

28008

On agreement with experiment ...

S/508/60/030/000/011/013  
D234/D306

bloc and 2 non-Soviet-bloc. The reference to the English-language publication reads as follows: W.G. Vicenti, Comparison between theory and experiment for wings at supersonic speeds, Second International Aeronautical Conference, N.J., 1949, p. 534-552 [Abstractor's note: Two of the Soviet-bloc references quoted are translations of non-Soviet-bloc publications].

SUBMITTED: January 20, 1959

Card 5/5



VOROB'YEV, N.F. (Novosibirsk)

Unsteady motion of a finite-span wing in case of intermittent  
change of speed. Izv. AN SSSR. Otd. tekhn. nauk. Mekh. i mashinostr.  
no. 2:167-170 JAN '59. (MIRA 12:5)  
(Airfoils)

I 315/1-66 EMT(1)/EMP(m)  
ACC NRT AP6009057 SOURCE CODE: UR/0207/66/000/001/0112/0114

41  
8

AUTHOR: Vorob'yev, N. F. (Novosibirsk)

ORG: none

TITLE: The mixing of two gas flows in coaxial tubes separated by a perforated wall

SOURCE: Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki, no. 1, 1966, 112-114

TOPIC TAGS: gas flow, pipe flow, flow analysis

ABSTRACT: The author investigates, in a unidimensional scheme, the mixing of two gases, with different physical and thermodynamic properties, flowing in coaxial cylindrical tubes separated by a perforated wall. Mass exchange takes place between the media as a result of the difference in the static pressures in the flows. It is assumed that the gases in the tube, into which the gas flows, intermix instantaneously and that thermodynamic equilibrium is established in the gas mixture. Further, more, it is assumed that friction and heat transfer on the walls of the tubes are negligibly small compared to the mixing effect. In setting up the equation of momentum in the tube where the mixing occurs, the author takes into account the reciprocal direction of the mixing flows and the inflow angle. Orig. art. has: 2 figures and 8 formulas.

SUB CODE: 20 / SUBM DATE: 24Jul65 / ORIG REF: 001

Card

1/1 IC

VOROB'YEV, N.F., mayor, voyenny shturman pervogo klassa

Calculating wind conditions for bombing. Vest.Vozd.Fl. 41 no.2:  
53-56 F '59. (MIRA 12:4)

(Bombing, Aerial)  
(Meteorology in aeronautics)

YERMOLENKO, S.D. (Novosibirsk); ~~VOBOB'YEV, N.F.~~ (Novosibirsk, V.K.

Matching experience and characteristics of airfoils of finite span  
designed according to the linear theory at supersonic speeds. Inzh.  
zhurn. 30:131-138 '60. (MIRA 13:10)  
(Airfoils) (Aerodynamics, Supersonic)

VOROB'YEV, N.I. (Kazan')

Brief results of the Chuvash Ethnographic Expedition of 1949-1953.  
Uch.zap.Kaz.un. 115 no.10:138-140 '55. (MLRA 10:5)  
(Chuvashes)

VOROB'YEV, N. F.

USSR/Medicine - Virus Diseases Mar/Apr 51

"Polomyelitis et Ura in 1948," Docent N. F. Vorob'yev, Prof N. I. Savchenko, Clinic Nervous Diseases, Bashkir Med Inst

"Nevropatol i Psikhiat" Vol XX, No 2, pp 61, 62

Outbreak of polomyelitis, which affected chiefly children (mainly boys), occurred in the spring and summer. No contacts of the affected children with sick children and no group infections could be established. There was no incubation stage. Content of protein in the cerebrospinal liquid was 0.25-0.6%. Reactions of blood and other

186986

OK

USSR/Medicine - Virus Diseases Mar/Apr 51  
(Contd)

reactions were investigated. Symptomatic treatment with urotropin, sulfu drugs, penicillin administered intramuscularly (ineffective), and proserine in the recovery stage was applied.

186986



~~VOROB'YEV, N.I.~~, professor, redaktor, zasluzhennyy deyatel' nauki TASSR;  
SIL'NOVSKIY, V.N., professor, redaktor, zasluzhennyy deyatel'  
nauki TASSR; SOLGANIK, G.Ya., redaktor; NEDEL'KO, G.N., tekhnicheskiy redaktor.

[Studies on the geography of Tataria] Ocherki po geografii Tatarii.  
Kazan', Tatkhngoizdat, 1957. 356 p. (MLRA 10:6)  
(Tatar A.S.S.R.—Geography)

VOROB'YEV, N. I.

Therapeutic effectiveness of quateron in treating hypertension.  
Vrach. delo no.3:33-35 Mr '62. (MIRA 15:7)

1. Vakul'tetskaya terapevticheskaya klinika (sav. - zaslužennyy  
deyatel' nauki, prof. N. Ye. Kavetskiy) Kuybyshevskogo medi-  
tsinskogo instituta.

(HYPERTENSION) (PARASYMPATHOLYTICS)

VOROB'YEV, N.I.  
Ca

14

PROCESSES AND PROPERTIES INDEX

A method for the rapid determination of the dissolved matter in water by the electrometric method. N.I. Vorob'ev. *Vodosnabshenie Sanit. Tekh.* 14, No. 9, 30-31 (1961); *Chem. Zentr.* A940, I, 1962.--A simple method is described for the detn. of the elec. cond. of the water with

The faster disappearance of liver fat on fasting in females may reflect a more rapid turnover of fat in the female, which may in turn be responsible for the higher level of ketonuria in this sex. The fasting ketonuria was reduced about 50% after a week and practically abolished after 2 weeks when rats were returned to a stock diet after receiving the high-fat diet for 12 days. A more rapid decrease occurred when betaine-HCl was also administered, owing to its effect in causing a more rapid transfer of labile fat from the liver with a consequent faster depression in ketonuria. The output of urinary N varied inversely with the length of the feeding regime in animals fasted after receiving the high-fat low-protein diet for periods of increasing length. The opposite condition was observed in animals fed the stock diet and subsequently fasted.

A. P. Lothrop

ASB-55A METALLURGICAL LITERATURE CLASSIFICATION

VOROB'YEV, N.  
CA

14

A simplified method for potentiometric determination of sulfates in natural waters. N. I. Vorob'ev, *Zhurnal Khim. Fiz.* 12, 375-6 (1946).—The method is based on potentiometric titration with  $K_2CrO_4$  of excess  $Ba^{++}$  remaining after the pptn. of sulfates. The titration is carried out with an air electrode (Pt electrode satd. with air) which reacts rapidly to any changes in the pH value. During the titration of excess  $Ba^{++}$  with  $CrO_4^{--}$ , free  $CrO_4^{--}$  appears after the pptn. of all  $Ba^{++}$ , and reacts thus:  $2CrO_4^{--} + 2H^+ = 2HCrO_4^- = Cr_2O_7^{--} + H_2O$ . A decrease in the concn. of  $H^+$  at the equiv. point is manifested by a jump in the potential of the air electrode. The expl. error did not exceed 1% in all cases when the quantity of  $SO_4^{--}$  was not less than 5 mg. (50-100 mg. l.). Sometimes the error reached 5% when the quantity of  $SO_4^{--}$  in the sample soln. was less than 5 mg. W. R. Hunt

ASB-51A METALLURGICAL LITERATURE CLASSIFICATION

SECTION #	SECTION #	SECTION #	SECTION #
1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16
17	18	19	20
21	22	23	24
25	26	27	28
29	30	31	32
33	34	35	36
37	38	39	40
41	42	43	44
45	46	47	48
49	50	51	52
53	54	55	56
57	58	59	60
61	62	63	64
65	66	67	68
69	70	71	72
73	74	75	76
77	78	79	80
81	82	83	84
85	86	87	88
89	90	91	92
93	94	95	96
97	98	99	100

VOROB'YEV, N.I.

CA

2

Determination of electrolyte conductivity by the difference of internal resistances. N. I. Vorob'yev. *Zhur. Anal. Khim.* 3, 90-102(1948).—The described method consists of measuring the resistance offered by 2 bridges, then removing one of them and detg. the new resistance. To this end the soln. to be studied is placed in two similar containers. The containers are joined by 2 similar bridges filled with the same soln. After detg. the resistance of the system with both bridges, one of them is removed and the resistance is detd. again. A no. of electrodes were tested; Zn-C and Zn-AgCl were found most favorable. The method is particularly adapted for detg. the salt concn. in natural waters. Several assemblies suitable for these detns. are described. M. Hosh

ASB-5LA METALLURGICAL LITERATURE CLASSIFICATION

6-87 012 1257

**"APPROVED FOR RELEASE: 03/14/2001      CIA-RDP86-00513R001860820014-1**

**APPROVED FOR RELEASE: 03/14/2001      CIA-RDP86-00513R001860820014-1"**

VOROB'YEV, N.I.

Electric conductivity as one of the factors characterizing natural waters in field conditions. *Gidrokhim.mat.* 24:30-33 '55. (MLRA 9:4)

1. Saratovskiy avtodorozhnyy institut.  
(Water, Underground) (Water--Analysis)

Translation from: Referativnyy zhurnal, Geografiya, 1957, Nr 6,  
p 83 (USSR) 14-57-6-12298

AUTHOR: Vorob'yev, N. I.

