Study of ...

Fig. 4: Kinetics of the sulfur addition to rubber mixtures.
Legend: 1) chimney soot (pH = 8);
2) spray burner black (pH = 7.4);
3) chimney soot oxidized (pH = 6.2);
4) thermal carbon black (pH = 7.4);
5) carbon black (pH = 3.2);
6) carbon black reduced (pH = 8.4);
a) time of heating; b) bound sulfur.

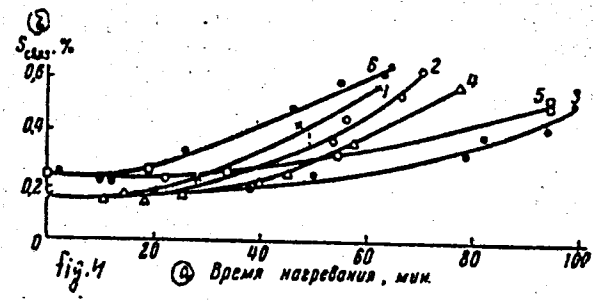

fig. 4

Card 7/7

28187
S/190/61/003/010/017/019
B124/B110

11.2211

AUTHORS: Dogadkin, B. A., Dobromyslova, A. V., Belyatskaya, O. N.

TITLE: Study of premature vulcanization (scorching) of rubber mixtures. II. Effect of inhibitors (antiscorchers) on the kinetics of sulfur addition to rubber

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 3, no. 10, 1961, 1572-1579

TEXT: The authors studied the effect of the best-known antiscorching agents (benzoic and phthalic acids, phthalic anhydride, and N-nitroso-diphenyl amine (NDPA)) on the vulcanization rate of rubber mixtures with sulfur. The rubber mixtures, filled later with carbon black, consisted of 100 parts by weight of styrene butadiene rubber СКС-30А (SKS-30A), 3.0 sulfur, 1.2 N,N-diethyl-amino-benzothiazole sulfenamide, 1.2 di-benzothiazyl disulfide, 5.0 ZnO, 2.0 stearic acid, and 1 part by weight of the antiscorchers mentioned. Table 1 shows the effect of the inhibitors examined on the time of scorching and the addition rate of sulfur to rubber. All antiscorchers prolong the time of liquid state of the mixture.

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The inhibiting effect of NDPA is not affected by the presence or type of the accelerator (N-cyclohexyl benzothiazyl sulfenamide (CHBTS), diphenyl guanidine, 2-mercapto benzothiazole, tetramethyl-thiuram disulfide, N-oxy-diethylene-benzothiazyl sulfenamide (ODBTS), or 2,4-dinitro-phenyl ether of 2-mercapto benzothiazole (MBTDNP)). Mixtures of oil containing styrene butadiene rubber CKC-30AM-15 (SKS-30AM-15) were tested. The induction period in the addition of sulfur in mixtures containing CHBTS is increased in the presence of NDPA; the addition proceeds very slowly in the presence of ODBTS and MBTDNP at 120°C, and is still very small after 2 hr at 130°C. In mixtures on the basis of extracted butadiene styrene, vulcanization is not accelerated at 100°C in the presence of NDPA, even after 8 hr. A first-order equation holds for the interaction of sulfur with rubber; there is a linear dependence of the logarithm of the free-sulfur concentration on the time of heating. The constants of the reaction rate were calculated from a first-order equation (Table 2). The rate of addition of CHBTS and Thiuram to rubber is increased by NDPA; the shape of the kinetic curve for CHBTS addition is not changed by NDPA; only the amount of Thiuram sulfur bound to rubber rises. In conclusion, it may be stated that NDPA inhibits the interaction of sulfur with rubber. The mechanism of action of the other inhibitors examined is different, and depends on the type of

Study of premature vulcanization ...

inhibitor used and the components of the rubber mixture. Thermal decomposition (> 100°C) of NDPA produces NO which reacts in vulcanization with sulfur-containing radicals in the mixture, and inhibits rubber vulcanization. The second radical (diphenyl nitrogen) formed in thermal decomposition of NDPA, however, as a weak accelerating effect on the addition by accepting hydrogen. The dropping inhibitory effect of NDPA with increasing temperature dissociate to active particles with reduced number of sulfur atoms. The inhibition of crosslinking by NDPA is possibly not only due to the dropping addition rate of sulfur but also to the destructive effect of NDPA on the rubber. A. Ye. Grinberg et al. (Ref. 3: Kauchuk i rezina, 1959, no. 1, 22) and V. I. Gol'danskiy (Ref. 6 Uspekhi khimii, 15, 63, 1946) are mentioned. There are 8 figures, 2 tables, and 7 references: 5 Soviet and 2 non-Soviet. The two references to English-language publications read as follows: D. Craig, Rubber Chem. and Technol. 30, 1291, 1957; L. A. K. Staveley, C. N. Hinshelwood, Trans. Faraday Soc. 35, 845, 1939.

Card 3/6

28187

S/190/61/003/010/017/019
B124/B110

Study of premature vulcanization ...

ASSOCIATION: Moskovskiy institut tonkoy khimicheskoy tekhnologii im. M. V. Lomonosova (Moscow Institute of Fine Chemical Technology imeni M. V. Lomonosov)

SUBMITTED: December 16, 1960

Card 4/6

BELYATSKAYA, O.N.; DOGADKIN, B.A.; DOBROMYSLOVA, A.V.; TOMILINA, L.A.

Prevulcanization (scorching) of rubber compounds. Part 3: Effect of vulcanization inhibitors on structural changes in rubbers during mastication and heating. Vysokom.soed. 5 no.2:164-170 F '63. (MIRA 16:2)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni Lomonosova.
(Vulcanization) (Rubber--Analysis)

FEDCNIN, V.F.; TOLIKINA, N.F.; BELYATSKAYA, O.N.; GUL', V.Ye.

Composition of impurities in straight-chain paraffinic hydrocarbons having analytical application. Zhur. anal. khim. 20 no.9: 1022-1024 '65. (MIRA 18:9)

1. Moskovskiy tekhnologicheskiy institut myasnoy i molochnoy promyshlennosti.

L 2985-66 EWT(m)/EPF(c)/EWP(j) RM

ACCESSION NR: AP5022615 UR/0190/65/007/009/1645/1649
678.01:54+678.41+678.76

AUTHORS: Gorbachev, Yu. G.; Gorbatova, K. A.; Belyatskaya, O. N.; Gul', V. Ye.

TITLE: Kinetics of the hydrochlorination of natural and synthetic isoprene rubber

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 7, no. 9, 1965, 1645-1649

TOPIC TAGS: natural rubber, synthetic rubber, isoprene, hydrogen chloride, chemical reaction kinetics/ SKI 3 isoprene rubber

ABSTRACT: The effects of the temperature, pressure, concentration of HCl, and structure of the rubber upon the kinetics of hydrochlorination of natural and synthetic isoprene rubber were studied. The reaction was performed by dissolving rubber in dichloroethane and treating it with a saturated solution of HCl in dioxane (ratio of solvents 4:1, respectively). It was found that the rise in reaction temperature from 0 to 20 to 40C increases the rate rapidly, in spite of the decrease in the solubility of HCl. Trebling of the stoichiometric amount of HCl is also favorable for the reaction rate. The structure of the starting rubber determines the properties of its hydrochloride. The hydrochloride of natural

Card 1/2

L 2985-66

ACCESSION NR: AP5022625

rubber containing more than 27% of chlorine forms a good quality "pliofilm" due to the highly oriented structure of the starting rubber. The isoprene rubber SKI-3 (investigated in this work) is the first synthetic rubber which, upon conversion to its hydrochloride, is capable of forming such a film. The latter is equal to films from the natural material in its physical and mechanical properties. Orig. art. has: 1 table and 5 figures.

