomic hydrogen with 100% liquid ozone.
The gas phase reactions were carried out in a vacuum apparatus used previously for liquid-
phase reactions, and their products — peroxide-radical condensates — were collected
in a liquid-nitrogen trap. The products of both gas-phase reactions were identical,
containing water, hydrogen peroxide, H_2O_4, and HO_2 free radicals, the latter in

Card   1/2

L 15135-65
ACCESSION NR: AP4046060

very small amounts. However, the H_2O_4 content was about 27% by weight in the pro-
duct of the ozone reaction, against 15% in that of the oxygen reaction. The com-
position of both products contrasted sharply with that of the condensate obtained
previously in the liquid-phase reaction (40% water and 60% H_2O_4). This fact was
taken as an indication of the effect of the liquid-ozone film. Maximum yields of
all reaction products in the gas phase were observed at high H/O_3 or H/O_2 ratios.
As the ratios are lowered, the yield falls to zero. A reaction mechanism based on
experimental data was proposed, according to which H_2O_4 (as well as H_2O_2 and HO_2
free radicals) is formed on the cold walls of the reaction trap, whereas only water
is the end product of the reactions in the gas phase. Orig. art. has: 2 figures
and 11 formulas.

ASSOCIATION: Moskovskiy gosudarstvenny*y universitet im. M. V. Lomonosova
(Moscow State University)

SUBMITTED: 02Nov63   ENCL: 00   SUB CODE: FP, GC

NO REF SOV: 010   OTHER: 009

Card 2/2

KOMISSAROV, G.G.; NEKRASOV, L.I.; KOBOZEV, N.I.

Rate of fluorescence of chlorophyll at various concentra-
tions in an adsorbed condition and in a green leaf. Dokl.
AN SSSR 154 no.4:950-952 F '64.   (MIRA 17:3)

1. Moskovskiy gosudarstvennyy universitet im. Lomonosova.
Predstavleno akademikom A.N. Tereninym.

ACCESSION NR: AP4034548   S/0020/64/155/005/1194/1197

AUTHOR: Komissarov, G. G.; Gavrilova, V. A.; Nekrasov, L. I.;
Kobozev, N. I.; Yevstigneyev, V. B.

TITLE: Photosensitizing capacity of adsorbed carotene

SOURCE: AN SSSR. Doklady*, v. 155, no. 5, 1964, 1194-1197

TOPIC TAGS: photosynthesis, photochemical reaction, redox system,
β carotene, photosensitizing capacity, adsorbed β carotene

ABSTRACT: The photosensitizing capacity of β-carotene adsorbed on
alumina gel or polyacrylonitrile has been studied to verify an
assumption that besides chlorophyll, carotene in vivo might act as
a sensitizing agent of some intermediate photochemical reaction
occurring in the process of photosynthesis. The assumption was
made on the basis of the structural similarity of the carotene
molecule to sensitizers in photography (cyanin dyes) and to the
photosensitive material of the eye (visual purple). In preliminary
experiments, it was shown that β-carotene adsorbed on magnesia pro-
moted decoloration of thyonine in the presence of ascorbic acid
upon illumination with blue light. In quantitative experiments, the

Card 1/2

ACCESSION NR. AP4034548

extinction coefficient was measured during the process of gradual decoloration of a methyl red solution containing ascorbic acid upon illumination with blue light and in the presence of synthetic β-carotene adsorbed on alumina gel or polyacrylonitrile. Plots of the absorption of light versus time show the photosensitizing capacity of the adsorbed β-carotene. The latter in a solution did not show this capacity. The mechanism of photosensitization of the photochemical reduction by adsorbed β-carotene is linked to its behavior in the form of a complex with albumen in physiological processes. Orig. art. has: 2 figures.

ASSOCIATION: Institut biokhimii im. A. N. Bakha, AN SSSR (Institute of Biochemistry, AN SSSR)

SUBMITTED: 09Oct63   DATE ACQ: 13May64   ENCL: 00

SUB CODE: CH   NO REF SOV: 012   OTHER: 010

Card 2/2

L 63565-65   EWT(m)/EPF(c)/EPR/EWP(j)/T   Pc-4/Pr-4/Ps-4   RPL   WW/RM v

ACCESSION NR: AP5011527   UR/0076/65/039/005/1277/1281
                                                     541/.545

AUTHOR: ... ..., ...

TITLE: ... of the ... electron diffraction camera for studying products of the
low-temperature condensation of dissociated gases and vapors

SOURCE: Zhurnal fizicheskoy khimii, v. 39, no. 5, 1965, 1277-1281

TOPIC TAGS: electron diffraction camera, free radical

ABSTRACT: Free-radical products of the low-temperature condensation of vapors and
gases passed through an electric discharge were studied by using an EM-4 electron
diffraction camera modified by the addition of a system for cooling the sample and
a system for protecting it from contamination (by water vapor or vacuum lubricant).
The design and operation of the systems are fully described. The two systems per-
mit electron diffraction studies from 0 to -190°C. The protective system permits
experiments at -190°C for 1½ hours without contaminating the sample. This was
demonstrated by an analysis of ammonium chloride (see fig. 1 of the Enclosure). A
certain change in the interplanar distances shown by these microphotograms is due to

Card 1/3

L 63565-65

ACCESSION NR: AP5013527

the change in the unit lattice parameters of ammonium chloride as the temperature is reduced. The equipment was used to study peroxide-radical condensates produced by condensation of water vapor. The results are reported by Yu. A. Mal'tsev, I. I. Skorokhodov, and L. I. Nekrasov, in *Zh. fiz. khimii* 37, 2740, 1963. Orig. art. has: 3 figures.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova (Moscow State University)

SUBMITTED: 07Oct64   ENCL: 01   SUB CODE: ES, OC

NO REF SOV: 009   OTHER: 008

Card 2/3

I. 61565-65

ACCESSION NR: AP5013627   ENCLOSURE: 01

Fig. 1. Microphotograms obtained from electron diffraction patterns of ammonium chloride, recorded: 1--at room temperature; 2--with cooling for 60 min; 3--with cooling for 90 min, using the protective system; 4--with cooling for 40 min without the protective system.

Card 3/3

L 56194-65   ENG(j)/ENT(m)/EPF(c)/EPR/EWP(j)/T/EWP(t)/EWP(b)   Pc-4/Pr-4/Ps-4
TJP(c)/RPL   JD/WH/RM

ACCESSION NR: AP5016498   UR/0189/65/000/003/0020/0022

AUTHOR: Nekrasov, L. I.; Yapodovskaya, T. V.   40
                                                                         38
TITLE: Low-temperature reactions of atoms and radicals   13

SOURCE: Moscow. Universitet. Vestnik. Seriya 2. Khimiya, no. 3, 1965, 20-22

TOPIC TAGS: hydrogen peroxide, hydrogen tetroxide, atomic hydrogen, glow discharge

ABSTRACT: In order to determine whether concentrated normal hydrogen peroxide is
decomposed under conditions prevailing when H_2O_4 is obtained, experiments were per-
formed in which solid 87% H_2O_2 at -196C was exposed to the action of atomic hydrogen in
a hydrogen discharge. Hydrogen peroxide was deposited on the walls of the trap in two
ways: in the form of drops, with subsequent evacuation at zero C and cooling to -196C,
and by evaporation in a vacuum at a vapor pressure of 0.5 mm Hg and condensation in the
trap at -196C. Alternate freezing and heating of the H_2O_2 solution did not affect its sta-
bility, nor did the presence of metal particles or silicic acid, which are thought to be
present in a glow discharge. When H_2O_2 was deposited on the cold wall of the trap in the
form of a drop at atmospheric pressure, the amount of gas evolved on heating was slightly
greater than when H_2O_2 was evaporated in a vacuum. It is concluded that H_2O_2 does not

Card 1/2

L 58794-65

ACCESSION NR: AP6016496   2

decompose under conditions accompanying the synthesis of the superoxide H_2O_4. "The authors thank L. I. Skorokhodov, who kindly provided the concentrated solution of hydrogen peroxide used in the experiments." Orig. art. has: 1 table.

ASSOCIATION: Kafedra fizicheskoy khimii Moskovskogo universiteta (Department of Physical Chemistry, Moscow University)

SUBMITTED: 06Jul64   ENCL: 00   SUB CODE: IC

NO REF SOV: 006   OTHER: 006

Card 2/2 d@P

SOURCE CODE: UR/0076/66/040/007/1664/1665

L 45904-66   EWT(:)   IJP(c)
ACC NR: AP6026153

AUTHOR: Pichugina, N. G.; Yusupov, R. K.; Nekrasov, L. I.; Kobozev, N. I.

ORG: Chemistry Department, Moscow State University im. M. V. Lomonosov (Khimicheskiy fakul'tet, Moskovskiy gosudarstvennyy universitet)

TITLE: Dependence of the optical density and luminescence intensity of adsorption monolayers of chlorophylls a and b on their surface concentration

SOURCE: Zhurnal fizicheskoy khimii, v. 40, no. 7, 1966, 1664-1665

TOPIC TAGS: chlorophyll, luminescence spectrum, adsorption

ABSTRACT: Chlorophylls a and b isolated from nettle leaves were adsorbed at 20 °C from alcohol solutions on activated magnesium oxide. The isotherms obtained showed the adsorption of b to be almost twice that of a. Diffuse reflection spectra were recorded with an SF-2M recording spectrophotometer. The plots of optical density vs. surface concentration of the pigments were similar, although the optical density of the chlorophyll a monolayer was somewhat higher than that of b. The luminescence spectra were taken with an ISP-51 spectrograph with a photoelectric attachment. Measurements of the luminescence intensity as a function of the pigment concentration in the monolayer yielded curves with a pronounced maximum at surface concentrations corresponding to the transition from the plane monolayer of pigment molecules to the layer with edge orientation relative to the surface of the adsorbent. A sharp quenching

UDC: 543.42+541.183

Card 1/2

ACC NR,   AP6026153

of luminescence was found in chlorophyll a monolayers (almost down to zero), and a
slower change of intensity was observed in chlorophyll b, despite the greater density
of the adsorption layer of this pigment. This fact is explained in terms of energy
transfer to nonluminescent surface elements which leads to luminescence quenching of
the second kind. Orig. art. has: 3 figures.

SUB CODE: 07,20/ SUBM DATE: 21Oct65/ ORIG REF: 011/ OTH REF: 001

Card 2/2   mjs

ACC NR: AP6029212   SOURCE CODE: UR/0076/66/040/006/1304/1309

AUTHOR: Yagodovskaya, T. V.; Nekrasov, L. I.

ORG: Chemistry Department, Moscow State University im. M. V. Lomonosov (Khimicheskiy
fakul'tet, Moskovskiy gosudarstvennyy universitet)

TITLE: On the problem of higher hydrogen peroxide and frozen radicals. Part 10:
Infrared absorption spectrum of a peroxide-radical condensate obtained by the reaction
of liquid ozone and atomic hydrogen

SOURCE: Zhurnal fizicheskoy khimii, v. 40, no. 6, 1966, 1304-1309

TOPIC TAGS: ozone, hydrogen, hydrogen peroxide, [...]