TITLE: Graphio Representation of Ion Concentration and of a  
Supposed Anion and Cation Content in Natural Waters  
(Graficheskoye izobrazheniye ionnogo sostava i prod-  
pelagayemogo sochetaniya anionov i kationov v yestest-  
vennykh vodakh)

PERIODICAL: Tr. Saratovsk. avtomob.-dor. in-ta, 1956, Nr 14,  
pp 427-430

ABSTRACT: A percentage of mg-equiv. of cations present in the  
water under study are plotted on one coordinate axis,  
and a percentage of mg-equiv. of anions on the other  
axis. The areas bounded by horizontal and vertical  
lines correspond to the percentage of the salts prob-  
ably present in water.

Card 1/1



VOROB'YEV, N.I.

Electric conductivity of mixtures of electrolytes contained in  
natural waters. Gidrokhim. mat. 26:249-261 '57. (MIRA 10:8)

1. Saratovskiy avtomobil'no-dorozhnyy institut im. V.M. Molotova.  
(Water) (Electrolytes)

STUPISHEN, A.V.; VORONIN, N.I., red.; GALITSKAYA, M.A., red.

[Introduction to the course "Geomorphology"; textbook for second-year correspondence students of the Geography Faculty] Vvedenie k kursu "Geomorfologiya;" uchebnoe posobie dlia studentov-zaochnikov II kursa geograficheskogo fakul'teta. Kazan', Kazanskiy gos. univ., 1964. 18 p.  
(MIRA 18:5)

PECHKOVSKIY, V.V.; VOROB'YEV, N.I.

Reactions of vanadium chlorides with hydrogen, oxygen and  
water vapors. Zhur. neorg. khim. 10 no.6:1433-1440 Je '65.  
(MIRA 18:6)

1. Permskiy politekhnicheskii inatitut.

PECHKOVSKIY, V.V.; AMIROVA, S.A.; VOROB'YEV, N.I.; OSTROVSKAYA, T.V.

Thermochemical transformations of chromium and manganese chlorides.  
Zhur. neorg. khim. 9 no.9:2059-2065 S '64.

(MIRA 17:11)

VOROB'YEV, N.I.

Use of frequency-selective networks in correcting the shape  
of rectangular voltage pulses transformed by pulse transformers.  
Izv. TPI 122:129-139 '62. (MIRA 17:9)

PECHKOVSKIY, V.V.; VOROB'YEV, N.I.; OSTROVSKAYA, T.Y.

Thermochemical transformations of nickel and cobalt chlorides.  
Zhur.neorg.khim. 9 no.4:778-785 Ap '64. (MIRA 17:4)

PECHKOVSKIY, V.V.; VOROB'YEV, N.I.

Thermochemical transformations of iron chlorides. Zhur.neorg.khim. 9 no.  
1:12-19 Ja '64. (MIRA 17:2)

PECHKOVSKIY, V.V.; AMIROVA, S.A.; VOROB'YEV, N.I.

Roasting of ferrous sulfate in a fluidized bed (pilot plant testing). Izv.vys.ucheb.zav.;khim. i khim.tekh. 6 no.2:268-273 '63. (MIRA 16:9)

1. Permskiy politekhnicheskii institut, kafedra tekhnologii neorganicheskikh veshchestv.  
(Iron sulfate) (Fluidization)



VOROB'EV, N.I., kand.tekhn.nauk (Gor'kiy)

Interdependence of the physical properties of polymers.  
Elektrichestvo no.8:76-78 Ag '61. (HIRA 14:10)  
(Polymers)

26036

5.3833

1372, 2209, 1273

S/105/61/000/008/004/004  
E194/E155

15.8500

AUTHOR: Vorob'yev, N. I., Candidate of Technical Sciences (Gor'kiy)  
TITLE: Inter-relationships between the physical properties of polymers

PERIODICAL: Elektrichestvo, 1961, No.8, pp. 76-78

TEXT: Many new polymers are appearing, and study of their properties can be facilitated by better understanding of the relationships between the different properties. R.F. Boyer (Ref.1: J. Appl. Phys., 1955, V.25, No.7, p.825) has established that the vitrification temperature of polymers is determined by the value of intermolecular forces. As the intermolecular forces or energy of cohesion increase, there is a linear rise in the vitrification temperature. Moreover, a relationship has been established between the dielectric losses and the vitrification temperature, and a similar relationship can probably be extended to the majority of physical properties of the polymers. Thus, the value of the intermolecular forces can be regarded as a fundamental property of polymers governing many other properties. Polymers can thus be classified according to the magnitude of the intermolecular forces. X

Card 1/4

26036

S/105/61/000/008/004/004  
E194/E155

Inter-relationships between the ...

Typical rubbers have low values, polymers used for films and fibres have high values, and polymers of intermediate value are used for the manufacture of plastics. It has also been shown that the density, modulus of elasticity and coefficient of linear expansion are closely related to the vitrification temperature and, therefore, to the magnitude of the intermolecular forces. The present work extends these relationships to certain new physical properties of organic polymers and also to inorganic polymers (glasses). Results obtained from the literature are quoted for the relationship between the ultimate strength and the elongation at fracture of organic polymers as functions of vitrification temperature. The curve of ultimate strength in tension as a function of vitrification temperature has three rising branches, the lowest corresponding to rubbers, the middle one to vulcanised materials and the upper to finished rubbers with carbon black. There is a maximum in the curve of tensile strength against vitrification temperature, presumably because two factors are present. An increase in the vitrification temperature, and consequently in the intermolecular forces, tends to increase the strength. Secondly, when a polymer is fractured the material is

Card 2/4

Inter-relationships between the .... <sup>2036</sup> S/105/61/000/008/004/004  
E194/E155

orientated, which also increases the strength. Below the maximum both processes act in the same direction. But in polymers of high vitrification temperature there is no orientation, and accordingly there is some reduction in strength. The elongation at fracture diminishes sharply as the vitrification temperature is increased. An attempt was made to extend these relationships to silicate glasses. The transition from the homopolar chemical linkages of organic polymers to the stronger heteropolar linkages of inorganic polymers causes the latter to be stronger. A unique relationship for both types of polymer is found for mechanical strength, modulus of elasticity and coefficient of linear expansion as functions of vitrification temperature. The existence of these general relationships is additional confirmation of the new theory of polymetric structure of inorganic glasses. Analysis of the data shows that the relationships are valid for amorphous and many crystalline polymers and also for copolymers and inorganic polymers. The characteristics of all these lie on a single curve of quite small scatter. This is the more convincing in that the experimental data were obtained by different experimenters using various techniques and materials. It is concluded that the  
Card 3/4

26036

Inter-relationships between the ....

S/105/61/000/008/004/004  
E194/E155

physical properties of polymers depend on the magnitude of intermolecular forces or vitrification temperature and are closely interrelated. Knowledge of this interrelationship of physical properties should facilitate the classification, study and application of polymers. X

There are 5 figures and 13 references; 12 Soviet and 1 English. The English language reference is as given above.

SUBMITTED: March 30, 1961

Card 4/4

VOROB'YEV, N. I.

Cand Tech Sci - (diss) "Several problems of the theory, estimate, designing, and technology of the manufacture of high-voltage impulse transformers." Tomsk, 1961. 14 pp; (Tomsk Order of Labor Red Banner Polytechnic Inst imeni S. M. Kirov); 150 copies; price not given; (KL, 6-61 sup, 215)

VOROB'YEV, Nikolay Ignat'yevich, aspirant

Measurement of static winding capacitances of pulse transformers.  
Izv. vys. ucheb. zav.; elektromkh. 3 no.7:57-60 '60.  
(MIRA 13:9)

1. Tomskiy politekhnicheskiy institut.  
(Electric transformers--Windings)

PHASE I BOOK EXPLOITATION

SOV/4809

Vorob'yev, A.A., G.A. Vorob'yev, N.I. Vorob'yev, A.F. Kalganov, I.I. Kalyatskiy, V.D. Kuchin, G.A. Mesyats, S.F. Pokrovskiy, K.K. Sonchik, and A.T. Chepikov

Vysokovol'tnoye ispytatel'noye oborudovaniye i izmereniya (High-Voltage Testing Equipment and Measurements) Moscow, Gosenergoizdat, 1960. 583 p. Errata slip inserted. 10,500 copies printed.

Ed. (Title page): A.A. Vorob'yev, Professor; Ed. (Inside book): A.I. Dolginov; Tech. Ed.: K.P. Voronin

PURPOSE: This book is intended as a textbook for students taking courses dealing with high-voltage technique and high-voltage testing equipment. It may also be of use to the personnel in high-voltage laboratories and scientific institutions. New data contained in the book may be of interest to electricians.