ASSOCIATION: Moskovskiy tekhnologicheskiy institut myasnoy i molochnoy promyshlennosti (Moscow Technological Institute of Meat and Milk Industries)

SUBMITTED: 03Nov64 ENCL: 00 SUB CODE: MT, GC

NO REF SOV: 001 OTHER: 007

Card 2/2

ACC NR: AP6017974 SOURCE CODE: UR/0413/66/000/010/0079/0079

INVENTORS: Gul', V. Ye.; Zakharchenko, P. I.; Belyatskaya, O. N.; Gorbatova, K. A.; Gorbachev, Yu. G.

ORG: none

TITLE: A method for obtaining a film-making material. Class 39, No. 181806

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 10, 1966, 79

TOPIC TAGS: hydrochloric acid, rubber, isoprene, polymer, sorbic acid

ABSTRACT: This Author Certificate presents a method for obtaining a film-making material by hydrochlorination of 1,4-cis-isoprene rubber. A modifier is introduced in the course of film making. To impart the preserving properties to the film and to increase its resistance to aging, sorbic acid is used as the modifier.

SUB CODE: 11/07/ SUBM DATE: 02Jan63

Card 1/1 UDC: 678.474.3.046.9:62-416

BELYATSKAYA-POTAYENKO, Yu.S.

Intensity of gas exchange in water bacteria. Mikrobiologiia 31 no.1:135-139 Ja-F '62. (MIRA 15:3)

1. Belorusskiy universitet imeni Lenina, Minsk.
(RESPIRATION)
(WATER—MICROBIOLOGY)

VINBERG, G.G.; BELYATSKAYA-POTAYENKO, Yu.S.

Diurnal variation of gas exchange intensity in cold-blooded animals. Zool. zhur. 42 no.11:1593-1600 '63. (MIRA 17:2)

1. State University of Bielorussia, Minsk.

GINTSBURG, Ya.S., dotsent; DANOVICH, D.M., inzhener; BELYATSKAYA, R.G., inzhener

"Hot zinc coating." A.V. Smirnov. Reviewed by IA.S. Gintsburg, D.M. Danovich, R.G. Beliatskaia. Stal' 15 no.6:572-574 Je '55. (MLRA 8:8)

1. Zavod "Metallokombinat". (Galvanizing) (Smirnov, A.V.)

BELYATSKAYA, R.G.; GINTSBURG, Ya.S.; DAMOVICH, D.M.; GORODSKOY, K.P., red.; YUZHNAYA, Ye.A., red.izdatel'stva; SOSNIN, A.P., tekhn.red.

[Hot zinc plating of light sheet steel and utensils] Goriachee otsinkovanie krovel'noi stali i posudy. Moskva, Gos.izd-vo mestnoi promyshl. RSFSR, 1956. 179 p. (MIRA 10:12)
(Zinc plating)

L 16379-65 EWT(m)/EWP(t)/EWP(b) IJP(c)/ASD(f)-2 JD/JG
ACCESSION NR: AP4045849 S/0075/64/019/009/1162/1163

AUTHOR: Belyavskaya, T. A.; Kolosova, I. F.

TITLE: Photometric determination of beryllium using beryllon II

SOURCE: Zhurnal analiticheskoy khimii, v. 19, no. 9, 1964, 1162-1163

TOPIC TAGS: beryllium, beryllon II, spectrophotometric analysis

ABSTRACT: The purpose of this work was to determine the accuracy and precision of determination of beryllium with beryllon II. The analyses were carried out on solutions containing 1-6 μg of Be per 25 ml at pH = 12.3. The optical density of the solutions was measured with the FEK-N photoelectric colorimeter at 585-590 mμ. The reagent solution at the same pH was used as the blank solution. The standard deviation of a single determination varies from 14 to 26%. The experimental error for determination from the calibration graph is 20 + 3%. Orig. art. has: 1 figure and 1 table.

Card 1/2

L 16379-65
ACCESSION NR: AP4045849

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

SUBMITTED: 29Nov63 ENCL: 00

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

Card 2/2

USSR/Microbiology - General Microbiology. Water and Air Microorganisms. F

Abs Jour : Ref Zhur Biol., No 22, 1958, 99336

Author : Belyatskaya, Yu.S.

Inst : Belorussian University

Title : Distribution of the Total Number of Bacteria and Zooplankton at Various Times of the 24-hour Period in Lake Naroch

Orig Pub : Uch. zap. Belorussk. un-t, 1957, vyp. 33, 211-218

Abstract : In samples of water from Lake Naroch withdrawn with a bathometer on 3-4 and 15-16 August 1955 from the surface and from a depth of 5 and 10 m every 3 hours (8 times in 24 hours), zooplankton organisms (crustacea and rotifera) and bacteria were determined quantitatively with the direct method (according to Razumov).

Card 1/2

BELYATSKAYA, Yu.S.

Research on the effectiveness of mineral fertilizers in experiment ponds of the "Shemetovo" Fish Farm. Report No.4: Total amount of bacteria in the experiment ponds of the "Shemetovo" Fish Farm. Trudy Biol. sta. na oz. Naroch' no.1:127-130 '58. (MIRA 12:7)
(Fish ponds) (Water--Bacteriology)

BELYATSKAYA, Yu.S.

Generation length and energy utilization by water bacteria.
Nauch. dokl. vys. shkoly; biol. nauki no.2:147-151 '58.
(MIRA 11:10)

1.Predstavlena kafedroy zoologii Belorusskogo gosudarstvennogo universiteta imeni V.I. Lenina.
(WATER--BACTERIOLOGY)

BELYATSKAYA, Yu.S.

Seasonal variations in the total number and biomass of bacteria occurring in the water of three lakes belonging to different types [with summary in English]. Mikrobiologiia 27 no.1:113-119 Ja-F '58. (MIRA 11:4)

1. Belorusskiy gosudarstvennyy universitet im. V.I. Lenina, Minsk.
(WHITE RUSSIA--LAKES) (WATER--BACTERIOLOGY)

VINBERG, G.G.; BELYATSKAYA, Yu.S.

Intensity of metabolism as a function of body size in freshwater gastropods. Biul.Inst.biol.AN BSSR no.3:273-276 '58.
(MIRA 13:7)

(GASTROPODA) (METABOLISM)

BELYATSKAYA, Yu. S., Cand Biol Sci — (diss) "Bacterioplankton of the Naroch, Myastro, and Batorin lakes and its significance in the nutrition of zooplankton." Minsk, 1959. 16 pp with graphs (Belorussian State U im V.I. Lenin). 150 copies (KL, 37-59, 107)

23

BELYATSKAYA, Yu.S.

Use of a floating microrespirometer in measuring gas exchange in plankton animals. Dokl. AN BSSR 3 no.7:315-317 Jl '59. (MIRA 12:11)

1. Predstavleno akademikom AN BSSR N.V. Turbinym.
(Respiration) (Zooplankton)

VINBERG, G.G.; BELYATSKAYA, Yu.S.

Relation between the metabolic rate and body weight in fresh-water gastropods. Zool.zhur. 38 no.8:1146-1151 Ag '59.
(MIRA 12:11)

1. Institute of Biology, Academy of Sciences of the B.S.S.R., Minsk.
(Gastropoda) (Metabolism)

BELYATSKAYA, Yu.S.

Scientific conference on the study of primary production of waters. Nauch.dokl.vys.shkoly: biol.nauki no.4:232-234 '60. (MIRA 13:11)
(PHYTOPLANKTON)

BELYATSKIY, D.P.

Sanitary-epidemiologic stations in Belorussia. Gig.sanit.,Moskva no.3:18-24 Mar 1951. (CIML 20:7)

1. Deputy Minister of Public Health Belorussian SSR.

BELYATSKIY, D.P., dotsent, kandidat meditsinskikh nauk; KOSMACHEVSKIY, V., redaktor; ALEKSANDROVICH, Kh, tekhredaktor.

[Concern of the Communist Party and Soviet government for the health of the people] Zabota Kommunisticheskoi partii i Sovetskogo gosudarstva o zdorov'e naroda. Minsk, Izd-vo Akademii nauk BSSR, 1954, 30 p. (MLRA 8:11)
(PUBLIC HEALTH)

BELYATSKIY, D.P.