ABSTRACT: A systematic study [...]
[...] was carried out. The spectra were recorded at [...]
[...] All the absorption bands were broad, and the spectra [...]
similar to that of liquid ozone, indicating that the products formed have a structure
similar to that of liquid ozone. The 1:1 C, 1:2C and 2:1 [...] bands are assigned to
the HO_2 radical. The results indicate that the condensation of ordinary hydrogen per-
oxide in the synthesis from ozone is absent in the primary condensation products, and
present in other methods of synthesis. The condensate is thought to contain molecules

Card 1/2   UDC: 543.42

. ACC NR: AP6029212

whose composition includes the OH group. The formation of H_2O_3 and H_2O_4 molecules in
the peroxide-radical condensate is postulated. Orig. art. has: 2 figures and 1 table.

SUB CODE: 07/ SUBM DATE: 05-Jan-65/ ORIG REF: 008/ OTH REF: 010

Card 2/2 /h

AUTHOR: Nekrasov, L. I.; Skorokhodov, I. I.; Kobozev, N. I.

ORG: Chemistry Department, Moscow State University im. M. V. Lomonosov
(Khimicheskiy fakul'tet, Moskovskiy gosudarstvennyy universitet)

TITLE: Physical chemistry of concentrated ozone. Formation of ozone from oxygen
in a glow discharge at low temperatures

TOPIC TAGS: ozone synthesis, concentrated ozone, glow discharge, elemental oxygen,
ozone formation kinetics , $OXYGEN$

ABSTRACT: A study has been made of the formation of ozone from oxygen in a glow
discharge at 0.5 mm Hg and -196C. The generator was described in an earlier study
(N. I. Kobozev et al. Zh. fiz. khimii, 34, 1843, 1957). The generator was operated
on voltages ranging from 800 to 1200 v and a frequency of 50 cycles with a discharge
current of 0.15 amp. The flow velocity of oxygen varied from 0.1 to 4.0 l/hr. The
experiments were directed toward determining the place of ozone formation, and the
role of the discharge tube, connecting channel, trap, and presence of elemental
oxygen in the trap. It was shown that ozone is formed in the trap, and only in the
presence in the reaction zone of a cold surface and elemental oxygen. The glow
discharge is only the source of elemental oxygen. In other experiments, the

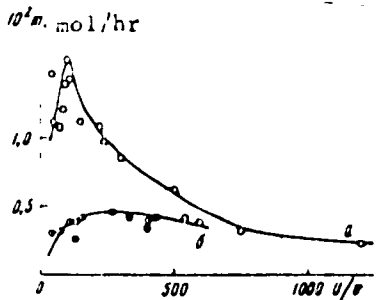Card 1/4   UDC: 541.14+541.13

ACC NR: AP6034150

$10^4 n.$ mol/hr

Fig. 1.   Dependence of the absolute
yield in ozone on the U/V parameter
(U, discharge power; V, flow velo-
city)

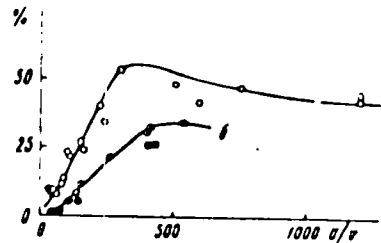a - Inert; b - active surface of
the connecting channel.

Fig. 2.   Dependence of the degree
of oxygen conversion on the U/V
parameter

a - Inert; b - active surface of
the connecting channel.

dependencies of the yield in ozone and of the degree of oxygen conversion on the
U/V parameter (U, discharge voltage; V, flow velocity) were studied with the use of
connecting channels with inert or active surface (see Figs. 1 and 2). The results
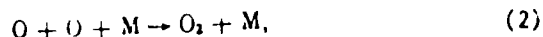of the experiments have indicated the following mechanism of ozone formation:

Card 2/4

ACC NR: AP6034150

1) dissociation of molecular oxygen in the discharge tube

$$O_2 + \vec{e} \rightarrow O_2^* + e,$$
$$O_2^* \rightarrow O + O.$$
$$\left. \right\} ;$$ (1)
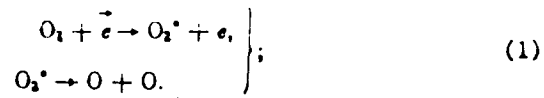
2) recombination of oxygen atoms in the connecting channel

$$O + O + M \rightarrow O_2 + M,$$ (2)

(M, walls of the channel).

The reaction 1/reaction 2 ratio determines the amount of elemental oxygen reaching the cold walls of the trap. This ratio depends on such factors as flow velocity and pressure of oxygen, discharge voltage, and state of the surfaces of the discharge tube and connecting channel; 3) reaction of elemental oxygen with oxygen molecules absorbed on the cold walls of the trap

$$O + O_2 \cdot S \rightarrow O_3 \cdot S,$$ (3)

(S, cold walls of the trap).

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ACC NR: AP6034150

In the experiments, small amounts of almost 100% liquid ozone have been synthesized.
Orig. art. has: 2 figures.

SUB CODE: 07/ SUBM DATE: 13May65/ ORIG REF: 008/ OTH REF: 011/

Card 4/4

L 38152-66   EWT(1)/T-2

ACC NR: AP6025678

SOURCE CODE: UR/0413/66/000/013/0146/0146

INVENTOR: Kuznetsov, I. D.; Shchukin, O. G.; Mitrokhin, V. M.; Nekrasov, L. M.

ORG: none

TITLE: Air conditioning system. Class 62, No. 183604

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 13, 1966, 146

TOPIC TAGS: air conditioning equipment, aircraft cabin environment, auxiliary air-craft equipment

ABSTRACT: An Author Certificate has been issued for an air-conditioning system, such as could be used on a supersonic airliner. It consists of a sequentially placed air-
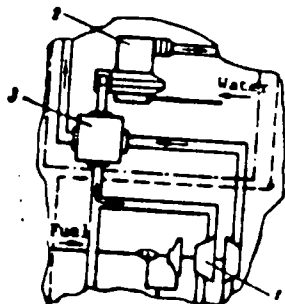
Fig. 1. Air conditioning system

1 - Turbocooling unit; 2 - humidifier;
3 - air-to-air cooler.

Card   1/2

UDC: 629.13.01/06.697.9

L 38152-66

ACC NR: AP6025678   C

to-air cooler, a fuel-to-air cooler, an evaporator, a turbocooling unit, and a humidifier (see Fig. 1). To increase the system's cooling efficiency, between the turbocooling unit and the humidifier is mounted an air-to-air cooler. Orig. art. has: 1 figure.   (KT)

SUB CODE: 01/   SUBM DATE: 22May65/   ATD PRESS: 5044

                  /4/

Card   2/2

5(4)
AUTHORS: Frumkin, A. N., Academician,
               Nekrasov, L. N.

TITLE: A Rotating Disc and Ring Surface (Okol'tsevom diskovom elektrode)

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 126, Nr 1, pp 115-118
               (USSR)

ABSTRACT: A method of investigating intermediate- and final products
               (stable and ron-stable products) of electrochemical reactions
               by means of a rotating electrode consisting of two platinum-
               or gold electrodes located in the same plane, one of which
               is disk-shaped and the other annular, is described. The
               space between disk and ring is filled by insulation material
               The product formed by electrolytic processes on the disk
               electrode can be fixed by reduction or oxidation on the ring
               electrode. The initial and the final product of the reaction
               must, however, not enter into reaction on the ring within
               that potential interval within which the reduction (oxidation)
               of the investigated intermediate product takes place. This
               combined ring-disk electrode is shown by figure 1. The
               method and the checking of the theoretical formulas by
               Yu. B. Ivanov and V. G. Levich (Ref 2) was carried out by

Card 1/2

A Rotating Disc and Ring Electrode

plotting the polarization curves of the reduction of quin e (Fig 2) and of oxygen. The polarization curve of the cathodic reduction of oxygen on an amalgamated gold disk electrode and the dependence of the diffusion current of the oxidation of H_2O_2 on the ring electrode on the potentia. of the disk electrode are shown by figure 3. The polarization curve has two waves. In the first, H_2O_2 is the stable product, and in the second H_2O_2 is the intermediate product. In order to avoid passivation of the gold electrode, the potential had to be increased rapidly (2.5 v/min). In the case of too slow a measurement of the polarization curves, passivation occurs, and the process is no longer limited by the diffusion factors but by kinetic factors. There are 4 figures and 2 Soviet references.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova (Moscow State University imeni M. V. Lomonosov)

SUBMITTED: March 3, 1959
Card 2/2

NEKRASOV, L.N.

Overvoltage of hydrogen on a highly active, polished platinum electrode when the solution is stirred turbulently. Vest. Mosk. un. Ser. 2: Khim. 15 no.5:19-24 S-O '60.   (MIRA 13:11)

1. Moskovskiy gosudarstvennyy universitet, kafedra elektrokhimii.
         (Overvoltage) (Hydrogen)   (Electrodes, Platinum)

NEKRASOV, L.N.; BEREZINA, N.P.

Use of a disk electrode with a ring in studying the electroreduction
of copper. Dokl. AN SSSR 142 no.4:855-858 F '62.
(MIRA 15:2)

1. Moskovskiy gosudarstvennyy universitet im. M.V.Lomonosova.
Predstavleno akademikom A.N.Frumkinym.
                    (Copper)
                    (Reduction, Electrolytic)

NEKRASOV, L.N.; MYULLER, L.

Cathodic reduction of oxygen on platinum in alkaline
solutions studied by means of a rotating disk electrode
with a ·ring. Dokl. AN SSSR 149 no.5:1107-1110 Ap '63.
(MIRA 16:5)

1. Moskovskiy gosudarstvennyy universitet im. M.V.Lomonosova.
Predstavleno akademikom A.N.Frumkinym.
(Oxygen)   (Reduction, Electrolytic)

MYULLER, L.; NEKRASOV, L.N.

Electrochemical behavior of hydrogen peroxide on platinum.
Zhur. fiz. khim. 38 no.12:3028-3030 D '64.

(MIRA 18:2)

1. Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova,
Khimicheskiy fakul'tet.

MYULLER, L.; NEKRASOV, L.N.

Electrolytic reduction of oxygen on a smooth platinum in
acid solutions studied by means of a rotating disk electrode
with a ring. Dokl. AN SSSR 154 no.2:437-440 Ja'64.