COVERAGE: The book describes methods and installations used for generating and measuring high and superhigh constant, alternating, and pulse voltages used in laboratory work and in charged-particle acceleration processes. Some data contained in the book could be used in designing and computing high-voltage installations. The book was written by the staff members of the Department of High-Voltage Technique of the Tomsk Polytechnic Institute. Chapters I and II were written by A.A. Vorob'yev, with paragraphs I-1 and I-2 written jointly with

Card 1/6



## High-Voltage Testing (Cont.)

SOV/4809

I.I. Kalyatskiy, paragraph I-6 with N.I. Vorob'yev, paragraphs II-1 to II-6 and II-10 to II-13 with A.F. Kalganov, and paragraphs II-7 to II-9 with V.D. Kuchin. Ch. III was written by A.A. Vorob'yev, with the exception of paragraph III-4, written by S.F. Pokrovskiy, and paragraph III-6, written jointly by A.A. Vorob'yev and the latter. Ch. IV: paragraphs IV-1 to IV-3 were written by I.I. Kalyatskiy; paragraphs IV-5 and IV-6 by A.A. Vorob'yev; paragraph IV-4 by A.A. Vorob'yev and I.I. Kalyatskiy jointly; paragraph IV-7 by K.K. Sonchik; paragraph IV-8 by G.A. Mesyats; and paragraphs IV-9 and IV-10 by N.I. Vorob'yev. Ch. V: paragraphs V-1, V-2 and V-12 were written by A.A. Vorob'yev; paragraphs V-3, V-4 and V-8 by A.A. Vorob'yev and G.A. Vorob'yev jointly; paragraphs V-5 to V-7 by A.A. Vorob'yev and A.T. Chepikov jointly; paragraphs V-9 to V-11 by A.A. Vorob'yev; and paragraph V-13 by K.K. Sonchik. The authors thank Engineer L.T. Murashko for his assistance. References accompany each chapter.

## TABLE OF CONTENTS:

Foreword

3

Ch. I. Methods and Installations for the Generation of High Alternating Voltage

Card ~~2/6~~

High-Voltage Testing (Cont.)

SOV/4809

Ch. V. High-Voltage Measurements

1. General information on high-voltage measurements and measuring instruments	414
2. Electrostatic voltmeters	422
3. Generating voltmeters	429
4. Capacitive-rectifying circuits for high-voltage measurements	435
5. Measurement of alternating and constant voltages by means of arresters	444
6. Measurement of pulse and h-f voltage amplitude by means of arresters	455
7. Dividers for constant and alternating-voltage measurements	467
8. Dividers for pulse-voltage measurements	481
9. Certain physical processes occurring in cathode-ray tubes	503
10. Special features of oscillographic recording of rapid processes	521
11. Oscillograph circuits for the recording of single phenomena	529
12. "Klidonograf" [wave recorder] and its use in fixing voltage amplitude	541
13. Pulse-current measurements	546
Bibliography	557

Appendixes 559

AVAILABLE: Library of Congress  
Card 6/6

JP/rsm/sfm  
2-17-61

VOROB'YEV, N.I.

Machine tools for shaping high-strength reinforcing wire. Bnl. tekhn.  
inform. 4 no.5:27 Ky '58. (MIRA 11:8)

1. Glavnyy inzhener remontno-mekhanicheskogo zavoda Stroytresta  
No.20.

(Reinforced concrete)

VOROB'YAN, Nikolay Ivanovich; VESHIKINA, A.A., red.; GOLICHENKOVA, A.A.,  
tekh.red.

[Safety engineering in assembling installations] Tekhnika bezopasnosti  
pri montazhe oborudovaniia. [Moskva] Izd-vo VTsSPS Profizdat, 1957.  
135 p. (MIRA 11:2)  
(Engineering--Safety measures)

SOV/91-59-7-13/21

11(3)  
AUTHOR:

Vorob'yev, N.I., Engineer

TITLE:

Laboratory Equipment for Cleaning and Drying of Transformer Oil

PERIODICAL:

Energetik, 1959, Nr 7, pp 21-22

(USSR)

ABSTRACT:

For cleaning and drying transformer oil used in high-voltage equipment of electrophysical laboratories, a device was built producing transformer oil with extraordinary high electrical characteristics. The technological system used, consists of heating, cleaning by means of an adsorbant, filtering and drying with vacuum-deaeration. The author describes briefly the equipment used for heating the oil to 70 - 80°C. The temperature is controlled by an electronic automatic bridge of type EMV-21. Fig. 1 shows the electrical heater circuit. The cleaning by means of an adsorbant is performed by passing the hot oil over silicagel (SiO<sub>2</sub>) which has been activated by heating it to 300-500°C. After cleaning the oil is fed to a vacuum

Card 1/2

SOV/91-59-7-13/21

Laboratory Equipment for Cleaning and Drying of Transformer Oil

filter for removing mechanical admixtures. The deaeration is performed by spraying the hot oil at a temperature of 60- 70 °C into a reservoir or into a tank in which a vacuum of 30 - 66 mm mercury column is maintained. The oil processed according to this method was used by the authors in pulse transformers of 400 and 1,000 kv. The oil cleaning apparatus is reliable in operation. There are 1 circuit diagram and 1 diagram.

Card 2/2

VOROB'YEV N.I.

VOROB'YEV, A.A., professor, doktor fiziko-matematicheskikh nauk;

VOROB'YEV, N.I., dotsent, kandidat tekhnicheskikh nauk; TRESKI-  
NA, M.N., inzhener; VOROB'YEV, G.A., inzhener; KALYATSKIN, I.I.,  
inzhener; TRUBITSYN, A.M., inzhener; DMITREVSKIY, V.S., inzhener;  
KALGANOV, A.F., inzhener; KUCHIN, V.D., inzhener.

"High voltage electrical engineering." Part I and II. A.A.Akopian  
and others. Reviewed by A.A.Vorob'ev and others. Elektrichestvo no.8:  
91-92 Ag '54. (MLRA 7:8)

1. Kafedra tekhniki vysokikh napryazheniy i kafedra elektroizolya-  
tsionnoy i kabel'noy tekhniki Tomskogo politekhnicheskogo instituta  
im. Kirova.

(Electric engineering) (Akopian, A.A.)

VOROB'YEV, N. P.

2

USSR  
Apparatus for determining electro-optic  
properties of materials



VOROB'YEV, N.I.

112-2-2709

Translation from: Referativnyy Zhurnal, Elektrotehnika, 1957, Nr 2,  
p. 12 (USSR)

AUTHOR: Vorob'yev, N.I.

TITLE: The Winter-proof Feature and Heat Resistance of Insulating  
Compounds. The Classification of Insulating Compounds  
(Morozostoykost' i nagrevostoykost' izolyatsionnykh  
sostavov. Klassifikatsiya izolyatsionnykh sostavov)

PERIODICAL: Izv. Tomskogo politekhn. in-ta, 1956, Nr 82, pp. 21-26

ABSTRACT: Asphaltic and wax-like compounds with synthetic resins  
as a base are discussed and their vitrification and  
embrittlement temperatures are investigated. It has been  
shown that the thermosetting compounds have the widest  
range of operating temperatures. A.A.V.

Card 1/1

VOROB'YEV, N.I.

AUTHORS: Vorob'ev N.I. (Cand.Tech.Sci.) and Silinskiy, V.P. (Engineer). 110-7-25/30

TITLE: Investigation of the resistance to frost of the insulation of motors series A and AO. (Issledovaniye morozostoykosti isolyatsii dvigateley seriy A i AO.)

PERIODICAL: "Vestnik Elektropromyshlennosti" (Journal of the Electrical Industry), Vol.28, No.7, 1957, pp.74-76 (USSR).

ABSTRACT: Although standard series induction motors are widely used their performance at very low temperatures has not been thoroughly studied. This article gives the results of low temperature cycling tests on the insulation. In low temperature cycling damage to insulation mostly results from differential expansion of different materials. It is difficult to measure deterioration of the insulation directly, therefore in the present work the resistance of the insulation to frost was evaluated indirectly by its water resistance after exposure. The tests were made on standard series induction motors made by the Sibelektromotor works. Design information is tabulated. All motors were of No.4 frame size for 220/380 V supply. Three motors of each type were tested. The testing cycle was as follows: normalisation of the insulation at 105 C for

Card  
1/2

Investigation of the resistance to frost of the insulation of motors series A and AO. (Cont.)

110-7-25/30

8 hours; maintaining at relative humidity of 95 + 5% at room temperature for seven days; immediate transfer to a cold chamber at -60 C for 24 hours. After passing five cycles the motor stators were aged at 150 C for 20 days. After ageing the motors were again cycled five times. In each cycle after seven days exposure to moisture the motors were given an a.c. flash test of 700 V. Graphs of the insulation resistance of the motors as a function of time in the humidity chamber are given in Fig. 1 and comparable graphs for the power factor and capacitance are given in Figs. 2 and 3. The insulation of all three variants of the standard series motor were found to be sufficiently resistant to frost. The winding terminations were found to be a weak place in the insulation. The moisture resistance of normal enclosed motors is somewhat higher than that of water resistant type motors. There are 3 figures, 1 table.

Card  
2/2

ASSOCIATION: Tomsk Branch of the Scientific Research Institute of the Ministry of the Electrotechnical Industry. (Tomskiy Filial NII MEP).

AVAILABLE:

VOROB'YEV

9(2)

SOV/112-59-5-10062

Translation from: Referativnyy zhurnal. Elektrotehnika, 1959, Nr 5, p 234 (USSR)

AUTHOR: Vorob'yev, N. I.