Further training and specialization of sanitary specialists in the White Russian SSR. Sov. zdrav. 14 no.6:12-16 N-D '55 (MIRA 9:2)

1. Zamestitel' ministra zdravookhraneniya BSSR.
(SANITATION
personnel qualifications in Russia)

BELYATSKIY, D.P.; SOKGOBENZON, Ye.Ye.

Epidemiology of sporadic typhus in the White Russian S.S.R.
Zdrav. Belor 5 no.2:39-42 F '59. (MIRA 12:7)

1. Kafedra organizatsii zdravookhraneniya i istorii meditsiny i kafedry infektsionnykh bolezney s epidemiologiyey Minskogo meditsinskogo instituta.
(WHITE RUSSIA--TYPHUS FEVER)

BELYATSKIY, D.P.

Infectious disease incidence in the White Russian S.S.R. and the task of further reducing it between 1959 and 1965. Zdrav. Belor. 5 no.7:45-49 Jl '59. (MIRA 12:9)
(WHITE RUSSIA--COMMUNICABLE DISEASES)

BELYATSKIY, D.P.; RUBINSHTEYN, B.B.

Experience with malaria control in White Russia. Med.paraz. i paraz.bolezn. 23 no.1:70-75 Ja-F '59. (MIRA 12:3)
(MALARIA, prev. & control, in Russia (Rus))

BELYATSKIY, D.P.

Fourtieth anniversary of the sanitary organization of the White Russian S.S.R. Gig. i san 24 no.1:44-50 Ja '59. (MIRA 12:2)
(PUBLIC HEALTH, in Russia (Rus))

BELYATSKIY, D.P.

A.A. Chertov, one of our oldest public health physician. Zdrav. Belor. 5 no.11:65 N '59. (MIRA 13:3)
(CHERTOV, ALEKSANDR ALEKSANDROVICH, 1859-1929)

BELYATSKIY, D.P., dotsent

N.I. Teziakov, Zdrav.Belor. 5 no.12:58-59 D '59. (MIRA 13:4)
(TEZIAKOV, NIKOLAI IVANOVICH, 1859-1925)

BELYATSKIY, D.P.; SHISHKO, Ye.I. (Minsk)

Achievements of public health in the western province of White Russia; on 20th anniversary of the annexation of western White Russia. Sov.zdrav. 18 no.12:28-33 '59. (MIRA 13:4)
(PUBLIC HEALTH)

BELYATSKIY, D.P.

Work paln of a district hospital; a guide to action. Zdrav. Belor. 6:5-9 Mr '60. (MIRA 13:5)

(HOSPITALS, RURAL)

BELYATSKIY, D.P.

Twenty-fifth anniversary of the All-Union State Sanitary Inspection. Zdrav. Belor. 6 no. 7:48-51 Je '60. (MIRA 13:8)
(PUBLIC HEALTH)

BELYATSKIY, D.P.

Conference on the history of medicine and public health in the White Russian S.S.R. Zdrav. Belor. 6 no. 10:70-71 O '60.
(MIRA 13:10)

(WHITE RUSSIA—MEDICINE) (WHITE RUSSIA—PUBLIC HEALTH)

BELYATSKIY, D.P.

Extend advanced experience in the propagation of medical knowledge.
Zdrav. Bel. 6 no.11:41-44 N '60. (MIRA 13:12)
(WHITE RUSSIA--HEALTH EDUCATION)

BELYATSKIY, D.P.; MOGILEVCHIK, Z.K.

Important problems in the health protection of the population in the light of the new program of the CPSU. Zdrav. Bel. 7 no.12: 3-7 D '61. (MIRA 15:2)

(PUBLIC HEALTH) (COMMUNISM)

BELYATSKIY, D.P.

First White Russian Congress of Public Health Physicians. Zdrav. Bel. 7 no. 2:57-60 F '61. (MIRA 14:2)
(WHITE RUSSIA—PUBLIC HEALTH—CONGRESSES)

BELYATSKIY, D.F.; DOROSINSKIY, A.L.

Status of and immediate prospects for the development of rural public health. Zdrav. Bel. 7 no. 4:10-14 Ap '61. (MIRA 14:4)
(WHITE RUSSIA--PUBLIC HEALTH, RURAL)

KRYUCHOK, G.; EL'BERT, B.; BELYATSKIY, D.

Useful manual on the history of Russian medicine. Zdrav.Bel. 7, no.8:75-77 Ag '61. (MIRA 15:2)
(RUSSIA--MEDICINE)

BELYATSKIY, D.P.; KORSHUN, I.V. (Minsk)

Some aspects of polyclinical services for the Russian children. Sov.zdrav. 20 no.5:14-18 '61. (MIRA 14:5)
(WHITE RUSSIA--PEDIATRICS)

BELYATSKIY, D.P.

Organizing rabies control in White Russia. Zdrav. Bel. 7 no.9: 72-75 S '61. (MIRA 14:10)
(WHITE RUSSIA--RABIES--PREVENTION)

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000204530011-5"

BELYATSKIY, D.P.; RUBINSHTEYN, B.B. [deceased]

Active prevention of acute respiratory infections. Zdrav. bel. 8 no.1:6-9 Ja '62. (MIRA 15:3)
(RESPIRATORY ORGANS—DISEASES)

BELYATSKIY, D.P. (Minsk)

Study of the activity of young physicians in the Minsk Medical Institute. Sov. zdrav. 21 no.1:36-39 '62. (MIRA 15:2)
(MINSK--PHYSICIANS)

BELYATSKIY, D.P.; SHISHKO, Ye.I. (Minsk)

Minsk Medical Institute and its aid to public health organs; on the 40th anniversary of its founding. Sov. zdrav. 21 no.4:53-56 '62.
(MIRA 15:5)

(MINSK--MEDICAL COLLEGES)

BELYATSKIY, D.P.

"Preservation of the health of students" by I.B.Kardash, E.I. Korenevskaia, D.S.Leshchinskii. Reviewed by D.P.Beliatskii. Zdrav. Bel. 9 no.2:84-86 F '63. (MIRA 16:7)
(SCHOOL HYGIENE) (KARDASH, I.B.) (KORENEVSKAIA, E.I.) (LESHCHINSKII, D.S.)

BELYATSKIY, D.P.

Living conditions and health for the population in the light of the program of the CPSU. Zdrav. Bel. 8 no.6:3-6 Je '62. (MIRA 16:8)

(PUBLIC HEALTH) (COMMUNISM AND SCIENCE)

KRYUCHOK, G.R., otv. red.(Minsk); BELYATSKIY, D., red. (Minsk); SHADURSKIY, K.S., red.; EL'BERT, B.Y$_a$., red.(Minsk)

[Problems of the history of medicine and public health in the White Russian S.S.R.; abstracts of reports at a scientific conference] Voprosy istorii meditsiny i zdravookhraneniia BSSR; tezisy dokladov nauchnoi konferentsii. Minsk, 1960. 109 p. (MIRA 17:4)

1. Minsk. Dziarzhauny medytsynski instytut.

BELYATSKIY, D.P.; SHISHKO, Ye.I. (Minsk)

Experience in the teaching of public health organization at the Minsk Medical Institute. Sov. zdrav. 22 no.9:36-40 '63. (MIRA 17:4)

BELYATSKIY, B.P.; [illegible]

Current problems of rural hygiene. [illegible] 19 no.7:77-83 '64. (MIRA 18:3)

1. Minskiy meditsinskiy institut.

BELYATSKIY, D.P.

History of smallpox vaccination in White Russia. Zhur. mikrobiol., epid. i immun. 42 no.8:148-151 Ag '65. (MIRA 18:9)

1. Minskiy meditsinskiy institut.

GIKKEL, A.I., inzh.; BELYATSKIY, I.A., inzh.

General plan of a metallurgical plant. Prom.stroi. 37 no.8:23-26 Ag '59. (MIRA 12:11)

(Steelworks)

DREYZIN, R.S.; BELYATSKIY, V.D.; CHUMAKOV, M.P.; MUSTAFINA, A.; KONSTANTINOVA, L.A.