(MIRA 17:2)

1. Moskovskiy gosudarstvennyy universitet im. M.V.
Lomonosova. Predstavleno akademikom A.N. Frumkinym.
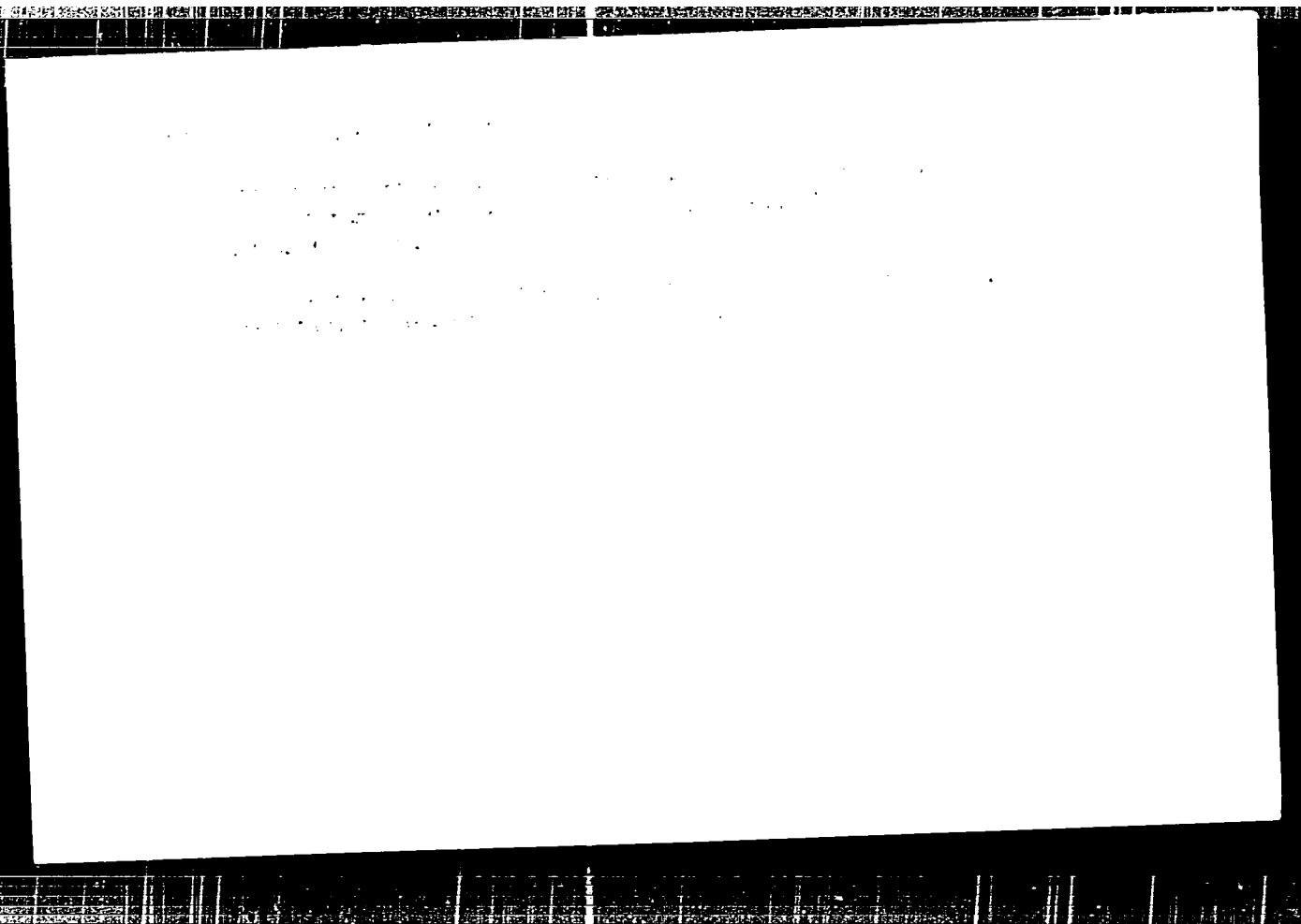
L 22244-66   BMT(m)/BTC(f)/EWG(m)/T/EWP(t)   IJP(c)   DS/JD

ACCESSION NR: AP6005751   (A)   SOURCE CODE: UR/0074/65/034/010/1697/1720

AUTHOR: Bagotskiy, V. S.; Nekrasov, L. N.; Shumilova, N. A.

ORG: Institute of Electrochemistry, AN SSSR (Institut elektrokhimii AN SSSR);
MGU im. M. V. Lomonosov

TITLE: Electrochemical reduction of oxygen

SOURCE: Uspekhi khimii, v. 34, no. 10, 1965, 1697-1720

TOPIC TAGS: oxygen reduction reaction, chemical reduction, electrode, electrochemistry

ABSTRACT: This review examines the results obtained for metal electrodes in the
experimental reduction of oxygen. The oxygen electroreduction process is among
the more complicated electrochemical reactions, the mechanism of which may be
established only as a result of an entire series of varied experiments. This
review testifies to the successes in the study of this reaction, mostly due to
the development and application of new experimental research methods. A large
share of the work, the results of which are presented in this paper, was performed
at the Department of Electrochemistry, Moscow State University im. M. V. Lomonosov
(Kafedra elektrokhimii Moskovskogo gosudarstvennogo universiteta) and at the

Card 1/2   UDC: 541.138.3:546

L 22244-66

ACCESSION NR: AP6005751   /

Institute of Electrochemistry, Academy of Sciences SSSR (Institut elektrokhimii
Akademii nauk SSSR) under the supervision of A. N. Frumkin, who has advanced
several concepts which are now fundamental in research on the electroreduction of
oxygen. In spite of the existing achievements, the problem of cathode reduction
of oxygen is not exhausted, there are still many unresolved questions. Still un-
clear, for example, are such questions as the mechanism of the heterogeneous
process of the catalytic decomposition of hydrogen peroxide; there is not enough
information on the nature of the energy distribution on the surface of solid
electrodes, on the nature and forms of adsorbed oxygen with various potentials of
the electrode, etc. However, taking into consideration the rapid development of
the theory of electrochemical kinetics and the progress in the field of experiment-
al technology, there is firm confidence that many questions unclear at the present
time will be resolved soon. Orig. art. has: 15 figures and 28 formulas.

SUB CODE: 07 / SUBM DATE: none / ORIG REF: 057 / OTH REF: 028

Card 2/2 · ast

L 38168-66   EWT(m)/T   IJP(c)   DS

ACC NR: AP6019241   (A)   SOURCE CODE: UR/0364/66/002/003/0363/0367

AUTHOR: Nekrasov, L. N.; Khrushcheva, Ye. I.; Shumilova, N. A.; Tarasevich, M. R.

ORG: Moscow State University im. M. V. Lomonosov (Moskovskiy gosudarstvennyy universi-
tet); Institute of Electrochemistry, Academy of Sciences, SSSR, Moscow (Institut elek-
trokhimii Akademii nauk SSSR)

TITLE: A study of the electrochemical reduction of oxygen on a rhodium electrode in
alkaline solutions

SOURCE: Elektrokhimiya, v. 2, no. 3, 1966, 363-367

TOPIC TAGS: electrochemical analysis,   chemical reduction, hydrogen
peroxide, alkaline cell, ~~polarization~~, rhodium, electrode , ionization, oxygen,
cathode polarization

ABSTRACT: Ionization of oxygen was studied on rotating disc electrodes of rhodium
(99.7% Rh). The discs had a 1.48 mm radius and were mounted in sets of four on a
platinized wheel having an outer radius of 2.88 mm and an inner radius of 1.76 mm.
Polarization curves were obtained in 0.1 N KOH solutions with the wheel rotating at
500, 1680 and 4020 rpm. On the cathode side, the current rose gradually with potential
φ until the oxygen was liberated at which point the slope decreased. With increases
in rotation speed, the heights and slopes of the curves increased. The current on the
wheel and the %H_2O_2 yield are given as a function of disc potential for 500 and 1680
rpm. For increases in cathodic polarization of the discs, the current on the wheel

Card 1/2   UDC: 341.138.3:546.21

L 3212-22
ACC NR: AP6019241

rose, reached a maximum and finally increased; the ... fell linearly through the entire potential range of 0.8-0 v. Comparison with ... or experiments on it and its electrodes showed that a two-stage process was involved in H_2, a retardation process replaced ionization at $\varphi = 0.4-0.1$ v. First ... constants for the reduction of H_2O_2 were compared to those for the total 4-electrode process (r_{0_2}) at constant values of φ. Between $\varphi = 0.1-0.4$ v they compared well, but above 0.4 v r_{0_2} they were calculated from $1/K_{0_2} = 1/K_1 + 1/K_2$ where K_1 and K_2 constants for the first and second stages of the total process. The constants increased in magnitude with the speed of rotation but the cause of this was unexplained. Other polarization curves were obtained to study the influence of the electrode surface condition - either reduced, activated in the reverse direction or oxidized. In all potential ranges the current was least in the oxidized electrode due to the increased quantity of H_2O_2 fixed on the wheel. In conclusion the authors expressed their deep gratitude to Academician A. N. Frumkin for assistance in discussing the results. Orig. art. has: 4 figures, 2 tables, 1 formula.

SUB CODE: 07/ SUBM DATE: 17Jun65/ ORIG REF: 005/ OTH REF: 000

Card 2/2 /hc P

L 34101-66   EWT(1)/EWP(e)/EWT(m)/T/EEC(b)-2   IJP(c)   WH

ACCESSION NR: AP5007363

8/0286/65/000/004/0021/0021

AUTHOR: Sergeyev-Bobr, A. A; Nekrasov, L. Ya.

TITLE: Synthesis method for fluorophlogopite crystals. Class 12, No. 168261.

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 4, 1965, 21

TOPIC TAGS: phlogopite, fluorophlogopite, feldspar, mica

ABSTRACT: An Author Certificate has been issued for a preparative method for fluorophlogopite crystals from a molten charge. In order to produce larger crystals of the mica, the charge is formulated to consist of natural potash feldspar containing up to 3.5% Na_2O, up to 0.4% CaO, up to 0.3% Fe_2O_3, with MgO and MgF_2 added. To enhance the crystallizability of the melt and to make up for loss of volatiles, 2.5% K_2SiF_2 is added to the charge.

ASSOCIATION: none   [SM]

Card 1/2

... ., "., ... republikanskoy kategorii ...

... Spartakiada ... more ..., ...
... p ...

Nekras v, Mikhail Dmitriyevi

"pravlyayemyye snaryady ! ... ... Guided
Missiles and Their Empl yment r Naval Warfare M s ..., yerizdat, 19-0.
153 c.   Series: Bibl 'echka v em sr r Ser. IV? ... f ies
printed n t given.

General Ed.: S. H. Lakin; Ed.: N. ... .. 'sy, ... re... le . Ed.: ... Ye.
Volkova.

PURPOSE: This booklet is intended f r members f the S vie* Armed Forces. It may
be read by the layman interested in military science.

COVERAGE: This booklet n the use f guided missiles in naval warfare is based on
sources. The author gives a brief nist ry f the devel pment f guided
missiles, discusses their combat p tentia., and describes principles of design
and classification. He cites the pini ns f n n-Soviet military strategists
on the use of missiles in m dern nava warfare. N persnalities are mentioned.
References are included in the text.

Card 1/1.

NEKRASOV, M.L., kand., UKHANOV, I.A., inzh.

Efficiency of the use of semiautomatic lines for wood cutting and peeling. Mekh. avtom.proizv. 17 no.11:41-42 N '63.
(MIRA 17:1)

NEKRASOV, Mikhail Il'ich, mekhanik pod"yema; IOFFE, S., redaktor; V'YUSHINA,L.
redaktor; OYSTRAKH, V., tekhnicheskiy redaktor

[Automatic control of belt conveyers] Avtomaticheskoe upravlenie
lentochnym pod"emom. Alma-Ata. Kazakhskoe gos. izd-vo, 1956. 14 p.
(MLRA 9:10)
1. Shakhta No.117-bis tresta Leninugol' kombinata "Karagandaugol'.
(for Nekrasov)
(Conveying machinery)
(Mine hoisting)
(Automatic control)

NEKRASOV, M.M.