TITLE: Pulse Modulator With a Nonuniform Artificial Line

PERIODICAL: Izv. Tomskogo politekhn. in-ta, 1957, Vol 87, pp 343-350

ABSTRACT: The possibility is considered of improving the output square-pulse shape of a modulator, that has a forming artificial line and an output pulse transformer, by substituting a nonuniform line for the uniform one. This permits designing the pulse transformer with a lesser number of turns or with a smaller core cross-section (therefore, with a steeper pulse front and with a lower weight). A greater pulse tilt is prevented by a correcting effect of the nonuniform line. This method is applicable only for the case of an underheated transformer. Engineering formulae and an example of calculating such a non-uniform line are presented, as well as pulse oscillograms obtained in an experimental hookup. Bibliography: 3 items.

B. Z. L.

Card 1/1

VOROB'YEV, N.I., kand.tekhn.nauk, dotsent

Textbook for the "Electric materials" course. Reviewed by  
N.I. Vorob'ev. Izv. vys. ucheb. zav.; elektromekh. 1 no.4:122-123  
'58. (MIRA 11:8)

1.Tomskiy politekhnicheskii institut.  
(Electric engineering)

AUTHOR: Vorob'yev, N. I., Docent, Candidate of Technical Sciences 105-58-4-15/37

TITLE: Using a Q-Meter for Measuring High-Quality Factors (0 primeneniye kumetra dlya izmereniya bol'shikh dobrotnostey)

PERIODICAL: Elektrichestvo, 1958, Nr 4, pp. 64-65 (USSR)

ABSTRACT: The possibilities of measuring high-quality factors by means of a Q-meter are analysed. The conditions are investigated, based on which it is possible to increase the accuracy of the measurements with the Q-meter of dielectrics with small losses. The basic difficulty in measuring dielectrics with small  $tg \delta$ -value is the small difference between  $Q_1$ - $Q_2$ . For increasing this difference (with one and the same  $tg \delta$ -value) coils of high quality must be used ( $Q_1$ ). The samples must have a capacity as high as possible (e.g. not below  $100 \mu F$ ). The data of measurements of  $tg \delta$  with polyethylene at various frequencies are given. The measurements were carried out with a Q-meter of the KB-1 type with mercury electrodes. The Q-meter was connected through a voltage stabilizer. In the calculation of the capacity and of  $tg \delta$  a correction was introduced. The greatest accuracy of measurement is obtained

Card 1/2

Using a Q-Meter for Measuring High-Quality Factors

105-58-4-15/37

at 750 kilocycles. Analogous measurements were carried out with polysterene, polydichlorostyrene and others. In all cases an essential (1,5-2 fold) deviation of  $\text{tg } \delta$  from the values measured at 1 megacycle inspite of corrections for the electrodes was observed at frequencies above 1 megacycle; this was the case in both directions (increase and decrease). Thus dielectrics with  $\text{tg } \delta = 4 \cdot 10^{-4}$  can be measured with a deviation of not more than 30% when a number of conditions are taken into consideration. There are 1 table and 4 Soviet references.

ASSOCIATION: Tomskiy politekhnicheskiy institut (Tomsk Polytechnical Institute)

SUBMITTED: October 24, 1957

AVAILABLE: Library of Congress

1. Dielectrics-Measurement

Card 2/2

VOROB'YEV, N.I.

**AUTHOR:** Kuchin, V. D., Candidate of Technical Sciences SOV/105-58-7-25/32

**TITLE:** Conference on Solid Dielectrics and Semiconductors (Konferentsiya po tverdyim dielektrikam i poluprovodnikam)

**PERIODICAL:** Elektrichestvo, 1958, Nr 7, pp. 85 - 86 (USSR)

**ABSTRACT:** The conference took place from February 3<sup>rd</sup> to February 8<sup>th</sup>, 1958, in the Tomsk Polytechnical Institute (Tomskiy politekhnicheskiy institut), Section of Properties of Dielectrics. Professor A.A.Vorob'yev (TPI) reported on the great number of investigations in the theory of ionic dielectrics, of crystallization, of the mechanical and electric properties of dielectrics and practical insulation. He showed that the properties of the binary compounds are divided into two groups: the one group of properties increases with increasing lattice energy, the other is reduced. Docent M.S.Metsik, Irkutsk University (Irkutskiy universitet) developed a theory according to which the cleavage-work in mica crystals is composed of the work against the dipole forces and the work for the separation of the double layer and in the last stage results in an electrostatic mosaic. Docent N.I. Vorob'yev (TPI) reported on the results of the investigation of

Card 1/4



Conference on Solid Dielectrics and Semiconductors

SOV/05-50-7-25/32

dielectric constant, of the losses, the electric strength, and the specific volume resistance under temperature influence, moisture, tropical conditions, in the corona products "fluoroplast-4", "fluoroplast-3", polyethylene, polymonochlorostyrene, "product-10", thermoreactive compounds, and urethane. M.S.Ivankina (TPI) measured the factor of linear expansion and the heat produced in the formation of solid solutions of the KCl- RbCl, KCl - KBr - and NaCl - NaBr system in dependence on the composition in the range of from 25 to 100° C. A. N.Kislina (TPI) found that the simple relations between the physical and chemical properties of the monocrystals of alkali-halide salts and their electrical strength (as described previously in the papers of A.A.Vorob'yev), are not always established in the case of solid solutions. Docent P.A.Savintsev and others (TPI) found that the strength of alkali-halide solutions determined according to the method of boring and mutual grinding increases with increasing molecular concentration its change according to its composition following a curve with a minimum. Docent V.V.Puchkovskiy, Chelyabinsk Institute of Mechanization and Electrification of Agriculture (Chelyabinskiy institut mekhanizatsii i elektrifikatsii sel'skogo khozyaystva) by means of experiments found that the dependence of the maximum

Card 2/4

Conference on Solid Dielectrics and Semiconductors SOV/105-58-7-25/32

overheating temperature in the center of the small plate on the temperature of the surrounding air has maxima in the case of a change of this temperature of from 20 - 100° C.

Section of Ceramics: V.M.Belousov (TPI) gave a calculation of the ceramic structure. Docent V.A.Presnov and others (SFTI) reported on investigations of the vacuum-tight ceramic structure and the nature of the ceramic-metal boundary.

Section of Crystallization: Professor A.M. Kuz'min and assistants (TPI) dealt with geological problems. S.A.Stroitelev (TPI) gave a method for the selection of effective admixtures. A.P.Izergin developed a method and an equipment for the purification of liquids from small admixture quantities.

In the joint session of the sections concerned with the breakdown of solid dielectrics, ceramics, polarization, losses, and conductivity Professor N.I.Shishkin spoke about the "Electric Conductivity of Solidified Glasses". The final general meeting was opened by Ye.G.Papush (Dnepropetrovsk Institute of Railway Traffic Engineers) who reported on the "Foundations of the Theory of Polarons". I. Ye.Balygin and A.P.Rumyantsev reported on the investigation of the dissipation processes of the silver isotope

Card 3/4

Conference on Solid Dielectrics and Semiconductors SOV/105-58-7-25/32

Ag<sup>110</sup> in amorphous and crystalline quartz, and in agglomerated oxides as Al<sub>2</sub>O<sub>3</sub>, ZrO<sub>2</sub> and TiO<sub>2</sub>.

ASSOCIATION: Tomskiy politekhnicheskii institut (Tomsk Polytechnical Institute)

1. Dielectrics--USSR 2. Semiconductors--USSR 3. Conferences

Card 4/4

SOV/110-58-11-11/28

**AUTHOR:** Vorob'yev, N.I. (Cand.Tech.Sci.)

**TITLE:** The Dielectric Properties of Thermo-reactive Compounds  
(Dielektricheskiye svoystva termoreaktivnykh kompaundov).

**PERIODICAL:** Vestnik Elektropromyshlennosti, Nr.11, 1958, pp.39-41.  
(USSR)

**ABSTRACT:** Setting compounds of the old types are nowadays being replaced by polymerising-type compounds - epoxides, polyurethanes, methacrylates and others. This article considers the dielectric properties of methacrylates and polyurethane compounds. Methacrylate compounds type MBK are co-polymers of methacrylate ethers. Compound MBK-1 is hard, MBK-3 is elastic and moisture resistant. Both are particularly convenient in use. Compound K-31 is of the polyurethane type, and, like compound MBK, it does not melt. It is not soluble in organic solvents, can only be stored for a short time in the liquid condition, and is toxic. The test specimens of the compound were hardened in flat aluminium cups which served as the lower electrodes. The upper electrodes were of aluminium foil.

Card 1/3

SOV/110-58-11-11/28

The Dielectric Properties of Thermo-reactive Compounds.

Graphs of the dielectric power factors, and permittivities of the compounds as functions of frequency are given in Figs.1 and 2; the measurements were made at a temperature of 20°C. The graphs are of typical dipole character. These compounds are used in d.c., power and audio-frequency circuits, of which the last are the most important. Temperature characteristics of the dielectric loss and permittivity, given in Figs. 3 & 4, are also of typical dipole character. Thermal ageing tests were made on compound MBK. The frequency characteristics of the dielectric loss were determined before and after ageing, and are seen in Fig.5. For compound MBK-1, ageing displaces the power-factor curve in the direction of lower frequency, because of additional polymerisation of the material. Tropical tests were made on compounds MBK and the results are plotted in Fig.6. It is concluded that compounds MBK are better than K-31 in respect of electrical properties, and are of high moisture-resistance. There are 6 figures and 5 Soviet references.