Susceptibility of strains of diploid cells and other cell cultures to rhinoviruses. Vop. virus. 10 no.2:191-197 Mr-Ap '65.

(MIRA 18:10)

1. Institut virusologii imeni D.I.Ivanovskogo AMN SSSR i Institut poliomiyelita i virusnykh entsefalitov AMN SSSR, Moskva.

GINZBURG, I.I.; OL'SHANSKIY, Ya.I. [deceased]; BELYATSKIY, V.V.;
Prinimali uchastiye: NUZHDENOVSKAYA, T.S., laborant;
ROZHDESTVENSKAYA, Z.S., laborant; KOZHINA, V.M., laborant;
FEODOT'YEV, K.M., otv.red.; SHLEPOV, V., red.izd-va; LAUT,
V.G., tekhn.red.

[Studies of experimental and technical petrography and mineralogy]
Issledovaniia po eksperimental'noi i tekhnicheskoi petrografii i
mineralogii. No.4: [Studies on oxidation of sulfides] Eksperi-
mental'nye issledovaniia po okisleniiu sul'fidov. Moskva,
Izd-vo Akad.nauk SSSR. 1961. 130 p. (Akademiia nauk SSR.
Institut geologii rudynkh mestorozhdenii, petrografii, mineral-
ogii i geokhimii. Trudy, no.59) (MIRA 14:7)
(Sulfides)

BELYAUSH, A.V., assistent

Consolidating road soils by silicate slag and silicate slime binders. Trudy STI 37:41-50 '64. (MIRA 18:5)

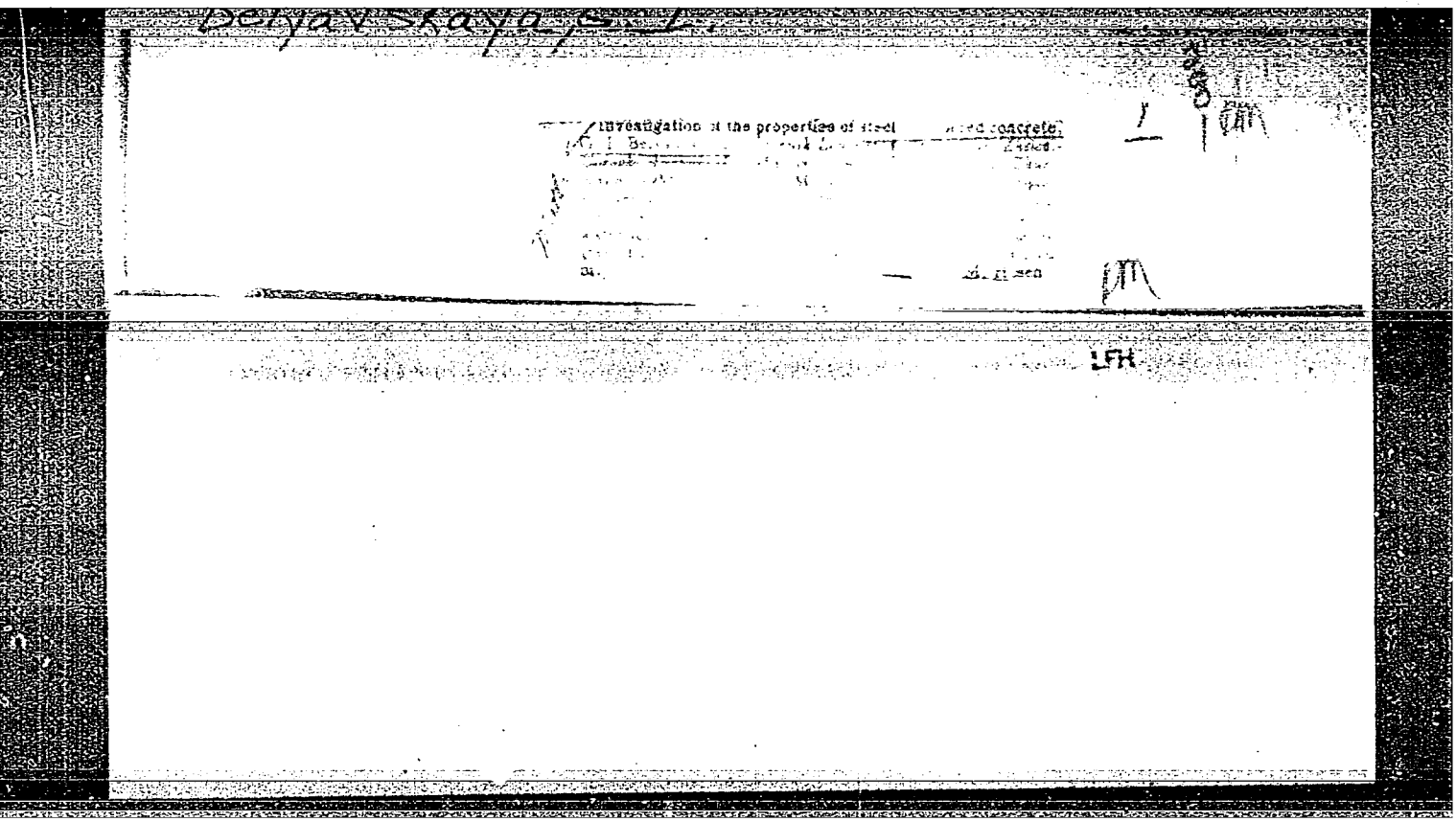
BELYAVIN, Fedor Kuz'mich [Bieliavin, F.K.]; DEMIDYUK, V.I.[Demydiuk,V.I.], red.; KISILEVSKIY, O.M.[Kysilievs'kyi,O.M.], red.; MEYEROVICH,B.L., tekhn. red.

[Party guidance of socialist competition in rural areas, 1953-1960] Partiine kerivnytstvo sotsialistychnym zmahanniam na seli, 1953-1960 rr. Kyiv, Gospolitizdat USSR, 1961. 69 p. (MIRA 15:12)
(Ukraine--Socialist competition)
(Agriculture--Labor productivity)

BELYAVSKAYA, A.F., entomolog

Acclimatization of parasites of the San Jose scale.
Zashch. rast. ot vred. i bol. 7 no.2:47 F '62. (MIRA 15:12)

1. Biolaboratoriya Adygeyskoy avtonomnoy oblasti, Krasnodarskiy kray.
(Krasnodar Territory--San Jose scale--Biological control)



ACC NR: AP6036111 (A) SOURCE CODE: UR/0365/66/002/006/0671/0677

AUTHOR: Kravchenko, T. G.; Zhuk, N. P.; Khodkin, V. I.; Belyayskaya, G. M.; Khovanskaya, L. L.

ORG: Moscow Institute of Steel and Alloys (Moskovskiy institut stali i splavov).

TITLE: Oxidation resistance of chromium and chromium-magnesium oxide alloys

SOURCE: Zashchita metallov, v. 2, no. 6, 1966, 671-677

TOPIC TAGS: chromium alloy, magnesium ~~oxide~~ containing alloy, ~~dispersion-strengthened alloy, chromium oxidation resistance, chromium alloy, oxidation resistance~~ oxidation inhibition,

ABSTRACT: Specimens of chromium and chromium-base alloys containing 5—9% magnesium oxide were prepared from VTU-1-54-grade chromium (99.9% pure) and pure magnesium oxide powders by cold compacting and sintering at 1500C in a hydrogen atmosphere for five hr. Nil-porosity specimens were obtained by additional hot compacting at about 1300C with a reduction of 80%. The specimens were than subjected to oxidation tests in an air atmosphere at 1200—1500C for ten hr. It was found that the scale formed on chromium specimens at 1200—1500C consisted of two layers, a thin, dense, inner layer of Cr_2N, and an outer layer of Cr_2O_3, which partially peeled off on cooling. Scale formed on chromium-magnesium oxide alloy specimens also consisted of two layers. The outer layer, in addition to Cr_3O_3, contained spinel $MgCr_2O_4$. At 1200C and 1500C, the oxidation rates of chromium and porous chromium-magnesium

 UDC: 669.26:620.193.5

ACC NR: AP6036111

oxide alloy were approximately equal. However, the oxidation rates of nil porosity specimens, containing 5% MgO tested at 1200C and 1300C were roughly 30 and 60% higher, respectively, than that of the nil-porosity, pure chromium. At 1400C and 1500C, magnesium oxide increased the oxidation rate in both porous and dense specimens. This can be explained by the fact that otherwise, the protective coating peels off easily in the case of chromium-magnesium oxide alloys. Orig. art. has: 3 figures and 5 tables.