Evaluating insulation conditions by means of its characteristics
at low gradients. Izv. KPI 22:397-410 '57.
(Electric insulators and insulation--Testing)   (MIRA 11:3)

NEKRASOV, M. M., Doc Tech Sci — (diss) "Problem of non-destructive tests of electrical insulation." Len, 1958. 30 pp with drawings (Min of Higher Education USSR, Len Electrical Engineering Inst im V. I. Ul'yanov (Lenin)), 110 copies . Bibliography: pp 29-30 (18 titles) (KL, 18-58, 98)

-45-

NEKRASOV, M.M.

Rectifiers based on films of cadmium iodide. Izv. vys. ucheb. zav.;
radiotekh. no.1:43-48 Ja-F '58.   (MIRA 11:4)

1. Rekomendovana kafedroy dielektrikov i poluprovodnikov Kiyevskogo
ordena Lenina politekhnicheskogo instituta.
           (Electric current rectifiers)   (Cadmium iodide)

NEKRASOV, M.M.

Dielectric parts of high nonlinearity on the basic of ternary systems. Izv. vys. ucheb. zav.; radiotekh. no.3:376-37? My-Je '58.
(MIRA 11:7)

1. Rekomendovana kafedroy dielektrikov i poluprovodnikov Kiyevskogo ordena Lenina politekhnicheskogo instituta.
(Radio--Equipment and supplies)

NEKRASOV, M.M.

Semiconductor elements with a given nonlinearity [with summary in English]. Avtomatyka no.4:46-53 '58.   (MIRA 12:1)

1. Kiyevskiy ordena Lenina politekhnicheskiy institut.
(Semiconductors)

AUTHORS: Nekrasov, N.N., Candidate of Technical Sciences, Docent
             and Butko, N.I., Senior lecturer and Il'chenko, N.N.,
             Candidate of Technical Sciences, Lecturer

TITLE: The Use of Modified Varnishes to increase the moisture
             resistance of the Insulation of Electric Motors
             (Primeneniye modifitsirovannykh lakov dlya povysheniya
             vlagostoykosti izolyatsii elektrodvigateley)

PERIODICAL: Izvestiya Vysshikh Uchebnykh Zavedeniy, Elektromekhanika,
             1958, Nr 10, pp 146-150 (USSR)

ABSTRACT: Mining type motors and in particular motors in coal drills
             type SER-19, although exposed to severe operating
             conditions, are at present insulated with fibrous organic
             insulation of class A impregnated with bitumen oil
             varnish Nr 460. The resistance to moisture is not very
             good. These drills may be made more reliable by
             improving the varnish impregnation of the winding. We
             used modified varnish type SK-3 (varnish 302 modified
             with silicone liquid Nr 2) as being more stable and heat
             resistant than varnish Nr 460. Comparative moisture
Card 1/4   resistance tests were made on the insulation of stator

The Use of Modified Varnishes to Increase the Moisture Resistance
of the Insulation of Electric Motors   //144-?, -1 -14/1?

windings of motors impregnated with modified varnish
?-3 and bitumen-oil varnish Nr 460. The stators
treated with varnish ?-3 were dipped and stoved and
those treated with varnish Nr 460 were twice varnish
impregnated by the normal works procedure. The
electrical characteristics of the stator winding
insulation after impregnation and drying are given in
Table 1. The stator windings were immersed in water
at room temperature and maintained in water for various
times. Moisture resistance of the windings was judged
by insulation resistance measurements; measurements were
also made of insulation power factor and capacitance.
with about the changes of insulation resistance of the
impregnated windings are given in Fig 1 and Table 2 from
which it will be seen that the insulation resistance of
the windings impregnated with varnish ?R-? is 4 to
?? times greater than that of windings impregnated with
varnish Nr 460, after being in water for 20 to 24 hours.
The windings impregnated with varnish ?-3 take a much
longer time to reach their minimum insulation resistance

... Use of Modified Varnishes to Increase the ... ...
... Insulation of Electric Motors

  when immersed in water than do windings ... impregnated with
varnish nr 460. The poor resistance of var... ... ... to
moisture is a common cause of failure of ... motors
operating in shafts where the air is wet and the motors
are exposed to moisture. The marked deterioration in
properties observed in windings impregnated with varnish
nr-3 after being in water for ... hours indicates that
the procedure of impregnating ... ... without
first impregnating the main and between-phase insulation
is not adequate. This indicates that the insulation should
be impregnated so far as possible before assembly in the
machine. Then the complete machine should be impregnated
again. It is concluded that much improved ... ...
to water of organic fibrous insulation ... ...
... 2/4 achieved by impregnation with modified varnish.

W/144-??-1?-14/17

The use of modified Varnishes to Increase the moisture resistance
of the Insulation of Electric Motors

        type SK-5.   There is 1 figure, 2 tables and 2 Soviet
        references.

ASSOCIATION:Kafedra   Dielektrikov i poluprovodnikov Kiyevskogo
        politekhnicheskogo Instituta ('hair of Dielectrics
        and Semiconductor ,Kiyev Polytechnical Institute)

SUBMITTED: 29th September 1958

arl 4/4

SOV/144-58-12-14/19

AUTHOR: Nekrasov, M.M., Cand.Tech.Sci., Decent, in charge of
           the Chair

TITLE: Capacitance Methods of Estimating Moisture in Electrical
           Insulation

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy.
            Elektromekhanika, 1958, Nr 12, pp 117-132 (USSR)

ABSTRACT: There are four ways in which moisture can penetrate into
a dielectric: 1) micro-pores, cracks and capillaries;
2) sub-micropores, -capillaries and -cavities:
3) intermolecular defects; 4) intromolecular defects
The first two have a technological origin, the second two
are intrinsic in the material. The latter defects
certainly exist in natural-fibre materials and the usual
means of sealing them merely delays the ingress of
moisture. Penetration occurs because of the great
disparity in molecular size between water and oil.
varnish, bitumen, etc. The loss angle of a wet die.e t
is given by Eq (4), where β is the specific
resistance of the water, q is the wetting le
and ku is a coefficient allowing for the random
distribution of the water. It is remarked that when

SOV/144-58-12-14/19

Ja a .ance Methods of Estimating Moisture in Electrical Insulation

$q < 0.8$ continuous bridging does not occur. The meth is considered in this paper for estimating moisture content are those which measure capacitance and conductance at various temperatures or frequencies. The first example concerns resin-paper insulation (getinax). Measurements were made under three conditions: specially dried; specially wetted; and in equilibrium with the moisture in the room. Loss tangent was measured at 50 c/s on an MDP bridge. The temperature was raised slowly (30-50 minutes) and 30 minutes were allowed to elapse at each temperature before a reading was taken. At each temperature measurements were made of tan δ and ϵ at various voltages between 1 kV and 7 kV. The results are listed in Table 1 and plotted in Figs 1 and 2. There are two maxima in the tan δ vs temperature curves; the first, around 50 °C, is a relaxation effect, and the second, around 80 °C, is a function of the solvent. There is a third maximum in the ϵ-curves due to a change in the varnish. The corresponding data for wet samples are in Table 2. Figs 3 and 4. The curves in the latter figures show an enormous increase in ϵ at about 70 °C. The variat. :

SOV/1445c1214/19

... e Methods of Estimating Moisture in Electrical In......

tan δ-φ with frequency at 50, 80 and 140 ℃ is given in Table 3. Table 4 and Fig 5 show the behaviour of a sample, as far as loss is concerned, during the cour e a wet-and-dry cycle. The measurement of capacitance at different temperatures affords a good practical meth estimating, for example, the serviceability of transforming insulation. A rough estimate is that a transformer usable if the capacitance, suitably measured, changes less than 20% between 20 ℃ and 80 ℃. Measurements tan δ are, however, much more sensitive. The presen e of small inclusions in the dielectric increases the polarization and produces a dispersive system suitable exploration by a variable frequency. A method has bee developed at TsNIEL for moisture-content testing in whi capacitance is measured at two frequencies, 2 c/s and 50 c/s. A good working rule is that a transformer is serviceable if the capacitance at 2 c/s is not more than 20% greater than the capacitance at 50 c/s, both measured at 20 ℃. When the dielectric is so wet that continuous bridging occurs, a very suitable method is the a.c. measurement of effective conductance and capacitance.

Card 2/4

SOV/144-58-12-14/19

Capacitance Methods of Estimating Moisture in Electrical Insul...

A circuit suitable for portable equipment is the phase
sensitive valve voltmeter whose basic circuit is Fig.
The improved phase-shift control of Fig 8 has been
incorporated in the practical arrangement of Fig 9. The
vector diagrams for Fig 6 are in Fig 7. Using a
120 microampere meter as indicator, the useful range
measurement is 1-50 $M\Omega$ and 500-4000 pF. Table 5 shows
measured results for transformer oil having different
proportions of well-dispersed water. The value of
rises very rapidly above a moisture content of 0.05%.
There are 10 figures, 5 tables and 5 Soviet references.

ASSOCIATION: Kafedra dielektrikov i poluprovodnikov, Kiyevskiy
              politekhnicheskiy institut
              (Chair of Dielectrics and Semiconductors, Kiev
              Polytechnical Institute)

SUBMITTED: November 29, 1958   ✓

NEKRASOV, M. M.

Electric conductivity of dielectrics with heterogeneous outside fields. Nauch.dokl.vys.shkoly; energ. no.2:83-86 '59.
(MIRA 13:1)

1. Kiyevskiy politekhnicheskiy institut.
(Dielectrics)

86808

S/1=5/60/00: ..- .. .
A151/A029

$24.7800 (1035, 1142, 1162)$

AUTHORS: Nekrasov, M.M.;   Kootsev, Yu.D.