Card 2/3

SOV/110-58-11-11/28

The Dielectric Properties of Thermo-reactive Compounds.

SUBMITTED: April 17, 1958.

1. Acrylic resins--Dielectric properties
2. Urethane compounds--Dielectric properties
3. Dielectric properties--Measurement

Card 3/3

SOV/110-59-1-18/28

**AUTHOR:** Vorob'yev, N.I. (Candidate of Technical Sciences)

**TITLE:** New Types of Dielectrics (Novyye vidy dielektrikov)

**PERIODICAL:** Vestnik Elektromyshlennosti, 1959, Nr 1, pp 62-64 (USSR)

**ABSTRACT:** This is a general review of new types of insulation, including styrenes, low- and high-pressure polyethylene, silicones, boron-based materials and others. The information given is quite general and seems to be derived mostly from American sources.

Card 1/1 There are 2 tables and 11 references, 8 of which are Soviet and 3 English.

**SUBMITTED:** April 16, 1958

VOROB'YEV, N. I.; VALEYEV, F. Kh.

"Narodnoye prikladnoye iskusstvo tatar Povolzh'ya."

report submitted for 7th Intl Cong, Anthropological & Ethnological Sciences,  
Moscow, 3-10 Aug 64.



8/274/63/000/002/014/019  
A055/A126

AUTHOR: Vorob'yev, N.I.

TITLE: Relative influence of the mutual capacitances and self-capacitances of the windings on the value of the dynamic capacitance of pulse transformers

PERIODICAL: Referativnyy zhurnal, Radiotekhnika i Elektrosvyaz', no. 2, 1963, 75, abstract 2B550 (In collect.on "Elektron. uskoriteli", Tomsk, Tomskiy un-t, 1961, 268 - 276)

TEXT: The self-capacitance of the windings plays an important part in the formation of the general dynamic capacitance of the transformer, especially in the case of high-voltage transformers placed in oil-filled metal tanks. An analysis is made, with certain approximations, for the simplest forms of windings and tanks. This analysis permits of determining the existing relationships and of giving some practical recommendations: 1) to obtain the minimum dynamic capacitance of the transformer, the radial size of the winding is determined as the geometric mean of the radial sizes of the core and of the tank; 2) during

Card 1/2

Relative influence of the mutual capacitances ....

S/274/63/000/002/014/019  
A055/A126

the design stage, the measurements of the self-capacitances of the windings must be made. Tables giving the dynamic and static mutual capacitances and self-capacitances of the coils of a 1,000,000 v pulse transformer are reproduced. There are 5 figures and 6 references.

Yu. Sh.

[Abstracter's note: Complete translation]

Card 2/2

ARKHIPOV, Vadim Matveyevich; BUSYGIN, Yevgeniy Prokof'ievich;  
VOROB'YEV, N.I., prof., red.; KUSURGASHEV, I.M., red.

[Antarctica and its exploration by Soviet scientists] Antark-  
tida i ee issledovanie sovetskimi uchenymi. Kazan' Izd-vo Ka-  
zanskogo univ., 1959. 49 p. (MIRA 15:3)  
(Antarctic regions--Soviet exploration)

VOROB'YEV, N.I., inzh.

Study of the impulse electric strength of transformer oil and discharge voltages on the surface of certain dielectrics in transformer oil. Izv.vys.ucheb.zav.; energ. 4 no.5:25-31 My '61. (MIRA 14:6)

1. Nauchno-issledovatel'skiy institut yadernoy fiziki, elektroniki i avtomatiki pri Tomskom politekhnicheskoye institute imeni S.M. Kirova. Predstavlena nauchnym seminarom kafedry tekhniki vysokikh napryazheniy.  
(Insulating oils) (Dielectrics) (Electric transformers)

VOROB'YEV, A.A.; prof.; VOROB'YEV, G.A.; VOROB'YEV, N.I.; KALGANOV, A.F.;  
KALIYATSKIY, I.I.; KUCHIN, V.D.; MESYATS, G.A.; POKROVSKIY, S.P.;  
SONCHIK, K.K.; CHEPIKOV, A.T.; DOLGINOV, A.I., red.; VORONIN, K.P.,  
tekhn.red.

[High-voltage test equipment and measurements] Vysokovol'tnoe  
ispytatel'noe oborudovanie i izmereniia. Pod red.A.A.Vorob'eva.  
Moskva, Gos.energ.izd-vo, 1960. 583 p.

(MIRA 14:1)

1. Sotrudniki kafedry tekhniki vysokikh napryazheniy Tomskogo  
politekhnicheskogo instituta (for all except Dolginov, Voronin).  
(Electric testing) (Electric measurements)

PHASE I BOOK EXPLOITATION

SOV/4809

Vorob'yev, A.A., G.A. Vorob'yev, N.I. Vorob'yev, A.F. Kalganov, I.I. Kalyatskiy, V.D. Kuchin, G.A. Mesyats, S.F. Pokrovskiy, K.K. Sonchik, and A.T. Chepikov

Vysokovol'tnoye ispytatel'noye obrudovaniye i izmereniya (High-Voltage Testing Equipment and Measurements) Moscow, Gosenergoizdat, 1960. 583 p. Errata slip inserted. 10,500 copies printed.

Ed. (Title page): A.A. Vorob'yev, Professor; Ed. (Inside book): A.I. Dolginov; Tech. Ed.: K.P. Voronin

PURPOSE: This book is intended as a textbook for students taking courses dealing with high-voltage technique and high-voltage testing equipment. It may also be of use to the personnel in high-voltage laboratories and scientific institutions. New data contained in the book may be of interest to electricians.

COVERAGE: The book describes methods and installations used for generating and measuring high and superhigh constant, alternating, and pulse voltages used in laboratory work and in charged-particle acceleration processes. Some data contained in the book could be used in designing and computing high-voltage installations. The book was written by the staff members of the Department of High-Voltage Technique of the Tomsk Polytechnic Institute. Chapters I and II were written by A.A. Vorob'yev, with paragraphs I-1 and I-2 written jointly with

Card 1/6

## High-Voltage Testing (Cont.)

SOV/4809

I.I. Kalyatskiy, paragraph I-6 with N.I. Vorob'yev, paragraphs II-1 to II-6 and II-10 to II-13 with A.F. Kalganov, and paragraphs II-7 to II-9 with V.D. Kuchin. Ch. III was written by A.A. Vorob'yev, with the exception of paragraph III-4, written by S.F. Pokrovskiy, and paragraph III-6, written jointly by A.A. Vorob'yev and the latter. Ch. IV: paragraphs IV-1 to IV-3 were written by I.I. Kalyatskiy; paragraphs IV-5 and IV-6 by A.A. Vorob'yev; paragraph IV-4 by A.A. Vorob'yev and I.I. Kalyatskiy jointly; paragraph IV-7 by K.K. Sonchik; paragraph IV-8 by G.A. Mosyats; and paragraphs IV-9 and IV-10 by N.I. Vorob'yev. Ch. V: paragraphs V-1, V-2 and V-12 were written by A.A. Vorob'yev; paragraphs V-3, V-4 and V-8 by A.A. Vorob'yev and G.A. Vorob'yev jointly; paragraphs V-5 to V-7 by A.A. Vorob'yev and A.T. Chepikov jointly; paragraphs V-9 to V-11 by A.A. Vorob'yev; and paragraph V-13 by K.K. Sonchik. The authors thank Engineer L.T. Murashko for his assistance. References accompany each chapter.

## TABLE OF CONTENTS:

Foreword

3

Ch. I. Methods and Installations for the Generation of High Alternating Voltage

Card ~~2/6~~

## High-Voltage Testing (Cont.)

SOV/4809

1. High-voltage testing transformers	5
2. Series connection of testing transformers	17
3. Voltage regulation and stabilization at transformer terminals	34
4. Principle of operation of an h-f resonant transformer	47
5. Arrangement of h-f resonant transformers	56
6. Inductor	63
Bibliography	70
Ch. II. Electrostatic Generators and Transformers	
1. Theoretical fundamentals and classification of electrostatic generators	71
2. Development of electrostatic generators	81
3. Principle of operation of electrostatic generators with conductive transporters	88
4. Conditions for power increase of electrostatic generators with conductive transporters and of generator efficiency	97
5. Setup and construction diagrams of electrostatic generators with conductive transporters	101
6. Physical principles of the operation of electrostatic generators with dielectric transporters	110
7. Arrangement and principle of operation of an electrostatic generator with a moving belt	117

Card ~~3/6~~



High-Voltage Testing (Cont.)