SUB CODE: 11/ SUBM DATE: 03May65/ ORIG REF: 004/ OTH REF: 004/
ATD PRESS: 5106

Card 2/2

P.

USSR/General and Specialized Zoology - Insects.

Abs Jour : Ref Zhur - Biol., No 8, 1958, 35236

Author : Belyavskaya, L.I., Konstantinov, A.S.

Inst :

Title : The Nutrition of the Larvae Procladius choreus Meig. (Chironomidae, Diptera) and the Damage They Cause to the Feeding Grounds of Fish.

Orig Pub : Vopr. ikhtiologii, 1956, vyp. 7, 193-203.

Abstract : Through dissecting the intestines of the Procladius larvae a qualitative evaluation of their feeding was determined. Larvae of this species behaved towards other midges like active predatory insects; they possessed good hunting abilities. They swallowed the young midges whole, but sucked out the larger midges. In slimy water the consumption of the midges decreased by approximately 50%. Young midges were preferred by the Procladius larvae. The weight of the daily ration of the Procladius larvae was

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Abs Jour : Ref Zhur - Biol., No 8, 1958, 35236

equal to 72-188% of its own weight. A single intake of food during the experiments reached 30% of its body weight. In view of the large number of Procladius larvae in the ponds they must be regarded as serious competitors for food of the fish raised in ponds. The Procladius larvae may consume as many midges found in the slime as the whole fish population.

BELYAVSKAYA, L. I.; SIRYAK, A. I.

"Concerning the effect of gamma irradiation on the electroconductance of alkaline silicate glasses in intensive electric fields."

report submitted for 4th All-Union Conf on Structure of Glass, Leningrad, 16-21 Mar 64.

SHCHERBAKOV, N.A. (g. Moskva) BELYAVSKAYA, L.M.

"Electromagnetic oscillations and waves in high school physics courses". K.N. Elizarov. Reviewed by N.A. Shcherbakov, N.M. Beliavskaia. Fiz. v shkole 15 no.3:80-82 My-Je '55. (MLRA 8:6)

1. Kolpashevskiy uchitel'skiy institut, Tomskaya oblast' (for Belyavskaya).
(Electromagnetic theory--Textbooks)
(Electric waves--Textbooks) (Elizarov, K.N.)

24(3)

AUTHOR: Belyavskaya, L.M. SOV/139-59-1-4/34

TITLE: Determination of the True Value of Poole's Coefficient of Dielectrics α by the Non-Uniform Electric Field Method (Opredeleniye istinnogo znacheniya pulevskogo koeffitsiyenta α dielektrikov metodom neodnorodnogo elektricheskogo polya)

PERIODICAL: Izvestiya Vysshikh Uchebnykh Zavedeniy, Fizika, 1959, Nr 1, pp 25-29 (USSR)

ABSTRACT: In connection with studies of the structure of glass, it is necessary to obtain the true value of Poole's coefficient which determines the dependence of the electrical conductivity of a substance on the intensity of the electric field. To investigate this dependence in strong electric fields the specimens (see Fig 1) were in the form of plates with spherical cavities. A strong electrical field was produced in the region of the thinnest part of the plate. The electrical conductivity of the dielectric was then studied as a function of the field. A formula is derived which gives the current flowing through the specimen as a function of the potential differences between the electrodes in the zero order approximation (Eq (7)). The formula may be used

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Determination of the True Value of Poole's Coefficient of Dielectrics α by the Non-Uniform Electric Field Method

to obtain Poole's coefficient which will characterize the substance rather than the specimen. Glass of the following composition was used: SiO_2(71.24%), Al_2O_3 (0.70%), Fe_2O_3 (1.40%), CaO (8.80%), MgO (0.25%), Na_2O and K_2O (17.61%). The specimens were of the form indicated above and carried circular electrodes as well as a guard-ring to prevent surface currents. It was found that the value $\alpha = 5.3 \times 10^{-6}$ cm/V is close to the true value (errors not given).

Card 2/2 There are 4 figures and 1 table.

ASSOCIATION: Tomskiy Pedinstitut (Tomsk Pedagogical Institute)

SUBMITTED: May 30, 1958

BELYAVSKAYA, L.M.

PHASE I BOOK EXPLOITATION SOV/5035

Vsesoyuznoye soveshchaniye po stekloobraznomu sostoyaniyu. 3d, Leningrad, 1959.

Stekloobraznoye sostoyaniye; trudy Tret'yego vsesoyuznogo soveshchaniya Leningrad, 16-20 noyabrya 1959 (Vitreous State; Transactions of the Third All-Union Conference on the Vitreous State, Held in Leningrad on November 16-20, 1959) Moscow, Izd-vo AN SSSR, 1960. 534 p. Errata slip inserted. 3,200 copies printed. (Series: Its: Trudy)

Sponsoring Agencies: Institut khimii silikatov Akademii nauk SSSR. Vsesoyuznoye khimicheskoye obshchestvo imeni D.I. Mendeleyeva and Gosudarstvennyy ordena Lenina opticheskiy institut imeni S.I. Vavilova.

Editorial Board: A.I. Avgustinik, V.P. Barzakovskiy, M.A. Bezborodov, O.K. Botvinkin, V.V.Vargin, A.G. Vlasov, E.S. Yevstrop'yev, A.A. Lebedev, M.A. Matveyev, V.S. Molchanov, R.L. Myuller, Ye.A. Poray-Koshits, Chairman, N.A. Toropov, V.A. Florinskaya, A.K. Yakhkind; Ed. of Publishing House: I.V. Suvorov; Tech. Ed.: V.T. Bochever.

PURPOSE: This book is intended for researchers in the science and technology of glasses.