TITLE: Non-Linear Ferro-Electric Systems with Various Curie Temperatures

PERIODICAL: Ukrayins'kyy Fizychnyy Zhurnal, 1960, Vol. 5, No. 1, pp '. - "

TEXT: In the binary systems, the Curie point is not expressed very sharply
(there is only a Curie zone). This shows that an admixture of a ferro-electric
component (i.e., $BaSnO_3$) decreases the ferro-electric properties (Refs. 3,4.)
Therefore, ternary systems were taken for investigation in this work   (Ba (Ti,
Sn, Zr) O_3). On the basis of the ternary systems there are more possibilities to λ
produce a sharply nonhomogeneous inner field by means of selecting components $\sqrt{}$
which compensate the voluminal electro-striction in the case of a more favorable
packing of the system. This article investigates the properties of ternary sys-
tems based on Ba $(Ti_{0.75}, Sn_{0.1} Zr_{0.15}) O_3$, which under various conditions and
procedures of burning can yield a maximum of the dependence $\varepsilon = \gamma (t^o)$ from -40
to + 5°C. Even two temperature maxima of ε are possible. In this case (for
a variety of samples) the first maximum will be at a temperature of - 40 ÷ - 20°C,
the second at + 400 ÷ + 410°C. Apart from this, a certain increase in ε was noted

Card 1/3

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A151/A02'j

Non-Linear Ferro-Electric Systems with Various Curie Temperatures

at $+80^{\circ}$C. In a lower temperature maximum $\mathcal{E}$ reaches a value of the order of $\mathbb{1}$ . .
At 500°C, $\mathcal{E}$ reaches a value of the order of 1,750. At a higher temperature the
dielectric constant starts dropping. The dependence of dielectric constant
temperature was determined on a thermo-dielectric recorder by measuring the
rent which passes through the sample at a frequency f = 1,000 c/s. The ferr
-ceramic samples were placed in a $\mathsf{T\Gamma}$-02 ("TH-02") type kiln and fastened to st ..
less steel electrode holders. The measurements of $\mathcal{E}$ and tg δ [ABSTRACTOR'S N
tgδ is the tangent of the angle of dielectric losses] within the field .. ..
peratures were effected by a resonant method on the bridge RFT 1002. The lie.
tric hysteresis was observed in samples between the upper and the lower 'uri
point within the whole temperature range. According to the oscillograms of the
dielectric hysteresis a number of characteristic values were determined   -ff-
tive capacitance, differential capacitance, differential nonlinearity, nonlin-irity
of saturation and the effective nonlinearity. The investigation of the reversi.
dependence of the dielectric constant of the ternary system was carried out wit -
in a wide range of sound frequencies up to $2 \cdot 10^4$ c/s. The highest change in
the reversible dielectric constant (Ref. 2) at a temperature of 15 : 20° was
observed at the tension of the alternating field amounting to 2,500 v/cm 'n. the

Card 2/3

86808

S/185/60/005/00: ∴∵ ∷
A151/A02∵

Non-Linear Ferro-Electric Systems with Various Curie Temperatures

...sis of the investigation conducted, it can be stated that the properties of the ternary ferro-electric system studied by the authors make it possible to use this system for practical purposes, as, for instance, for the stabilization of tension, as dielectric amplifiers, modulators, etc. The system can be used within a wide temperature range which is of great importance. Work on the investigation of the ternary and more complicated ferro-electric systems with a high nonlinearity is now being continued at the Kafedra dielektrykiv i napivprovidnykiv Kyyivs'koho politekhnichnoho instytutu (Department of Dielectrics and Semiconductors of the Kiyev Polytechnical Institute). There are 3 figures, 1 table and 5 references 4 Soviet and 1 English.

ASSOCIATION Kyyivs'kyy politekhnichnyy instytut (Kiyev Polytechnical Institute)

SUBMITTED   May 19, 1959

Card 3/3

NEKRASOV, M.M.

Nonlinear resistances on a carborundum base. Inzh.-fiz.zhur.
no.8:82-84 Ag '60. (MIRA 13:8)

1. Politekhnicheskiy institut, g. Kiyev.
(Carborundum--Electric properties)

NEKRASOV, M.M.; SAMOYLOV, A.V.

Electrostriction devices for producing minor mechanical
displacements. Avtom. i prib. no.4:81-84 O-D '63.
(MIRA 16:12)

1. Kiyevskiy politekhnicheskiy institut.

NEKRAS W, M.M., kand. tekhn. nauk, dotsent, IL'CHENKO, N.D., kand. tekhn. nauk, dotsent; IYFRUSALIMOV, M.Ye., kand. tekhn. nauk, dotsent

Review of [kand. tekhn. nauk, dotsent] N.A. Kozyrev's book "Insulation of electrical machines and methods for testing it." Izv. vys. ucheb. zav.; energ. 6 no.11:110-112 N'F3.
(MIRA 17:2)

1. Kiyevskiy politekhnicheskiy institut.

NEKRASOV, M.M., kand. tekhn. nauk; KOBTSEV, Yu.D., inzh.

Nonlinear resistors based on oxidized titanium diboride. Vest.
elektroprom 34 no.6:40-43 Je '63.   (MIRA 16:7)

(Titanium boride)   (Electric resistors)

NEKRASOV, M.M., kand.tekhn.nauk; KOBTSEV, Yu.D., inzh.

Heat-stable resistors and thermistors with oxidizing titanium di-
boride. Elektrotekhnika 34 no.12:50-51 D '63.   (MIRA 17:1)

NIKNAME M.M., каnd. 'ни. га к. зика   к . .т.ь.. ма.

    best resist ..ис е.   .. дн . : е.е,ш   .. .
    l' Ap-le '...

ACCESSION NR: AP4020294   S/0139/64/000/001/0023/0025

AUTHORS: Nekrasov, M. M.; Kletchenkov, I. I.; Zinkevich, R. A.

TITLE: Low voltage nonlinear resistance in doped silicon carbide

SOURCE: IVUZ. Fizika, no. 1, 1964, 23-25

TOPIC TAGS: resistance, low voltage resistance, low voltage nonlinear resistance, silicon carbide, doped silicon carbide, volt ampere characteristic, chromium boride, silicon, silica, beryllium oxide

ABSTRACT: Nonlinear resistance has been measured for the system $SiC-CrB_2-Si(SiO_2,$ BeO), that is, SiC with additions of CrB_2-Si, CrB_2-SiO_2, and CrB_2-BeO. Samples with contents of 1, 2, 5, 10, and 15% CrB_2 were obtained, and it was found that with increase of CrB_2 content above 2% nonlinearity of the volt-ampere characteristics declined. This is probably due to formation of conductive bridges of CrB_2. The introduction of Si, SiO_2, or BeO along with CrB_2 increased the electrical resistance and made it possible to obtain nonlinear resistance with a coefficient of nonlinearity as high as 4 (in samples that are highly moisture resistant and heat resistant and that are very stable under operating conditions). The general

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ACCESSION NR: AP4020294

range of the nonlinear factor with these additions was 2 to 3.5. Best results
were obtained by adding about 10% of this bonding material to SiC. Orig. art.
has: 3 figures.

ASSOCIATION: Kiyevskiy ordena Lenina politekhnicheskiy institut (Kiev Polytech-
nical Institute)

SUBMITTED: 03Oct62   DATE ACQ: 31Mar64   ENCL: 00

SUB CODE: PH   NO REF SOV: 000   OTHER: 000

Card 2/2

ACCESSION NR: AP4029149   S/0105/64/000/004/0080/0084

AUTHOR: Nekrasov, M. M. (Candidate of technical sciences, Kiev)

TITLE: Controlling the temperature coefficient of resistance of semiconductors

SOURCE: Elektrichestvo, no. 4, 1964, 80-84

TOPIC TAGS: semiconductor, semiconductor temperature coefficient, resistance temperature coefficient, semiconductor resistance temperature coefficient

ABSTRACT: The well-known physical relations between thermal and electric conductions of a solid body (semiconductor) are considered. Since electric conduction depends on macroscopic defects, a semiconductor material may be specially processed to obtain the desired temperature coefficient of resistance. Thus, 1.5% zirconium boride introduced into Si powder and sintered with it at 1,400C results in a positive-temperature-coefficient (up to 180C) material which can be used as a semiconductor barretter (rated at 0.55 amp, 3-4 v). A TiO_4

Card 1/2

ACCESSION NR: AP4029149

barrier layer on Si results in a material whose temperature coefficient changes
signs at certain temperatures and at a certain applied voltage. Materials based
on SiC impregnated with cesium carbonate, on SiC with CdO+CuO, and on Ge are
also discussed. Such materials hold the promise of new semiconductor devices,
such as barretters, overload protectors, precision linear resistors, etc.
Orig. art. has: 8 figures and 10 formulas.

ASSOCIATION: none

SUBMITTED: 08Aug63   ΓATE ACQ: 01May64   ENCL: 00

SUB CODE: GP, EC   NO REF SOV: 003   OTHER: 001

Card 2/2

ACCESSION NR: AP4042853   S/0142/64/007/003/0371/0375

AUTHOR: Nekrasov, M. M.; Franchuk, A. N.

TITLE: Assessing the reliability of ceramic tube capacitors

SOURCE: IVUZ. Radiotekhnika, v. 7, no. 3, 1964, 371-375

TOPIC TAGS: capacitor, ceramic capacitor, ceramic tube capacitor, capacitor reliability, ceramic capacitor reliability, KTK ceramic capacitor

ABSTRACT: The disadvantages of the conventional method of assessing ceramic-capacitor reliability (subjecting them to 500 v, at + 80±5C, for 2,000 hrs) are listed. A new method of capacitor testing based on detecting inhomogeneities in its dielectric is suggested. The degree of inhomogeneity of the capacitor internal field can be determined by measuring its absorption factor or $tg\,\delta$. Absorption-factor and loss-angle vs. temperature curves obtained from experiments with KTK-type capacitors are reported (up to 120C, at frequencies up to 520 kc). A

Card 1/2

ACCESSION NR: AP4042853

test lot of capacitors was divided roughly into two groups: (1) those with a "high tg δ " and (2) those with a "low tg δ ." Subsequent conventional tests revealed that all capacitors of the first group withstood 2,000 hrs at 500 v, while many capacitors of the second group broke down after 1,000 hrs. Orig. art. has: 3 figures and 3 formulas.

ASSOCIATION: none

SUBMITTED: 03Jun62   ENCL: 00

SUB CODE: EC   NO REF SOV: 005   OTHER: 000

Card 2/2

NEKRASOV, M.M., kand. tekh   nauk; KLETCHENKOV, I.I., kand. tekhn. nauk;
BOFODINA, S.A.

Tunnel transistors. Avtom. i prib. no.3:13-16 Jl-S '64.
(MIRA 18:3)

ACCESSION NR: AP4017606   S/0109/64/009/002/0347/0349

AUTHOR: Nekrasov, M. M.; Poplavko, Yu. M.

TITLE: Potentialities of using electrostriction in waveguide devices

SOURCE: Radiotekhnika i elektronika, v. 9, no. 2, 1964, 347-349

TOPIC TAGS: electrostriction, ferroelectric, ferroelectric ceramic, barium titanate, waveguide, slot attenuator, electrostriction controlled slot attenuator

ABSTRACT: An elongation of over 0.05% was obtained in specimens of a solid solution of barium zirconate or barium stannate in barium titanate under the influence of an electric field of 10 kv/cm. A laboratory hookup representing a superhigh-frequency electrostriction slot attenuator (see Enclosure 1) was tested at 9.4 Gcps. Control of the through-signal power (see curves) can be accomplished by varying not only the attenuation of the electrostrictive element but also the reflections from this element.   Also, an AM of an shf signal by a

Card 1/3

ACCESSION NR: AP4017606

sinusoidal voltage at 50 cps - 5 kc was experimented with; the resulting modulation frequency was equal to double control frequency, and the modulation percentage was 50-60%. Orig. art. has: 1 figure.

ASSOCIATION: Kiyevskiy politekhnicheskiy institut (Kiev Polytechnic Institute)

SUBMITTED: 12Dec62   DATE ACQ: 18Mar54   ENCL: 01

SUB CODE: GE   NO REF SOV: 004   OTHER: 000

Card   2/3

S/0048/64/028/004/0714/0716

ACCESSION NR: AP4030649

AUTHOR: Nekrasov, M.M.; Poplavko, Yu.M.