SOV/4809

6. Cascade-generator electric circuits with parallel stage power supply	274
7. Some existing cascade generators	283
Bibliography	297
Ch. IV. Systems for Generating Pulse Voltages and Currents	
1. Principle of operation of a pulse-voltage generator	298
2. Computation of a charging circuit of a pulse-voltage generator	305
3. Analysis and computation of the discharge circuit of a multistage pulse-voltage generator	312
4. Description of designs and arrangement of the components of pulse-voltage generators	332
5. Capacitive generators of strong currents	349
6. Circuits and installations for the synchronized generation of constant and pulse voltages and currents	356
7. Generation of rectangular high-voltage pulses	366
8. Generation of steep-front high-voltage pulses	379
9. Pulse transformers	393
10. Pulse-transformer designs	406
Bibliography	412

Card 5/6

VOROB'YEV, N.I., kand.tekhn.nauk

Interdependence of physical properties of polymers. Elektrichestvo no.3:75-76 Wr '60. (MIRA 13:6)

1. Tsentral'nyy nauchno-issledovatel'skiy institut tekhnologii i organizatsii proizvodstva.  
(Polymers)

5, 3830  
5(3), 24(6)  
AUTHOR:

Vorob'yev, N. I., Candidate  
of Technical Sciences

68713  
S/105/60/000/03/015/023  
B007/B008

TITLE: On the Interdependence of Physical Properties of Polymers ↑

PERIODICAL: Elektrichestvo, 1960, Nr 3, pp 75-76 (USSR)

ABSTRACT: The attempt is made here to determine the interdependence of the physical properties of polymers. The rules observed by R. F. Boyer (Ref 2) can be extended to most of the physical properties of the polymers. The quantity of the intermolecular forces can be taken as basic characteristic for polymers (both amorphous and crystalline). It is shown in the table given here how certain properties of the polymers increase and others decrease with an increase of the intermolecular forces. These rules are represented graphically in figures 1, 2, and 3; that is, the density of the polymers, the modulus of elasticity and the coefficient of linear expansion are shown here in diagrams as functions of the vitrification temperature. Respective data were taken from the papers (Refs 5-12). It can be seen from these diagrams that these relations are valid for amorphous polymers, many crystalline polymers as well as for copolymers

Card 1/2

68713

On the Interdependence of Physical Properties of Polymers S/105/60/000/03/015/023  
B007/B008

and some polymers with three-dimensional structure (ebonite). The characteristics of all these polymers lie with slight spread on a straight line (with the exception of the density). The organosilicon and organofluorine compounds do not show such rules which is quite natural, since these materials form an independent group of polymers. It is stated in conclusion that most of the physical properties thus depend on the quantity of the intermolecular forces. There are 3 figures, 1 table, and 13 references, 11 of which are Soviet.

ASSOCIATION: Tsentral'nyy nauchno-issledovatel'skiy institut tekhnologii i organizatsii proizvodstva  
(Central Scientific Research Institute of Technology and Organization of Production)

SUBMITTED: November 9, 1959

Card 2/2

VOROB'YEV, Nikolay Ivanovich; ALEKIN, O.A., otv. red.; DRAGUNOV,  
E.S., red.; YEPIFANOVA, L.V., tekhn. red.; SUSHKOVA, L.A.,  
tekhn. red.

[Characterizing the chemical composition of natural waters  
by the electrical conductivity method] Primenenie izmereniia  
elektroprovodnosti dlia kharakteristiki khimicheskogo sostava  
prirodnykh vod. Moskva, Izd-vo Akad. nauk SSSR, 1963. 97 p.  
(MJRA 16:5)

1. Chlen-korrespondent Akademii nauk SSSR (for Alekin).  
(Water--Composition) (Conductometric analysis)

VOROB'YEV, Nikolay Ivanovich; NOVOSPASSKIY, V.V., red.; SHADRINA, N.D.,  
tekhn.red.

[Safety engineering in assembling pipelines] Tekhnika bez-  
opasnosti pri montazhe truboprovodov. Moskva, Izd-vo VTsSPS,  
Profizdat, 1959. 174 p. (MIRA 13:4)  
(Pipelines--Safety measures)

21,2200

66384

AUTHOR: Vorob'yev, N.I., Aspirant

SOV/144-58-12-4/19

TITLE: Pulse Transformer for One Million Volts

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy,  
Elektromekhanika, 1958, Nr 12, pp 31-34 (USSR)

ABSTRACT: The transformer described forms an integral part of a high voltage electron accelerator for energies of 1 MeV. The device has dimensions of 109 x 56 x 92 cm and its weight is 500 kg (see Fig 1). The transformer and the electron tube of the accelerator are situated in a hermetically sealed container which is filled with transformer oil. The negative pulse having a duration of 5  $\mu$ secs is applied directly to the cathode of the electron tube from the secondary winding transformer. The transformation ratio of the device is 10. The input pulses of the transformer are rectangular, have an amplitude of 100 kV and are formed by a pulse modulator based on a non-uniform artificial line. The nominal power of the pulse is 80 MW. The operating frequency of the transformer is 50 c/s. The core of the transformer (see Fig 2) is made of a steel tape (steel type E310). The core consists of four separately prepared sub units.

Card  
1/2

66384

SOV/144-58-12-4/19

Pulse Transformer for One Million Volts

The primary coil of the transformer (see Fig 3) consists of 26 turns and is made of a brass tube having a diameter of 4 mm. The secondary winding contains 260 turns and is wound around the core in seven layers. The winding is made of brass tubing having a diameter of 6 mm. The output pulse of the transformer, observed at the load, is illustrated in Fig 6. It is seen that the rise time of the pulse is about 2  $\mu$ secs.

Card 2/2

There are 6 figures and 2 Soviet references.

ASSOCIATION: Tomskiy politekhnicheskii institut  
(Tomsk Polytechnical Institute)

SUBMITTED: December 2, 1958

4



VOROB'IEV, N.K.; KURITSYN, L.V.; VARENKOVA, G.K.

Heat of mixture of aniline and benzoyl chloride with some  
organic solvents. *Izv. vys. ucheb. zav.; khim. i khim. tekhn.* 8  
no. 4: 592-596 '65. (MIRA 18:11)

1. Ivanovskiy khimiko-tekhnologicheskii institut, kafedra  
fizicheskoy i kolloidnoy khimii.

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50

1ST AND 2ND ORDERS

100 AND 4TH ORDERS

2

CA  
VOROB'YEV, N-K.

PROCESSES AND PROPERTIES INDEX

COMMON ELEMENTS

THE KINETICS OF THE SAPONIFICATION OF ESTERS IN ALKALINE MEDIUM. V. A. HOD'IRSHIDT, N. K. VOROB'YEV AND I. V. POTAPOV. *J. Gen. Chem. (U. S. S. R.)* 8, 767-63 (1936).-- The effect of structure on the energy of activation  $K$  and on factor  $B$  of the Arrhenius equation  $K = Ae^{-E/RT}$  is studied. Nine esters of the aliphatic series, ranging from MeOAc through propyl butyrate inclusive, are saponified in  $CCl_4$ -free alk. medium at 10°, 20° and 30° and the reaction  $k$  calcd. The rate of sapon. decreases with increase in mol. wt., irrespective of whether the Me group replaces H in the alk. or acid portion of the ester. This decrease is not proportional to the no. of Me groups introduced. The phys. significance of  $B$ , as an index of steric hindrance, is considered unsolved. John Livak

ASD-SLA METALLURGICAL LITERATURE CLASSIFICATION

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50

PROCESSES AND PROPERTIES INDEX

2

CA

Effect of complex formation in solutions upon the chemical kinetics. V. A. Hol'tskhmidt and N. K. Verbitsky. *Trans. Inst. Chem. Tech. USSR* (U. S. S. R.) No. 3, 5-12(1959).—The  $\eta$  and  $d$  of the following binary systems were measured at 1° and 25°: dimethylaniline-PhNO<sub>2</sub>; dimethylaniline-acetone; dimethylaniline-MeOH; dimethylaniline-acetophenone; dimethylaniline-benzyl alc.; pyridine-PhNO<sub>2</sub>; and pyridine-MeOH. The comp.  $\eta$  diagrams do not show any singular points and indicate the absence of chem. compds. of great disson. in the soln. The curves of dimethylaniline and pyridine bulge upward, whereas all the others bulge downward. MeOH produced a considerable increase in the energy of activation ( $E$ ) and in the factor ( $B$ ) of the equation  $K_c = B e^{-E/RT}$ . It is suggested, on the basis of the theory of collisions, that highly dissoci. solvents can affect the chem. kinetics. B. Z. Kamich

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION


ESGHI BOMIVV

ESGHI BOMIVV

1. GOL'TSSEMIDT, V. A.; VOROB'YEV, N. K.

2. USSR (600)

"On the Kinetics of Bimolecular Reactions in Solutions";  
13, No 4, 1939; Chemico-Tech. Inste., Lab. of Phys.  
Chem. Ivanovo; Red 19 July 1938