COVERAGE: The book contains the reports and discussions of the Third All-Union Conference on the Vitreous State, held in Leningrad on November 16-19, 1959. They deal with the methods and results of studying the structure of glasses, the relation between the structure and properties of glasses, the nature of the chemical bond and glass structure, and the crystallochemistry of glass. Fused silica, mechanism of vitrification, optical properties and glass structure, and the electrical properties of glasses are also discussed. A number of the reports deal with the dependence of glass properties on composition, the tinting of glasses and radiation effects, and mechanical, technical, and chemical properties of glasses. Other papers treat glass semiconductors and soda borosilicate glasses. The Conference was attended by more than 300 delegates from Soviet and East German scientific organizations. Among the participants in the discussions were N.V. Solomin, Ye. V. Kuvshinskiy, Yu.A. Gastev, V.P. Pryanishnikov, Yu. Ya. Gotlib, O.P. Mchedlov-Petrosyan, G.P. Mikhaylov, S.M. Petrov, A.N. Lazarev, D.I. Levin, A.V. Shatilov, N.T. Ploshchinskiy, A.Ya. Kuznetsov, E.V. Degtyareva, G.T. Byurganovskaya, A.A. Kalenov, M.M. Skornyakov, P.Ya. Bokin, E.K. Keller, Ya.A. Kuznetsov, V.P. Pozdnev, R.S. Shevelevich, Z.G. Pinsker, and O.S. Molchanova. The final session of the Conference was addressed by Professor I.I. Kitaygorodskiy, Honored Scientist and Engineer, Doctor of Technical Sciences. The following institutes were cited for their contribution to the development of glass science and technology: Gosudarstvennyy opticheskiy institut (State Optical Institute), Institut khimii silikatov AN SSSR (Institute of Silicate Chemistry, AS USSR), Fizicheskiy institut AN SSSR (Physics Institute AS USSR), Fiziko-tekhnicheskiy institut AN SSSR (Physicotechnical Institute AS USSR), Institut fiziki AN BSSR, Minsk (Institute of Physics, Academy of Sciences, Belorusskaya SSR, Minsk), Laboratory of Physical Chemistry of Silicates of the Institut obshchey i neorganicheskoy khimii AN BSSR, Minsk (Institute of General and Inorganic Chemistry, Academy of Sciences, Belorusskaya SSR, Minsk), Institut vysokomolekulyarnykh soyedineniy AN SSSR (Institute of High Molecular Compounds, AS USSR), Gosudarstvennyy institut stekla (State Institute for Glass), Gosudarstvennyy institut steklovolokna (State Institute for Glass Fibers), Gosudarstvennyy institut elektrotekhnicheskogo stekla (State Institute for Electrical Glass), Sibirskiy fiziko-technicheskiy institut, Tomsk (Siberian Physicotechnical Institute, Tomsk), Leningradskiy gosudarstvennyy universitet (Leningrad State University), Moskovskiy khimiko-tekhnologicheskiy institut (Moscow Institute of Chemical Technology), Leningradskiy tekhnologicheskiy institut im. Lensoveta (Leningrad Technological Institut imeni Lensovet), Belorusskiy politekhnicheskiy institut Minsk (Belorussian Polytechnic Institute, Minsk), Novocherkasskiy politekhnicheskiy institut (Novocherkassk Polytechnic Institute), and Sverdlovskiy politekhnicheskiy institut (Sverdlovsk Polytechnic Institute). The Conference was sponsored by the Institute of Silicate Chemistry AS USSR (Acting Director - A.S. Gotlib), the Vsesoyuznoye khimicheskoye obshchestvo im. D.I. Mendeleyeva (All-Union Chemical Society imeni D.I. Mendeleyev), and the Gosudarstvennyy ordena Lenina opticheskiy institut imeni S.I. Vavilova (State "Order of Lenin" Optical Institute imeni S.I. Vavilov). The 15 resolutions of the Conference include recommendations to organize a Center for the purpose of coordinating the research on glass, to publish a new periodical under the title "Fizika i khimiya stekla" (Physics and Chemistry of Glass), and to join the International Committee on Glass. The Conference thanks A.A. Lebedev, Academician, Professor, and Chairman of the Organization of Committee; Ye.A. Poray-Koshits, Doctor of Physics and Mathematics, Member of the Organizational Committee; and R.L. Myuller, Doctor of Chemical Sciences, Member of the Organizational Committee. The editorial board thanks G.M. Bartenev, M.V. Vol'kenshteyn, L.I. Demkina, D.P. Dobychin, S.K. Dubrovo, V.A. Ioffe, and R.T. Kolomiyets. References accompany individual reports.

Belyavskaya, L.M.

AUTHOR: Syritskaya, Z. M.

S/072/60/000/03/021/023
B003/B008

TITLE: 3rd All-Union Conference on the Vitreous State

PERIODICAL: Steklo i keramika, 1960, Nr 3, pp 43-46 (USSR)

ABSTRACT: The 3rd All-Union Conference on the Vitreous State was held in Leningrad at the end of 1959. It was organised by the Institut khimii silikatov AN SSSR (Institute of the Chemistry of Silicates AS USSR), Vsesoyuznoye khimicheskoye obshchestvo imeni D. I. Mendeleyeva (All-Union Chemical Society imeni D. I. Mendeleyev) and Gosudarstvennyy opticheskiy institut imeni S. I. Vavilova (State Optical Institute imeni S. I. Vavilov). More than 100 reports on the structure of glass, investigation methods of the vitreous state, the mechanism of vitrification and physicochemical and technical properties of glasses were delivered. The Conference was opened by Academician A. A. Lebedev. [illegible]. At the 5th meeting, 9 reports dealt with the investigation results of sodium-boron-silicate glasses. A. A. Appen and Gan' Fu-Si, "Boron and Alumoboron Anomaly of the Properties of Silicate Glasses"; Ye. I. Galant, "On the Coordination Numbers of Aluminum and Boron in Some Glasses"; S. P. Zhdanov reported on structural changes in boron-silicate glasses; Ye. A. Poray-Koshits and S. P. Zhdanov reported on some controversial problems concerning the structure of boron-silicate glasses and their porous products; Ye. A. Poray-Koshits and N. S. Andreyev, "Submicroscopic Inhomogeneities in the Structure of Complex Glasses". The 13 reports at

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the 6th meeting dealt with the electric properties of glasses. L. M. Belyavskaya reported on the structure determination of glass with the aid of an inhomogeneous electric field; N. M. Vereshchagin and V. I. Odelevskiy, "Structure and Properties of Some Glass Glasses in the Light of the Polymer-theory of the Vitreous State"; R. L. Myuller reported on the agility and the degree of dissociation as functions of the ionic and atomar composition of the glass; V. I. Odelevskiy reported on the nature of dielectric losses in glasslike and crystalline aluminosilicates; V. P. Petrosyan, "Investigation of the Dielectric Polarization and the Losses in Phosphate Glasses"; V. A. Presnov, V. I. Gaman and L. N. Krasil'nikov reported on investigations of the conductivity of glasses in electric high-tension fields, K. K. Yevstrop'yev on the diffusion of Na^{22} and K^{42} in some silicate glasses, V. A. Ioffe, I. B. Yanchevskaya and G. I. Khvostenko on electric properties of crystalline and glasslike aluminosilicates. O. V. Mazurin spoke on his studies which were carried out under the supervision of Professor K. S. Yevstrop'yev at the Kafedra stekla LTI imeni Lensoveta (Chair for Glass of the Leningrad Technological Institute imeni Lensovet) in the report: "The Dependence of the Electroconductivity of Glasses on the Chemical Composition". V. A. Khar'yuzov, O. V. Mazurin and N. N. Zubkova gave investigation results on the specific electroconductivity of glasses of the system $SiO_2 - B_2O_3 - BaO$ in the temperature range of from 400-1300° and on the influence of additions

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of aluminum- and zinc oxide on the electric conductivity of these glasses. At the 7th meeting, 6 reports dealt with glasses as semiconductors, 9 with the coloring of glasses and the influence of radiation and 4 reports with technical properties of glasses. V. A. Ioffe and G. I. Khvostenko, "Electric Properties of Some Semiconductor Glasses". B. T. Kolomiyets, N. A. Goryunova and V. P. Shilo reported on methods for the production of chalcogenide glasses, on some of their general properties and on the limits of the vitreous state in the systems $Tl_2Se - As_2Se_3$, $Tl_2Se - Sb_2Se_3$, $Sb_2Se_3 - As_2Se_3$, Tl - As - Se. B. T. Kolomiyets and B. V. Pavlov reported on the optical absorption in a number of binary chalcogenide systems. B. T. Kolomiyets, T. N. Mamontova and G. P. Nazarova reported on the electron conductivity of chalcogenide glasses. A. A. Vaypolin, Ye. A. Poray-Koshits, "Radiographic Investigation of the Structure of Vitreous Arsenic Chalcogenides". V. V. Tarasov and V. A. Romanovskiy reported on the chain structure of the vitreous arsenious sulphide determined by them with calorimetric measurements. K. P. Azarov reported on structure and properties of ferrous boron glasses and

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BELYAVSKAYA, L.M.

Applying the method of harmonic analysis of fluctuating quantities in studying the structure of glass and other solid dielectrics. Izv.vys.ucheb.zav.; fiz. no.4:83-86 '61. (MIRA 14:10)

1. Sibirskiy fiziko-tekhnicheskiy institut pri Tomskom gosudarstvennom universitet imeni V.V.Kuybysheva.
(Harmonic analysis) (Dielectrics)

23887

15.2120 3009, 1142 1153

S/196/61/000/007/002/004
E073/E535

AUTHOR: Belyavskaya, L.M.