TITLE: Investigation of the dispersion of the dielectric constant of barium tita-
nate ferroelectrics in the microwave region /Report, Symposium on Ferromagnetism and
Ferroelectricity held in Leningrad 30 May-5 June 1963/

SOURCE: AN SSSR. Izv. Ser.fiz., v.28, no.4, 1964, 714-716

TOPIC TAGS: ferroelectricity, dielectric dispersion, microwave dielectric disper-
sion, ferroelectric dielectric dispersion, barium titanate ceramic

ABSTRACT: The dielectric constant of barium titanate ceramics and related ferro-
electric materials was measured at frequencies from 50 to 1.6 x 10^10 cycles/sec. The
high frequency measurements were performed by the following four method: measure-
ment of the input impedance of an "infinite" waveguide filled with the ferroelectric
material, measurement of the input impedance of a short waveguide section filled
with the material investigated; measurement of the wavelength in a ferroelectric
plate, and the relation between the standing wave ratio and the thickness of the
plate; measurement of the insertion loss of a thin plate in a waveguide as a func-

Card 1/3

ACCESSION NR: AP4 3..649

tion of the thickness of the plate. Experimental details are discussed elsewhere
(Yu.M.Poplavko,Izv.vy*sh.uch.zav.Radiotekhnika,6,83,1963; Izv.Kiyevsk.po.itekhn.in-
ta,46,42,1962, Zh.eksp.i toor.fiz.,43,860,1962; Radiotekhnika,18,22,1963). No di-
electric dispersion was observed above the Curie point in barium titanate or in di-
lute solid solutions of barium zirconate and/or barium stannate in barium titanate.
Below the Curie point the dielectric constant decreased with increasing frequency
over the complete range investigated. In passing from 10^3 to 10^{10} cycles/sec the di-
electric constant decreased by a factor of 2.2 to 3.4 and the tangent of the phase
angle (between field and polarization) increased by a factor of 15 to 40. The dis-
persion was strongly dependent on the manner in which the material was prepared.
However, it was not possible to obtain a barium titanate ceramic with a dielectric
constant at 10^{10} cycles/sec less than 40. This result is in contradiction with
findings of J.G.Powles and W.Jackson (Proc.Inst..Electr.Engrs.,96,383,1949) and A.
van Hippel (Revs.Mod.Phys.,22,221,1950) but in agreement with those of G.A.Lipayeva
and G.I.Skanavi (Zh.eksp.i teor.fiz.,30,625,1956), A.F.Yatsenko (Uch.zap.Rostovsk.
un-ta,49,87,1959) and H.J.Schmitt (Z.angew.Phys.,9,107,1957). Application of a
dc polarizing field of the order of 10 kV/cm resulted in a decrease of both the di-
electric constant and the phase angle. Variation of dielectric constant with the
polarizing field was observed at temperatures from 10 to 30°C above the Curie point

Card 2/3

ACCESSION NR: AP4030649

. in solid solutions containing large concentrations of barium stannate or barium zirconate in barium titanate. Orig.art.has: 1 figure.

ASSOCIATION: Kiyevskiy politekhnicheskiy institute (Kiev Polytechnic Institute)

SUBMITTED: 00   DATE ACQ: 30Apr64   ENCL: 00

SUB CODE: EM   NR REF SOV: 005   OTHER: 000

Card 3/3

UR

ACC NR: AH...   BOOK EXPLOITATION

Nekrasov, Mikhail Makarovich

...characterization and ... . based on non-linear resistances (Mikrominia-
...rizatsiya i mikroelektr... ... ...yuzh... ...prot...h...h... Moscow, Izd-vo
"Sovetskoye radio," 197..., ..., .. titl..., li... ... ... copies printed.

... TA...: ...... microminiaturization, solid ... ., microelectronics, ...
... ..., ..., nonlinear theory, electronic equipment, ferrit...

... ... This ... ...
... ... devic... ... ...
...ti... of resistance and reactance... ... ... physical
properties of ...ti... resistance ...gl... ... ...
... ... the probability of ... ...rity
... ... applic... in microelectronics. ... ... carried out
... the Department of Dielectrics ... ...Poly-
...nic Institute ...edra dielektrikov i poluprovodnikov, Kiyevskiy ...
polytechnicheskiy institut) under the author's direction, and on Soviet and non-Soviet
technical publications... I.I. Kletchenko, Y... I...v..., V.I. ...
...tes of the Department of Dielectrics and Semiconductors, and ... ... A...
Grishchenko, V... Lavrinenko and V.G. ...ynzov, students specializing in this field
of study, substantially contributed to the development of some of the microelectronic
devices. The ... is intended for specialists working in radio electronics, computing
engineering, and instrumentation.

UDC: ...

Card 1/3

ACC NR: AM5011?

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[Card 2/?]

ACC NR: AM5011704

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SUB CODE: 09, 20/   SUBM DATE: 03Dec64/   ORIG REF: 114/   OTH REF: 065

Card   3/3

L 4903-66   EWT(m)/T/EWP(t)/EWP(b)/EWA(c)   IJP(c)   JD

ACC NR: AP5023281   UR/0302/65/000/003/0057/0058
                                        621.315.422

AUTHOR: Nekrasov, M. M. (Candidate of technical sciences); Yasytskiy, B. Ya.

TITLE: New ferroelectric elements

SOURCE: Avtomatika i priborostroyeniye, no. 3, 1965, 57-58

TOPIC TAGS: ferroelectric crystal, ferroelectric material, single crystal, barium titanate

ABSTRACT: Ferroelectric elements used for brightness and illumination time control must be able to change their capacitance by at least a factor of 20 at comparatively low control voltages, they must work at temperatures within the -60 to +80C interval, have a working frequency range from 1 to 20 kc, have a resistance of at least 10^{10} Ohm, be mechanically stable, and be humidity resistant. The commonly used $(NH_2CH_2COOH)_3 \cdot H_2SO_4$ monocrystals have good electrical properties, but have a low Curie temperature ($\sim$ 50C), are quite brittle, and must be kept hermetically sealed. To overcome these shortcomings the present authors prepared barium titanate polydomain crystals made of chemically pure $BaCO_3$ and condenser TiO_2. Their operating temperature is from -196 to +120C, effective nonlinearity 35 - 40, reversive nonlinearity 40 - 50, resistance is 10^{11} to 10^{12} Ohm; they are mechanically stable and humidity resistant. Capacitances of up to 1000 nF can be obtained with 5 - 7 mm^3 samples. Orig. art. has: 3 formulas and 2 figures.

ASSOCIATION:

Card 1/2

L 4903–66

ACC NR: AP5023281

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

NO REF SOV: 001   OTHER: 000

Card 2/2

L 7858-66   EWT(1)/EWP(e)/EPA(s)-2/EWT(m)/EWP(1)/EPA(w)-2/EWP(t)/EWP(b)/EWA(h)

ACC NR: AP5028132   IJP(c)   JD/GG/WB

SOURCE CODE: UR/0048/65/029/011/2107/2109

AUTHOR: Nekrasov, M. M.; Khrashchevskiy, V. A.

ORG: Kiev Polytechnic Institute (Kiyevskiy politechnicheskiy institut)

TITLE: Investigation of thin ferroelectric films /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, 2107-2109

TOPIC TAGS: ferroelectric material, ceramic material, ceramic film, dielectric constant, nonlinear effect, solid solution, barium titanate, tin

ABSTRACT: Thin (10 to 100 μ) monolithic ferroelectric films of $BaTiO_3$, $Ba(TiSn)O_3$, and $Ba(TiSnZr)O_3$ ceramics free of cracks and pores were obtained by pouring ceramic slips on an organic substrate, using a simplified technique that is not detailed, some ferroelectric properties of the $Ba(TiSn)O_3$ films (proportions of Ti and Sn not given) are presented graphically. Fired on or thermally evaporated silver electrodes were employed for the measurements, which were made at an ambient temperature of 20°C. The properties of the films became independent of the thickness when the thickness was greater than 50 μ. The dielectric constant increased with increasing film thickness and the capacitance per unit area was maximum at a thickness of 28 μ. The nonlinear-ity factor (ratio of the maximum to the low-field dielectric constant) was approxi-

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L 7858-66
ACC NR: AP5028132

mately the same for the 28 μ films as for the bulk material but decreased rapidly with further decrease in thickness. The nonlinearity factor of the 28 μ films was approximately 4, the low-field and maximum specific capacities being 3.8×10^4 and 1.4×10^5 μμf/cm², and the control factor (ratio of maximum to minimum capacity in a 9 V alternating field was 6. The maximum relative rate of change of capacity C with bias voltage B was $dC/CdB = 0.09$ V^{-1}. Orig. art. has: 4 figures.

SUB CODE: 55, EM   SUBM. DATE: 00/   ORIG. REF: 003   OTH. REF: 003

Card 2/3

ACC NR: AT6034353   SOURCE CODE: UR/0000/66/000/000/0099/0106

AUTHORS: Nekrasov, M. M.; Bogdan, G. I.

ORG: Kiev Polytechnic Institute (Kiyevskiy politekhnicheskiy institut)

TITLE: Nonlinear negative resistances on the basis of dielectric films

SOURCE: AN UkrSSR. Poluprovodnikovaya tekhnika i mikroelektronika (Semiconductor engineering and microelectronics). Kiev, Naukova dumka, 1966, 99-106

TOPIC TAGS: volt ampere characteristic, electric resistance, dielectric material, pn junction, thyratron, niobium, niobium compound, titanium, titanium oxide

ABSTRACT: This paper presents a preliminary study of metal-dielectric-metal structures having negative resistance at a certain voltage. Specimens of metal-metal oxide-metal structures based on oxide films of Nb and Ti were obtained. The Nb samples are obtained by thermal and anode oxidation of polished plates of pure Nb. With anode oxidation, the oxide layers are sufficiently compact and homogeneous and have film thicknesses of 600 $\overset{\circ}{A}$ to 1μ. The second electrodes are obtained by vacuum vaporization of Al, In, Ag, Bi, and Co. When dc voltage is applied, the Nb-Nb_2O_5-Me structure behaves as a dielectric up to a certain critical voltage (see fig. 1): 30--50 V, depending upon thickness. When the critical voltage is reached, incomplete breakdown occurs in the dielectric film, during which the voltage on the film drops to 2--3 V. Hysteresis is observed only in rare cases. Temperature studies of the
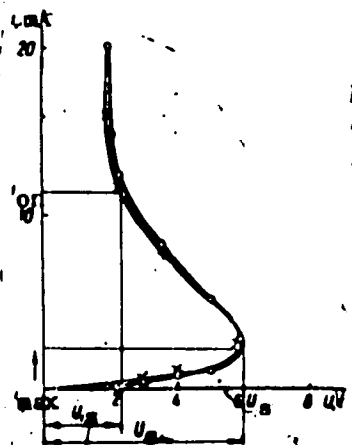
Card 1/3

ACC NR: AT6034353

Fig. 1. Typical volt-ampere
characteristic for Nb-Nb$_2$O$_5$-Me
structures: ——O—— direct;
——X—— reverse

obtained structures show that the region of negative resistance is preserved to
+140C, unlike silicon pnpn devices (see Fig. 2).