9.  Report U-1613, 3 Jan. 1952

2

CA

Kinetics of bimolecular reactions in solutions. V. A. Hol'tschmidt and N. K. Vorob'ev. *J. Phys. Chem.* (U. S. S. R.) 15, 213-22 (1959).—The values of the bimol. reaction consta.  $K \times 10^3/\text{min.}$  were found to be: *m*-chlorodimethylaniline + allyl bromide in MeOH at 30°, 25.3; at 38°, 50.8; in EtOH at 30°, 25.9; at 40°, 55.4; *p*-bromodimethylaniline + allyl bromide in benzyl alc. at 16°, 50.8; at 23°, 87.3; pyridine + benzyl chloride in nitrobenzene at 30°, 2.20; at 38°, 3.22; dimethylaniline + benzyl chloride in MeOH at 29°, 21.2; at 38°, 43.7. From these and other exper. data H. and V. calc. the values of  $K$ ,  $\log B$  and  $B$  in the Arrhenius equation  $K = B e^{-E/RT}$  for various reactions and solvents. From these data it is concluded that the values of  $K$  for various substituted anilines in the same solvent increase in the order  $\text{Br} < \text{Cl} < \text{H} < \text{CH}_3$ ; for the quinolines, quinoline  $<$  *m*-tolquinoline  $<$  *p*-tolquinoline; and for the various halides in the order: benzyl chloride  $<$  allyl bromide  $<$  benzyl bromide. For the solvents, the values of  $K$  increase with increasing values of the dipolar moments;  $K_{\text{acetone}} < K_{\text{nitrobenzene}} < K_{\text{nitrobenzene}} < K_{\text{EtOH}} < K_{\text{MeOH}}$   $<$   $K_{\text{benzyl alc.}}$  etc. A theory is developed for the part played by the solvent, and an equation is derived for the pre-exponential factor (cf. Wynne-Jones and Byring, *C. A. 29*, 6401'). F. H. Rathmann

ASS-51A METALLURGICAL LITERATURE CLASSIFICATION

FROM SOURCE

FROM STABILITY

SECTION

DATE

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

2

CA

Kinetics of reactions in nonaqueous solutions. N. K. Vorob'ev, *J. Phys. Chem. (U. S. S. R.)* 14, 680-84 (1940).--The kinetics of the reactions of allyl bromide with various tertiary bases were studied in various solvents at 35-55°. No relation could be found between the dipole moments of the solvents and the rates of reactions in them, nor with the equil. consts. The bimol. reactions are considered as a series of slow reactions. The pre-exponential factors in the Arrhenius equation are of the order  $10^{11}$ , for the unimol. reactions  $10^{11}$ - $10^{12}$ . The values of  $B$ ,  $Q$ ,  $E$ , and  $-E_0$  in the equil. const.  $K = B e^{Q/RT}$  and velocity const. equations,  $k = B_0 e^{-E_0/RT}$  are: for allyl bromide with PhNMe<sub>3</sub> in PhCOMe soln.,  $2.27 \times 10^{-11}$ , 12530,  $4.83 \times 10^4$ , 11000; in acetone,  $0.992 \times 10^{-11}$ , 19130,  $2.1 \times 10^4$ , 10800; in PhNO<sub>2</sub>,  $1.76 \times 10^{-11}$ , 17320,  $3.22 \times 10^4$ , 11900; in CHCl<sub>3</sub>,  $0.73 \times 10^{-11}$ , 19640,  $2.49 \times 10^4$ , 9086; with dimethyl-*m*-toluidine in PhNO<sub>2</sub>,  $5.15 \times 10^{-11}$ , 16880,  $1.98 \times 10^4$ , 11440; with dimethyl-*p*-toluidine in PhNO<sub>2</sub>,  $1.48 \times 10^{-11}$ , 19770,  $4.09 \times 10^4$ , 11360; with dimethyl-*p*-bromoaniline in 10% aq. Me<sub>2</sub>CO,  $1.71 \times 10^{-11}$ , 19060,  $4.93 \times 10^4$ , 12250; with dimethyl-*p*-chloroaniline in 10% aq. Me<sub>2</sub>CO,  $4.8 \times 10^{-11}$ , 16650,  $2.63 \times 10^4$ , 12250; iodotoluene with PhNMe<sub>3</sub> in EtOH,  $1.2 \times 10^{-11}$ , 18700,  $7.7 \times 10^4$ , 11200. F. H. R.

Chemico-Tech. Inst.

ASM-51A METALLURGICAL LITERATURE CLASSIFICATION

FROM SOURCE

8-27-51

ca.

2

Kinetics of bimolecular reactions in homogeneous solutions. V. A. Hol'tshmidt and N. K. Vorob'ev. *J. Phys. Chem. (U. S. S. R.)* 18, 1087-94 (1947); cf. *C. A.* 34, 1254<sup>g</sup>.—The values of  $k_1$ ,  $k_2$  and  $K_1 \times 10^4$  for the bimol. reaction pyridine + allyl bromide  $\rightarrow$   $C_5H_5N \times C_3H_5Br$  at 30° are, resp., 12,210, 67,600, 8.88 in  $CHCl_3$  soln.; 13,490, 400,000, 8.47 in acetone; 13,480,  $1.29 \times 10^4$ , 23.3 in nitrobenzene; and 17,480,  $3.28 \times 10^4$ , 6.40 in MeOH. The corresponding values for the reaction dimethylamine + allyl bromide  $\rightarrow$   $C_2H_5N(CH_3)_2 \times (C_3H_5)Br$  are 9000, 249, 0.74; 11,210, 8600, 7.83; 11,720, 22,000, 4.90; —, F. H. Rathmann

ASS. 55A METALLURGICAL LITERATURE CLASSIFICATION

LEADS DOWNWARD

LEADS UPWARD

LEADS UPWARD

LEADS DOWNWARD

VOROB'YEV, N. K.

Vorob'yev, N. K. - "On the problem of the equilibrium and kinetics of the reaction of dimethyl aniline with amyl bromide in nonaqueous solutions", (Report), Soobshch. o nauch. rabotakh chenov Vsesoyuz. khim. o-va Im. Mendeleyeva, 1949, Issue 1, p. 7-8.

SO: U-4630, 16 Sept. 53, (Ietopis 'Zhurnal 'nykh Statey, No. 23, 1949).



CA

Reaction kinetics in nonaqueous solutions. N. K. Vorob'ev (Chem.-Technol. Inst., Ivanovo). *Zhur. Fiz. Khim.* 24, 144-51 (1950). Addn. of Me picrate<sup>+</sup>(II) to pyridine and quinoline to form N-methylpyridinium pic-

rate (II) and N-methylquinolinium picrate (III) proceeded according to equation  $K = x/(a-x)at$ ;  $x$  is the concn. of II or III at the time  $t$ , and  $a$  at the infinite time. The const.  $K$  ( $10^3$  l./mol. min.) was 3.946, 6.124, and 10.5 in  $\text{PhNO}_2$ , 0.7421, 1.496, and 2.623 in  $\text{COMe}$ , both at 27°, 34°, and 40°, resp., and 0.5406, 0.8578, and 1.655 in  $\text{MeOH}$  at 26°, 43°, and 46°, resp., all for III; and, for II 6.253, 12.17, and 20.80 at 14, 21, and 27° in  $\text{PhNH}_2$ , 5.205, 11.22, and 18.70 in  $\text{COMe}$ , and 1.078, 2.277, and 4.267 in  $\text{MeOH}$ , both at 27, 34, and 40°, resp. In all instances,  $a$  was 0.2 mol/l. The pre-exponential factor  $B$  was large;  $\log B$  was for II 9.54, 9.73, and 11.41, and for III 10.08, 9.85, and 12.1 in  $\text{COMe}$ ,  $\text{PhNO}_2$ , and  $\text{MeOH}$ , resp., and  $\log B$  over 7 is calc'd. also for the rate of addn. of  $\text{Cl}_2$ :  $\text{CHCl}_3$ ,  $\text{Br}_2$  and  $\text{PhCl}_2$ ,  $\text{Br}_2$  in pyridine and quinoline (cf. Gol'tschmidt and Vorob'ev, *C.A.* 34, 1231). The more complicated the mol., the greater  $B$ . The large values of  $B$  make probable that activation of the reacting mole. does not involve desolvation; if the mol. is desolvated during its activation,  $B$  may be very small, as is observed in many Menshutkin reactions. I m. 74.5°, II m. 114.5°, and III m. 170°. The equiv. elec. cond. was  $\lambda = i - f \log x$ . The consts.  $f$  and  $f'$  were, for II at 27°, 36.43 and 10.39 in  $\text{PhNO}_2$ , 154.2 and 41.6 in  $\text{COMe}$ , and 117.1 and 30.47 in  $\text{MeOH}$ ; for III they were 24.61 and 9.902 in  $\text{PhNO}_2$ , and 147.3 and 41.83 in  $\text{COMe}$ , at 27°, and 106.2 and 22.81 in  $\text{MeOH}$  at 36°. Consts. for other temps. also are given. Presence of I lowered  $\lambda$  of II and III; this was taken account of when calcg.  $x$  from  $\lambda$  in the kinetic expts. J. J. Bikerman

VOROB'YEV, N. K.

Praktikum po fizicheskoi khimii [Practicum in physical chemistry]. Izd. 2-o. Moskva, Goskhimizdat, 1952.

SO: Monthly List of Russian Accessions. Vol. 6 No. 7 October 1953

**"APPROVED FOR RELEASE: 03/14/2001      CIA-RDP86-00513R001860820014-1**

**APPROVED FOR RELEASE: 03/14/2001      CIA-RDP86-00513R001860820014-1"**

VOROB'YEV, N.K.; KURITSYN, L.V.

Reaction kinetics of aniline acylation with benzoyl chloride  
in nonaqueous media. Part 2. Iz' vs.ucheb.zav.;khim. i khim.  
tekh. 7 no. 1:34-40 '64. (MIRA 17:5)

1. Ivar'vskiy khimiko-tekhnologicheskii institut, kafedra  
fizicheskoy i kolloidnoy khimii.

VOROB'YEV, N.K.; TITOVA, G.F.