TITLE: Investigation of the electric conductivity of dielectrics by the method of a nonuniform electric field

PERIODICAL: Referativnyy zhurnal, Elektrotekhnika i energetika, 1961, No.7, p.17, abstract 7B94. (Sb. nauchn. tr. Tomskiy inzh.-stroit. in-t, 1959, 5, 122-123)

TEXT: It is shown that in conductivity measurements the non-uniformity of the electric field in the specimen can be utilised for elucidating the real dependence of the conductivity of the dielectric, particularly of glass, on the intensity of the electric field and on other factors (temperature and composition of the glass etc.). It was found possible to improve the method so that it enables determining for glass the Poole coefficient which determines the speed of increase in conductivity with increasing intensity of the electric field. The method was tested on specimens of commercial glass. The values of the Poole coefficient

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obtained from the specimen were found to depend on the radius of the electrode deposited on the flat side of the specimen with an alveole; on reducing the radius the thus determined value of the Poole coefficient is near to its real value. The measuring technique is described in which a holder of a special design is used which permits the use of electrodes with radii of 5-1.5 mm. The described method is to be used for investigating the dependence of the conductivity of glass on temperature and composition, on polymorphous transformations and also on high voltage polarization. Abstracted by A. Magidson.

[Abstractor's Note: The above text is a full translation of the original Soviet abstract.]

S/139/63/000/001/025/027
E202/E420

AUTHOR: Belyavskaya, L.M.

TITLE: Effect of γ-irradiation on the electrical conductivity of alkali silicate glasses in strong electric fields

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Fizika, no.1, 1963, 164-170

TEXT: Earlier work (Izv. vyzov SSSR, Fizika, no.1, 1959, 25) is continued by studying certain new phenomena present in glasses containing 20, 22 and 26 wt.% Na_2O and technical glass of 18% Na_2O. Co^{60} was used as the source of irradiation. The method of measurement was the same as in the earlier work. It was found that in a certain region of field strength, which depends on the composition and history of glass as well as the irradiating dose, current stabil zation occurs making it completely independent of the potential on the sample. Hitherto this phenomenon was only observed in glasses with 50% or more Na_2O content. Beyond the stabilized region there was often found a falling characteristic. Both these phenomena are discussed at length theoretically from the point of view of the electron release mechanism taking place during γ-irradiation. An emf is generated across thin samples

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Effect of γ-irradiation ...

(0.1 to 0.2 mm thick) during irradiation. This was attributed to the association of polar groups formed in the Na_2O containing glass, or possibly by the formation of p,n junctions. These phenomena are temperature sensitive as a result of the presence of weak electron traps in the glass. The electrical conductivity after γ-irradiation follows the law of Pool after a short delay. It is concluded that the different curves obtained for different periods of irradiation with a sufficiently high field strength are due to the effect of the latter on the mechanism of high voltage polarization taking place after irradiation. This process appears to be very complex. It was also observed that certain electrical properties of quartz glass were improved in the presence of additives. However, in the case of Hereus quartz glass, irradiation caused a 1.5 to twofold reduction in electrical conductivity. Departure from the Pool law is often due to the accumulation of a volume charge on the defects. In the second part, the theory of the above effects is studied. The problem is limited to the effect of recombination and the effects of ion diffusion ignored. It is also assumed that the

electric field changes the probability of freeing the electrons from the traps and the rate of their capture. The arguments advanced are based on the general model of volume charge accumulation on defects as developed by A.F.Ioffe. It was found from the experiments that the concentration of free ions in the region of the defect is approximately 10^{19}. There are 4 figures.

ASSOCIATIONS: Tomskiy gospedinstitut (Tomsk State Pedagogic Institute) Sibirskiy fiziko-tekhnicheskiy institut pri Tomskom gosuniversitete imeni V.V.Kuybysheva (Siberian Physicotechnical Institute at Tomsk State University imeni V.V.Kuybyshev)

SUBMITTED: January 22, 1962 (initially)
June 4, 1962 (after revision)

S/139/63/000/001/011/027
E202/E420

AUTHOR: Belyavskaya, L.M.

TITLE: The nature of high voltage polarization in glasses

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Fizika, no.1, 1963, 58-62

TEXT: The nature of the distribution of volume charge of a high voltage polarization in a sample was studied. The macroscopic treatment of the problem resulted in separation of the structural effect from the nonlinear effect connected with the shape of the sample and the nature of the nonlinearity. It was shown that with increasing field intensity the volume charge is exuded from the thin layers at the boundaries of structural elements and distributes itself throughout the whole volume of the sample. Both types of space charge accumulation, i.e. the structural one and the nonlinear, depend in a different way on the potential on the sample. Hence these two factors can be separated experimentally and the calculations checked. In dielectrics $\sigma E \neq$ const and therefore with parallel lines of force, the space charge can accumulate only on the boundaries of homogeneous media

Card 1/3

The nature of high voltage ...

in thin layers, where there are forces of nonelectrostatic origin. It was shown on theoretical grounds that in thin layers the structural polarization is accompanied by high voltage nonlinear polarization depending on the shape of the sample. In order to observe both types of polarization a ballistic method was used. A sample of technical glass was isolated from the high voltage and discharged by means of an electronic relay through a shunt. The charge was provided from a stabilized d.c. source. It was concluded that the volume charge may be present in glass either in a strongly bounded state, i.e. in thin layers with a comparatively low external potential on the sample, or in a less bounded state, i.e. with larger potential distributed throughout the sample. The volume charge effect falls with increasing temperature and is also affected by a preliminary γ-irradiation. The error of the above ballistic method was of the order of a few percent. The author stresses the importance of further studies in this field, particularly in the measurement of relaxation time for the above polarization phenomena. There are 4 figures.

S/139/63/000/001/011/027
E202/E420

The nature of high voltage ...

ASSOCIATION: Tomskiy gospedinstitut Sibirskiy fiziko-tekhnicheskiy institut pri Tomskom gosuniversitete imeni V.V.Kuybysheva (Tomsk State Pedagogic Institute Siberian Physicotechnical Institute at Tomsk State University imeni V.V.Kuybyshev)

SUBMITTED: September 4, 1961

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L 4990-66 EWP(e)/EWT(m)/EPF(c)/EWP(i)/EPF(n)-2/EWA(h)/EWA(l) GS/MM

ACC NR: AP5027434 SOURCE CODE: UR/0181/65/007/011/3427/3428

AUTHOR: Belyavskaya, L. M.; Siryak, A. I.

ORG: Tomsk State University (Tomskiy gosudarstvennyy universitet)

TITLE: Some characteristics of magnetoresistance of alkali silicate glasses after gamma-irradiation and thermal treatment

SOURCE: Fizika tverdogo tela, v. 7, no. 11, 1965, 3427-3428

TOPIC TAGS: irradiation, gamma irradiation, mechanical heat treatment, magnetoresistance, silicate glass

ABSTRACT: To obtain more information on the character of the transverse effect of magnetoresistance ($E \perp H$), specimens of sodium silicate glasses of different composition were investigated in a magnetic field (from 0.5 to 1.9 weber/m^2) after γ-irradiation with doses of 10^6 to 10^7 r at an intensity of 20 r/sec at room temperature. Co^{60} with a quantum energy $h\nu = 1.25$ Mev was the irradiation source. The content of Na_2O in the specimens (10 x 2 x (0.3—1.1) mm) was 16, 20, 26, 33, 36, and 50 mol %. The smallest specimen was adjusted in the direction of the magnetic field and the largest, in the direction of the electric field. All measurements were carried out for the direct and reverse directions of the magnetic field. The direction of irradiation corresponded to the direction of the magnetic field. The following results were obtained: 1) The previously detected effect of transverse magnetoresistance in