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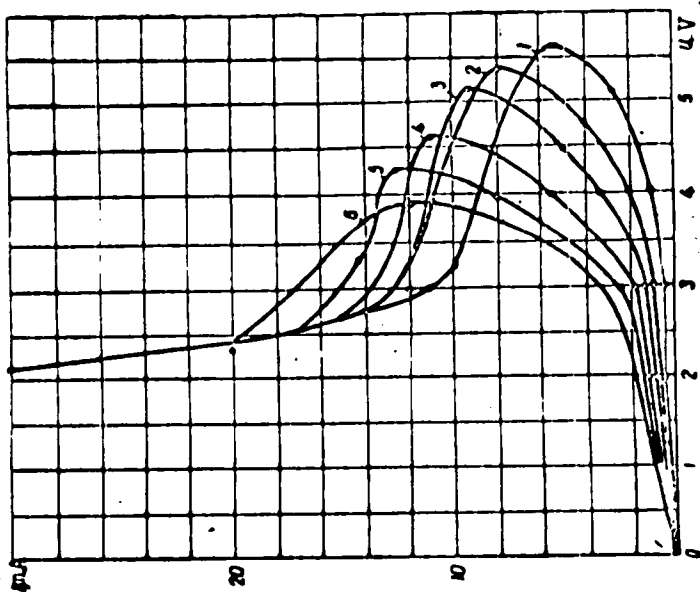
ACC NR: AT6034353

Fig. 2. Volt-ampere characteristics
for: 1 - 30C; 2 - 50C; 3 - 70C;
4 - 100C; 5 - 120C; 6 - 140C

Orig. art. has: 5 graphs and 3 formulas.

SUB CODE: 09/   SUBM DATE: --Jan65/   ORIG REF: 008/   OTH REF: 004

Card 3/3

L 24363-66   BWT(1)/BWP(e)/BWT(m)/EEC(k)-2/BWP(t)   IJP(c)   JD/WH
ACC NR: AP6008116   SOURCE CODE: UR/0139/66/000/001/0142/0148

AUTHORS: Nekrasov, M. M.; Samoylov, A. V.

ORG: Kiev Polytechnic Institute (Kievskiy politekhnicheskiy
institut)

TITLE: Investigation of the piezoelectric constants of poly-
crystalline ferroelectrics of the barium-titanate type

SOURCE: IVUZ. Fizika, no. 1, 1966, 142-148

TOPIC TAGS: barium titanate, ferroelectric material, piezoelectric
modulus, ternary alloy, temperature dependence

ABSTRACT: The measurements were made on polycrystalline samples of
rectangular form, polarized in the direction of the z axis. The
sample technology preparation was described elsewhere (FTT v. 2, No.
8, 1681, 1960). The alternating field was applied in the same direc-
tion. The resonance and antiresonance frequencies of the longitudinal
oscillations excited in the samples were measured with the aid of a
heterodyne wave meter. The measurements were made by both static and 2

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ACC NR: AP6008116   O

dynamic methods, with the piezoelectric moduli perpendicular to the polarization axis (d_{31}) determined from measurements of 100 samples of 30 compositions. The greatest piezoelectric modulus was found to be possessed by the systems $Ba(Ti, Zr, Sn)O_3$ and $Ba(Ti, Si, Sn)O_3$.

All ternary systems with zirconium and silicon were found to possess similar piezoelectric properties, zirconium producing a somewhat larger piezoelectric effect than silicon. The strongest piezoelectric properties were found to be when the percentages of Ti, Zr, and Sn were 0.85, 0.11, and 0.04 respectively for the zirconium and 0.9, 0.06, and 0.04 for the silicon. The piezomoduli d_{31} for the ternary systems were larger than for barium titanate. No noticeable difference was observed between the results of static and dynamic measurements. The static measurements were made on 15 systems of polycrystalline ferroelectrics with 55 different compositions. In addition, the temperature dependence of the piezoelectric modulus d_{31} on the ceramic sintering temperature was investigated, and was found to increase with increasing sintering temperature, up to about 1450C,

Card   2/3

L 24363-66
ACC NR: AP6008116

after which no further increase occurred. The temperature of the annealing of the ceramic also exerts a strong influence, since it affects the character of the crystalline phase. Orig. art. has: 4 figures, 2 tables, and 1 formula.

SUB CODE: 20/   SUBM DATE: 22Nov63/ ORIG REF: 004/ OTH REF: 001

Card   3/3

L 36506-66   EWT(1)/EWP(e)/EWT(m)/EWP(j))/T   I I'' c'   (λ '.'.'

ACC NR: AP6013461

SOURCE CODE: UR/0139/66/000/002/0092/0097

AUTHOR: Bogdanovich, A. S.; Kalabukhov, N. P.; Nekrasov, M. M.; Sikorskiy, Yu. A., Chepurenko, V. G.

ORG: Kiev Polytechnic Institute (Kiyevskiy politekhnicheskiy institut)

TITLE: Electrostriction of dielectrics

SOURCE: IVUZ. Fizika, no. 2, 1966, 92-97

TOPIC TAGS: dielectric capacitor, dielectric material, dielectric property, electro-striction, electric polarization, electric field

ABSTRACT: The purpose of the investigation was to ascertain whether deformation in an electric field and polarization are properties possessed by all dielectrics, and which of these properties plays the dominating role in electrostriction. The tests were made on commercial ceramic dielectrics and on certain technical dielectrics such as rubber, quartz, Plexiglas, Rochelle salt, and ADP. Altogether 166 samples were tested, 88 of which were piezoelectric. The measurement consisted essentially of de-termining the profile of the sample before and after application of the electric field, and hence the change in sample dimensions, with the aid of a profile gauge (IZP-17) accurate to 1.0×10^{-4} mm at a vertical magnification of 5200. The tests have shown that all the measured dielectrics can be divided into four groups, in which the thickness of the sample (i) decreases or (ii) increases with applied volt-age, (iii) reversal of the voltage affects the change, and (iv) at low voltages the thickness first decreases and then with further increase in the field it begins to

Card 1/2

L 36508-66
ACC NR: AP6013461

increase. Tables of the relative changes in dimensions are presented. The results confirm the correctness of the assumption that electrostriction and polarization are possessed by all dielectrics. In the case of polycrystalline ceramics, the polarization plays the major role, and the magnitude and direction of the electrostriction are strongly dependent on the field. Tests were also made of the variation of the rating of a capacitor under the influence of electrostriction, by applying to the capacitor a dc field superimposed on a high-frequency (10^7 cps) field. These tests have shown that with increasing applied additional dc field, the capacitance increases first and then reaches saturation or even decreases. Repetition of the tests under different conditions has shown that, other conditions being equal, the capacitance and the sign of the change depend on the composition of the ceramic and the technology of its preparation. It is also shown that the change in the capacitance is due essentially to polarization and that the effect of electrostriction is negligible.
Orig. art. has: 5 figures, 2 formulas, and 2 tables.

SUB CODE: 20, 09/   SUBM DATE: 01Jul64/   ORIG REF: 002/   OTH REF: 003

Card   2/2 ''' P

ACC NR: AP7004270   (N)   SOURCE CODE: UR/0432/66/000/003/0047/0048

AUTHOR: Nekrasov, M. M. (Candidate of technical sciences); Kutovoy, I. V.; Osadchuk, V. S.

ORG: none

TITLE: The use of avalanche transistors as inductance analogs in circuits

SOURCE: Mekhanizatsiya i avtomatizatsiya upravleniya, no. 3, 1966, 47-48

TOPIC TAGS: germanium transistor, transistorized amplifier

ABSTRACT: A transistor operating in the region of avalanche multiplication has been designed at the Kiyev Polytechnical Institute for use as an inductive analog. The alloyed-junction transistor, based on n-type germanium with a specific resistance of 0.18 ohm·cm, has been employed in a resonance amplifier circuit (see Fig. 1). The
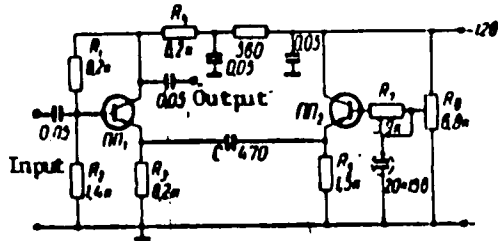

Fig. 1. Resonance amplifier circuit

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ACC NR: AP7004270

amplifying stage consists of a PP_1 transistor and R_1—R_4 resistors. The series resonance stage, which consists of capacitance C_1 and a PP_2 transistor, and which acts as an analog of the inductive element, is connected in parallel to resistor R_4. Resistors R_5 and R_7 and potentiometer R_8 determine the operating conditions of the transistor. It was found that with an increase in the emitter current the inductance of the transistor drops while its Q increases; thus by varying the d-c supply of the transistor the resonance frequency of the circuit can be shifted and its Q controlled. For Q of the order 64 at a resonance frequency of 640 kc, resist- ance in the emitter circuit of the PP_2 transistor was equal to 1.5 kohm, emitter current to 1.7 mamp, collector current to 2.1 mamp, and collector voltage to -12 v. In subsequent tests, resistance in the emitter circuit was equal to 22 kohm, emitter current to 0.24 mamp, collector current to 0.42 mamp, and collector voltage to -15 v. As a result of these measurements the resonance frequency was fixed at 290 kc for Q 30. For Q above 100, the circuit at first because self-oscillatory and then acted as a rectangular pulse generator. The use of inductive avalanche transistors will make possible the design of miniaturized resonance amplifier circuits as well as sinusoidal signal and pulse generators. Orig. art. has: 2 formulas and 3 figures.

SUB CODE: 09/ SUBM DATE: none/

Card 2/2

SOURCE CODE: UR/0432/66/000/001/0025/0027

ACC NR: AP7004654

AUTHOR: Nekrasov, M. M. (Candidate of technical sciences); Osadchuk, V. S.

ORG: none

TITLE: Semiconductor inductive element based on an avalanche transistor

SOURCE: Mekhanizatsiya i avtomatizatsiya upravleniya, no. 1, 1966, 25-27

TOPIC TAGS: electric inductance, germanium transistor, microelectronic circuit,
 ... ... C/R'CU/T, C/R'CU/T m/cRomii/u//r/or'1 2/1/1/52,

ABSTRACT: An avalanche transistor designed for use as an inductive element in mono-
lithic microminiaturized solid-state circuits is described. The transistor has
connected in a common-base configuration such that the collector was ...
circuited to the base output. In such a circuit configuration the ...
the emitter does not appear at the collector until the carriers ...
base. Therefore the emitter voltage leads the collector current in time ...
input impedance of the circuit can be represented as a series-connected ...
a resistor. The Q-factor of the input impedance was increased because of avalanche
multiplication of carriers in the collector junction. The inductive properties ...
such a transistor, made from n-type germanium with a resistivity ...
measured (see Fig. 1). These semiconductor inductive elements, which can be used ...
a wide range of circuits, permit microminiaturization of electronic circuits. ...
art. has: 2 figures and 3 formulas.