Studying the kinetics of type Menshutkin reaction in alcohols  
with normal structure. Izv.vys.ucheb.zav.; khim. i khim.tekh. 8  
no.2:238-243 '65. (MIRA 18:8)

1. Ivanovskiy khimiko-tekhnologicheskii institut, kafedra fizicheskoy  
i kolloidnoy khimii.

VOROB'YEV, N.K.; TITOVA, G.F.

Kinetics of the reaction of diethylaniline with ethyl bromide in  
alcohols. Izv.vys.ucheb.zav.; khim. i khim.tekh. 8 no.2:244-249  
'65. (MIRA 18:8)

1. Ivanovskiy khimiko-tekhnologicheskii institut, kafedra fizicheskoy  
i kolloidnoy khimii.

VOROB'YEV, N.K.; KURITSYN, L.V.

Kinetics of aniline acylation with benzoyl chloride in nonaqueous media. Part 4. *Izv.vys.ucheb.zav.; khim.i khim.tekh.* 7 no.6:930-934 '64. (MIRA 18:5)

1. Ivanovskiy khimiko-tehnologicheskii institut, kafedra fizicheskoy i kolloidnoy khimii.

KURITSYN, L.V.; VOROB'YEV, N.K.

Kinetics of the reaction of aniline acylation with benzenesul-  
furyl chloride in nonaqueous media. Part 3. Izv. vys. ucheb.  
zav.; khim. i khim. tekhn. 7 no.3:400-405 '64.

(MIRA 17:10)

1. Ivancovskiy khimiko-tekhnologicheskii institut, kafedra fi-  
zicheskoy i kolloidnoy khimii.



VOROB'YEV, Nikolay Konstantinovich; GOL'TSSHMIDT, Vladimir  
Avgustovich [deceased]; KARAPET'YANTS, Mikhail  
Khristoforovich; KISELEVA, Vera Leonidovna; KRASHOV,  
Konstantin Solomonovich; LEVINSKIY, Yu.V., red

[Laboratory work in physical chemistry] Praktikum po  
fizicheskoi khimii. Izd.3., perer. i dop. Moskva, Khi-  
mija, 1964. 383 p. (MIRA 18:4)

VOROB'YEV, N.K.; KURITSYN, L.V.

Reaction kinetics of aniline acylation with benzoyl chloride in non-aqueous media. Part 1. Izv.vys.ucheb.zav.;khim.i khim.tekh. 6 no.4: 591-596 '63. (MIRA 17:2)

1. Ivanovskiy khimiko-tehnologicheskii institut. Kafedra fizicheskoy i kolloidnoy khimii.

KURITSYN, L.V.; VOROB'YEV, N.K.

Kinetics of high-rate reactions in nonequeous media studied by  
the potentiometric method. *Izv.vys.ucheb.zav.;khim.i khim.tekh.*  
6 no.1:53-57 '63. (MIRA 16:6)

1. Ivanovskiy khimiko-tehnologicheskoy institut, kafedra fizicheskoy  
i kolloidnoy khimii.

(Chemical reaction, Rate of) (Potentiometric analysis)

VOROB'YEV, N.K.; DIAROV, M.; TUKHFATOV, K.

Role of the gergeit horizon in correlating the geological sections of individual salt domes in the Caspian Sea region.  
Vest. AN Kazakh. SSR 18 no.10:82-85 0 '62.

(MIRA 17:9)

VOROB'YEV, N.K.; TITOVA, G.F.

Effect of the catalytic activity of salts and a quaternary ammonium cation on the reaction rates of Menshutkin type reaction in nonaqueous solvents. Izv.vys.ucheb.zav., khim.i khim.tekh. 2 no.5:685-692 '59. (MIRA 13:8)

1. Ivanovskiy khimiko-tekhnologicheskii institut, kafedra fizicheskoy khimii.  
(Ammonium compounds) (Catalysis)

5(4)

AUTHORS:

~~Vorob'yev, N. K.~~ Titova, G. F.

SOV/153-58-2-4/30

TITLE:

On the Kinetics of the Reactions of the Type of the  
Menshutkin Reaction in Non-Aqueous Solvents (K  
kinetike reaktsiy tipa reaktsii Menshutkina v nevodnykh  
rastvoritelyakh)

PERIODICAL:

Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i khimiches-  
kaya tekhnologiya, 1958, Nr 2, pp 17 - 24 (USSR)

ABSTRACT:

In the course of the 70 years since the publication  
by Menshutkin (Ref 1) concerning the influence  
exerted by the nature of the solvent on the velocity  
of the binding of a salt of the quaternary ammonium  
bases a great number of investigations of such  
reactions have been carried out. It turned out that  
the corresponding solvents can be roughly divided  
into two groups: a) The non-polar, and b) the polar.  
In the former the reactions at normal temperatures  
take place slowly or not at all (e.g. in petroleum  
ether). If the alcohols of the polar group are put

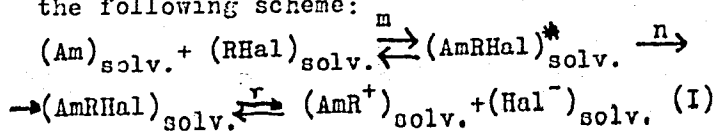
Card 1/5

On the Kinetics of the Reactions of the Type of the  
Menshutkin Reaction in Non-Aqueous Solvents

SOV/153-50-2-4/30

into a separate group most of the other solvents display a tendency to accelerate reactions on the transition from a weakly polar to a higher polar one. Proceeding from the nature of the reacting substance, from the activated complex and from the salt of the quaternary ammonium bases the conclusion may be drawn that the polarity of the molecules must increase along the following line:  
reacting substance  $\rightarrow$  activated complex  $\rightarrow$  reaction product.

Assuming that the interaction process of the molecules of the solvent with the molecules of the reacting substance is nothing else but the solvation of the latter then the interaction reaction of the tertiary amine with an alkyl halide may be represented by the following scheme:



Card 2/5

On the Kinetics of the Reactions of the Type of the  
Menshutkin Reaction in Non-Aqueous Solvents

SOV/153-58-2-4/30

where m, n, and r are additional mole numbers of the solvent for the realization of the solvation process in a successive transition from the reagents to the activated complex and then to the reaction product taking into account the dissociation. According to these assumptions it may be expected that the process (I) may kinetically be realized the more easily the higher polar the solvent is. This is proved by the data in table 1. Therefrom it is concluded that for each of the reactions mentioned above  $K_{\text{acetone}} < K_{\text{acetophenone}} < K_{\text{nitro-benzene}}$ . The dipolar moment of the solvent changes in the same direction. The absence of the mentioned dependence between the dipolar moment and the velocity constant in alcohols may be explained by the fact that alcohols are direct reaction participants and form compounds with amines by way of the hydrogen bond. Conclusions:  
1) In the present paper a reaction mechanism of the reactions of the Menshutkin type are proposed,

Card 3/5



On the Kinetics of the Reactions of the Type of the  
Menshutkin Reaction in Non-Aqueous Solvents

SOV/153-58-2-4/30

on the basis of which several rules can be quantitatively explained that were observed in chemical processes in solvents. 2) To prove one of the statements of the mechanism proposed the velocity of the reaction of pyridine and dimethyl aniline with benzyl bromide in pure benzene were investigated, as well as the same with phenol additions at three different temperatures. 3) It was found that the phenol additions accelerate the reaction. 4) The changes of the activation energy by the phenol additions cannot be explained by the reaction mechanism proposed by Swain and Eddy (Sueyn and Eddi). There are 3 tables and 17 references, 13 of which are Soviet.

ASSOCIATION: Ivanovskiy khimiko-tekhnologicheskii institut (Ivanovo Chemical Technological Institute) Kafedra fizicheskoy khimii ( Chair of Physical Chemistry)

Card 4/5

L 8312-66 EWT(d) LJP(c)

ACC NR: AP5028007

SOURCE CODE: UR/0052/65/010/004/0733/0736

AUTHOR: Vorob'yev, N.M.

ORG: None

TITLE: Application of sequential analysis to the detection of disorder in an industrial process

SOURCE: Teoriya veroyatnostey i yeye primeneniya, v. 10, no. 4, 1965, 733-736

TOPIC TAGS: sequence, function analysis, probability, statistic analysis

ABSTRACT: The aim of this article is to present a simple proof that actually the selection of the boundary  $A = 0$  is the optimal property in the Wald sequential test. Furthermore, it is also shown that if the problem is restricted to the class of Wald sequential test procedures with the boundaries (A, B), intended for the differentiation of the hypotheses  $a_0$  and  $a_1$ , then, in the case when the magnitude of the appearing disorder  $a \neq a_1$ , i.e., when it differs from the expected value of  $a_1$ , the optimal property  $A = 0$  remains valid with  $a > (a_0 + a_1)/2$ . Author considers it his pleasant duty to express gratitude to

Card 1/2

L 8312-66  
ACC NR: AP5028007

14 25

3

A. N. Shirayev for useful remarks. Orig. art. has: 12 formulas.

SUB CODE: MA / SUBM DATE: 19Apr66 / ORIG REF: 002 / OTH REF: 001

60

Card 2/2