UDC: 539.293:537.311.6

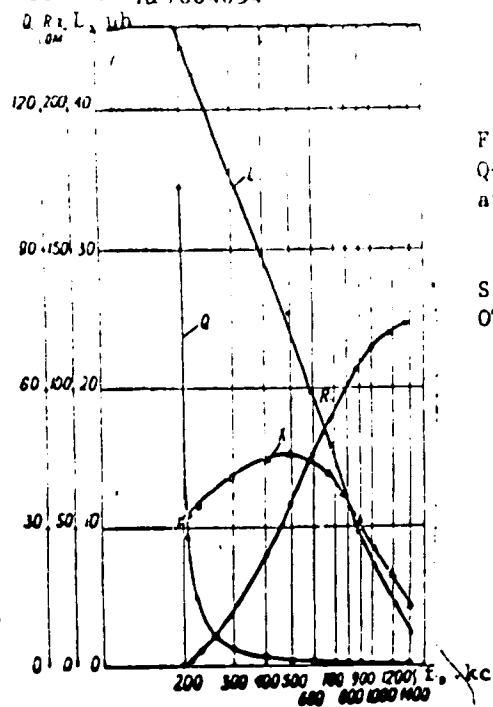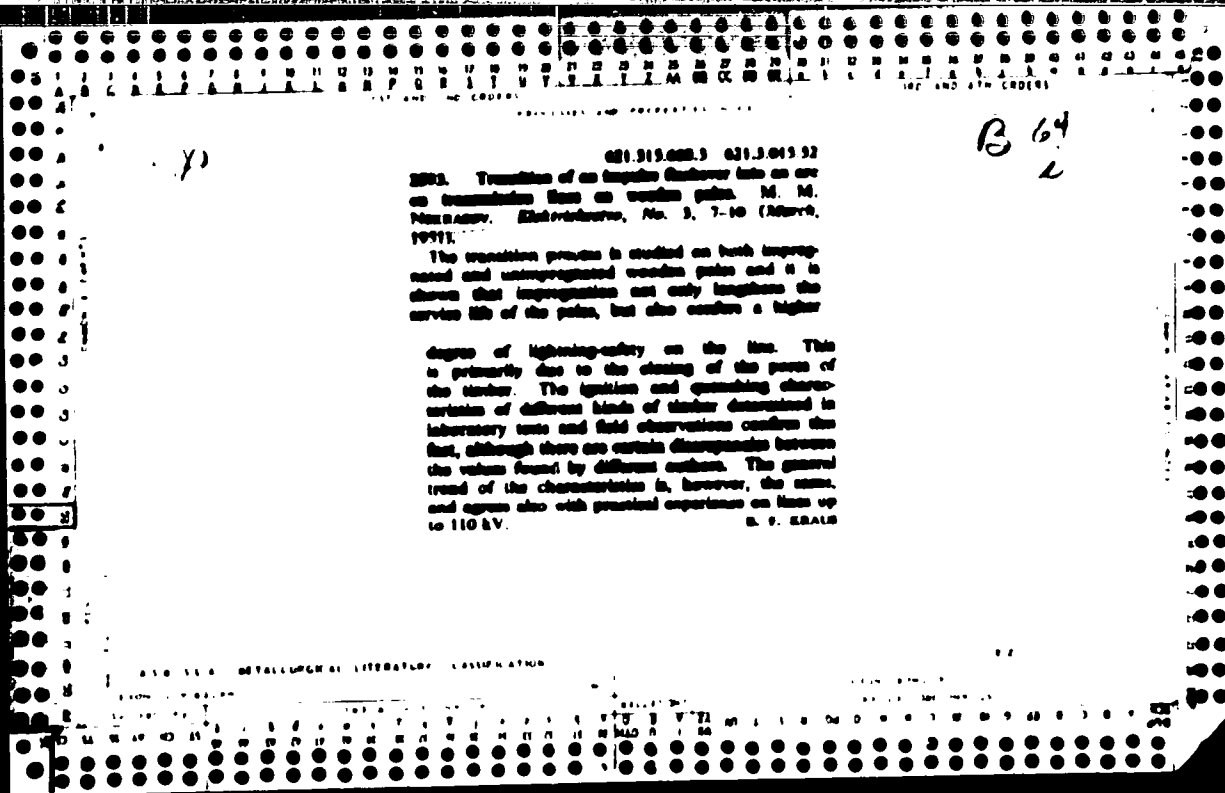Card   1/2

ACC NR: AP7004654

Fig. 1. Frequency dependence of inductance, Q-factor and the resistive component of the avalanche transistor

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OTH REF: 001/

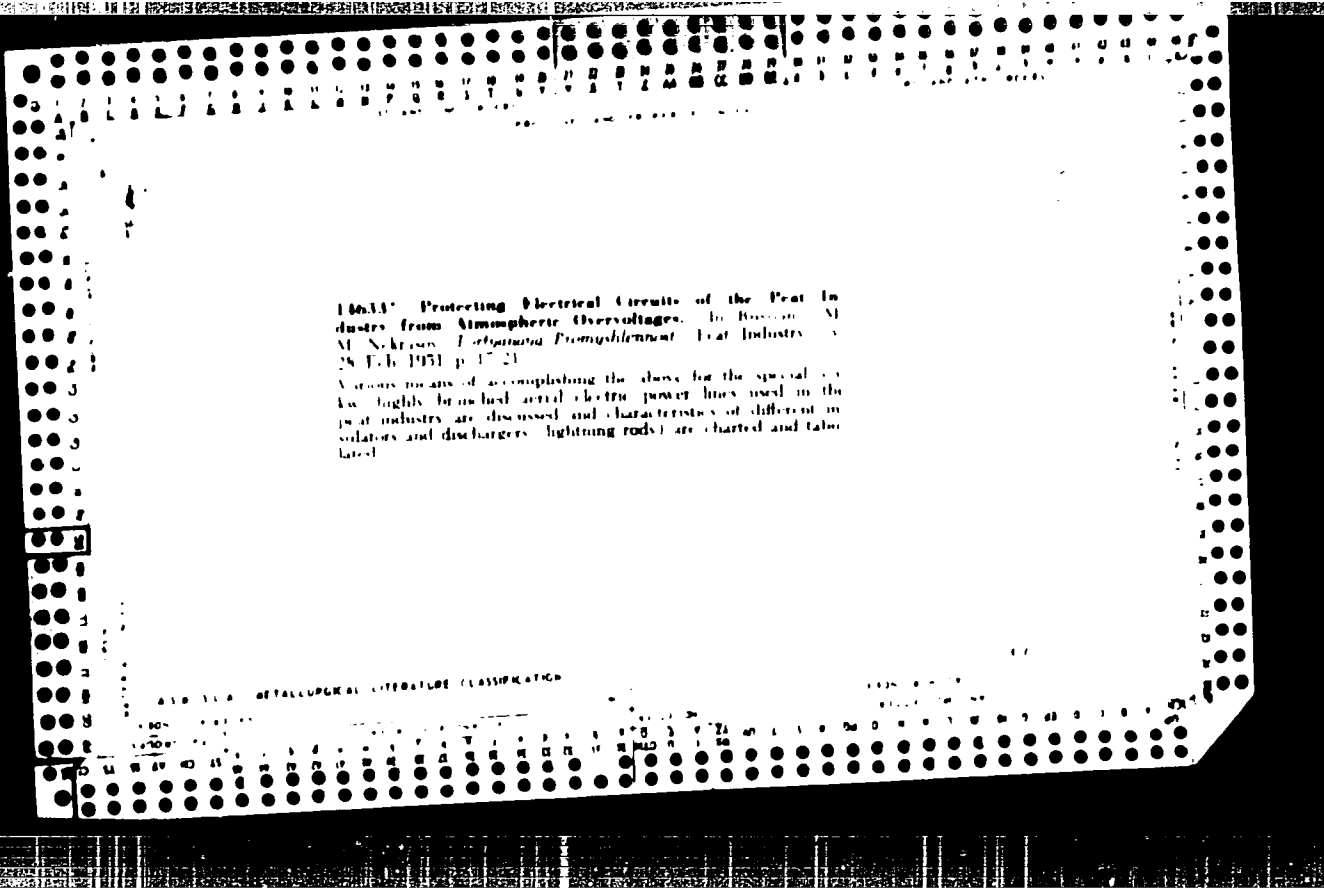Card   2/2

681.315.088.3   631.3.045.32

2001.   Transition of an impulse flashover into an arc on an transmission line on wooden poles. M. M. Neguanov. Electrichestvo, No. 3, 7-10 (March, 1971).

The transition process is studied on both impregnated and unimpregnated wooden poles and it is shown that impregnation not only lengthens the service life of the poles, but also renders a higher

degree of lightning-safety on the line. This is primarily due to the charring of the pores of the timber. The ignition and quenching characteristics of different kinds of timber determined in laboratory tests and field observations confirm this fact, although there are certain discrepancies between the values found by different authors. The general trend of the characteristics is, however, the same and agrees also with practical experience on lines up to 110 kV.   B. P. KBALS

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ATO. U.S.A.   METALLURGICAL LITERATURE CLASSIFICATION

139133 Protecting Electrical Circuits of the Peat Industry from Atmospheric Overvoltages. (In Russian) M. Nekrasov. Torfyanaya Promyshlennost. Peat Industry 28 Feb 1951 p 17-21

Various means of accomplishing the aims for the special overhead electric power lines used in the peat industry are discussed and characteristics of different insulators and dischargers (lightning rods) are charted and tabulated.

METALLURGICAL LITERATURE CLASSIFICATION

NEKRASOV, M. M.

"Preventive Research of High-Voltage Insulators," Electricity, Publ. by the Printing House of the Govt. Energy (Electrical) Publ. House, in Moscow, 1952.

NEKRASOV, M. M., Docent

USSR/Electricity - Literature   Jan 52

"New Books on Electricity, Electrical Engi-
neering, and Electric Power Engineering Pub-
lished in 1951"

"Elektrichestvo" No 1, p 96

Includes the following books   "Industrial
Electronics" by A L Gorelik, "Brief Princi-
ples of Radar" edited by A Ya Breytbart,
"Superhigh-Frequency Triode and Tetrode Os-
cillators" by M S Neyman, "Studies on the
Electronic Theory of Crystals" by S. I. Pekar,
and a translation of "Principles of Centi-
meter Wave Techniques in Radar" edited by
A Ya Breytbart.
                                   201T20

NEKRASOV, Doc M. M.

PA 237T10

USSR/Electricity - High-Voltage
Insulators   Jun 52

"Preventive Testing of High-Voltage Insulators,"
Doc M. M. Nekrasov, Cand Tech Sci, Ivanovo Power
Eng Inst imeni Lenin

"Elektrichestvo" No 6, pp 15-19

To increase effectiveness of preventive testing
of mastic-filled bushings (preventive testing of
which has proved very ineffective in practice),
proposes measurement of tg δ at frequency of 1000-
1100 cps and use of "wrap-around" electrodes for
high-voltage testing at frequency of 50 cps. Sub-
mitted 11 Dec 51.

237T10

BOGOSLOVSKIY, F. V. Eng.; NEKRASOV, M. M.

LIGHTNING ARRESTERS

Lightning protection in the Ivanovo power system. Elek. sta. 23 no. 6, 1952.

Monthly List of Russian Accessions. Library of Congress. October 1952. UNCLASSIFIED.

NEKRASOV, M.M., kandidat tekhnicheskikh nauk.

Coordinating line insulation. Elek. sta. 24 no.12:36-37 D '5:.
(MLRA 6:1:)
(Electric insulators and insulation)

NEKRASOV, M.M., kandidat tekhnicheskikh nauk.

Universal tube wattmeter. Torf.prom. 31 no.5:26-28 '54. (MLRA 7:P.)
(Wattmeter)