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L 4990-66

ACC NR: AP5027434

sodium silicate glasses at room temperature and at doses of the order of 10^6—10^7 r consists primarily of volume effects. 2) By increasing the percentage content of Na_2O, the effect is also increased. 3) The effect can be regenerated with precision up to 5% after "relaxation" within 2—10 days. The necessary "relaxation" period increases with increased percentage of Na_2O. 4) The value of magnetoresistance at a definite intensity of the magnetic field increases with a decrease of the specimen's linear dimension along the magnetic field and with an increase of the linear dimensions along the electric field. 5) For all investigated compositions of glass, optimum doses were determined for obtaining the maximum effect of $\frac{\Delta R}{R}$ at a constant intensity of the magnetic field. 6) When Na_2O content is 12%, the effect of magnetoresistance is sensitive to special thermal treatment of specimens associated with the formation of coloration centers in them. When heated for 30 minutes at a temperature of 750C the specimens become milky-blue in color and some magnetoresistance is detected, which depends weakly on the thickness of the specimens. With subsequent heating to 850C for 5 minutes, the specimens practically recover their initial transparency and initial resistance. Orig. art. has: 2 figures. [JA]

SUB CODE: EM,MT,NP/SUBM DATE: 23Mar65/ ORIG REF: 002/ OTH REF: 000/ ATD PRESS: 4/3

QC

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L 17151-65 EWG(j)/EWP(e)/EWT(m)/EPF(c)/EPF(n)-2/EWP(j)/EWP(b)/EWA(h)/EWA(1)
ACCESSION NR: AR4049270 Pc-4/Pq-4/Pr-4/Peb/ S/0081/64/000/015/B052/B052
Pu-4 ESD(gs)/ESD(t) GG/RM/WH

SOURCE: Ref. zh. Khimiya, Abs. 15B341

AUTHOR: Belyavskaya, L.M.

TITLE: Stabilization of electrical current and the drop characteristic in strong electrical fields after gamma irradiation of alkaline silicate glasses

CITED SOURCE: Mezhvuz. sb. tr. Zap.-Sib. sovet po koordinatsii i planir. nauchno-issled. rabot po tekhn. i yestestv. naukam, vy*p. 2, 1963, 159-161

TOPIC TAGS: glass, silicate glass, glass irradiation, gamma irradiation, electric current stabilization, glass conductivity

TRANSLATION: The stabilization of electrical current was studied by measuring electrical conductivity. The current was found to be independent of voltage after alkaline silicate glasses containing more than 20% Na_2O by weight were exposed to gamma irradiation. An increase of voltage on the sample caused either a reduction in current, followed by a subsequent increase at greater intensities of the electrical field, or an increase in current beyond the stabilization area. The boundaries of the latter depend on dosage of radiation,

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L 17151-65
ACCESSION NR: AR4049270

the content of Na_2O and the previous history of the sample. The observed phenomena are explained in terms of the effect of recombinations of current carriers, i.e. Na cations and electrons, produced as a result of gamma irradiation on the space charge in the sample. B. Yegorov

ASSOCIATION: none

SUB CODE: MT ENCL: 00

Card 2/2

BELYAVSKAYA, L.M.; TERENT'YEVA, N.V.

Magnetoresistance of alkali silicate glasses following gamma-irradiation. Izv. vys. ucheb. zav.; fiz. no. 2:169-170 '64.
(MIRA 17:6)

1. Sibirskiy fiziko-tekhnicheskiy institut pri Tomskom gosudarstvennom universitete imeni Kuybysheva.

ACCESSION NR: AP4036576 S/0139/64/000/002/0169/0170

AUTHORS: Belyavskaya, L. M.; Terent'yeva, N. V.

TITLE: Magnetic resistance of alkaline silicate glass after gamma irradiation

SOURCE: IVUZ. Fizika, no. 2, 1964, 169-170

TOPIC TAGS: electrical conductivity, alkaline silicate, magnetic field, electron interaction, gamma radiation, magnetic field orientation

ABSTRACT: The electrical conductivity in alkaline silicate glass specimens, 0.5 to mm thick, was studied after gamma-radiation in a magnetic field varying from 0.4 to 1.3 webers/m^2. Gamma-radiation was supplied from a Co^{60} source (10^6 to 10^7 p lose). A change in resistance from 5 to 20% was observed in the specimens, depending on their Na_2O content. This change is found to be independent of field orientation if the specimens are initially placed in a magnetic field. For 50 mol% Na_2O specimens the change in resistance lasted 9 hours after irradiation. This change is assumed to be caused by electron-ion and electron-electron interactions.

ASSOCIATION: Sibirskiy fiziko-tekhnicheskiy institut pri Tomskom gosuniversitete imeni V. V. Kuyby*sheva (Siberian Institute of Physical Technology, Tomsk State Univ

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TITLE: Investigation Into Conditions of Titanium-Niobium Carbide Chlorination

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Tsvetnaya metallurgiya, 1960, No. 5, pp. 108-115

TEXT: The authors investigated kinetics of complex titanium-niobium carbide chlorination and studied the process of chlorination in a fluidized bed on a large-scale laboratory furnace. The former investigation was made with hot pressed cylindrical specimens of titanium-niobium carbide, containing in %: 46.88 Ti; 13.91 Nb; 2.62 Si; 8.79 C_{bound}; 12.32 C_{free}; 3.76 N; 11.72 O etc. Complex carbide was obtained from titanium-niobium concentrate and represented an oxycarbonitride. Chlorination kinetics of complex carbide was investigated using a horizontal quartz tube at 800, 600 and 400°C and 9 l/min chlorine feed. It was found that chlorination of compact carbide specimens was accompanied by the formation of an external graphite layer. At 400°C the effect of this layer on the

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chlorination rate was not noticeable (the process having a kinetic nature). At 600° and, in particular, at 800°C, some diffusion inhibition of the reaction was observed due to the graphite layer formed. The nature of the chlorination process becomes intermediate between kinetic and diffusion one, the former being prevalent. The dependence of the chlorination depth on the duration of the process was revealed and used to calculate the maximum possible duration of chlorination of various-size carbide particles at 400, 600 and 800°C. (Table 1)

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Table 1
Maximum possible duration of carbide particle chlorination

Temperature °C	Particle size mm	Duration of chlorination, min	
		in the presence of a graphite layer	without a graphite layer
800	0,250	8,0	5,58
800	0,075	2,8	1,68
800	0,042	1,2	0,94
600	0,250	17	13,6
600	0,075	5	4,1
600	0,042	3	2,3

Chlorination in a fluidized bed was studied on a furnace shown in Figure 4.

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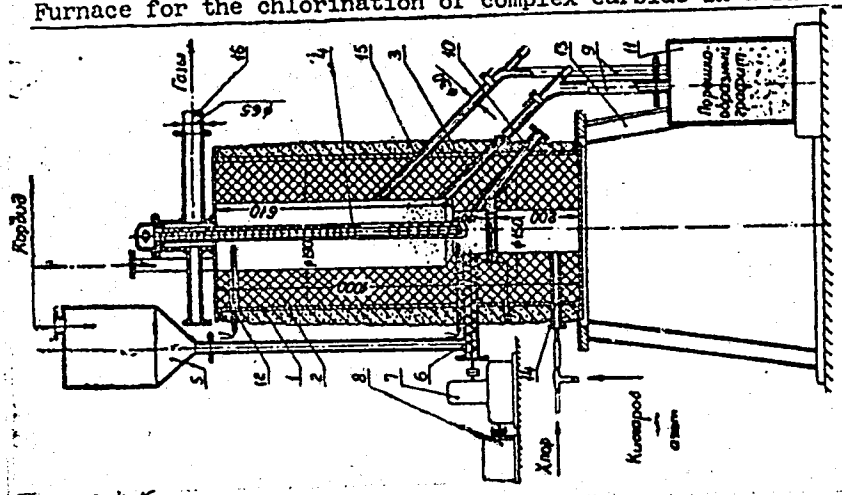
Figure 4

Furnace for the chlorination of complex carbide in a fluidized bed



1 - body; 2 -graphite lining; 3 - graphite grid; 4 - nichrome heater; 5 carbide bin; 6 - screw; 7 - reductor; 8-dc motor; 9-fine graphite discharge pipes; 10-furnace discharge pipes; 11-powder graphite container; 12-thermocouple; 13-frame; 14-tuyere; 15-heat insulation; 16-gas exhaust pipe.

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Radiographic Investigation of Recrystallization Processes and Release of a Carbide Phase of Hard Alloys Containing Tungsten, Titanium and Tantalum Carbides

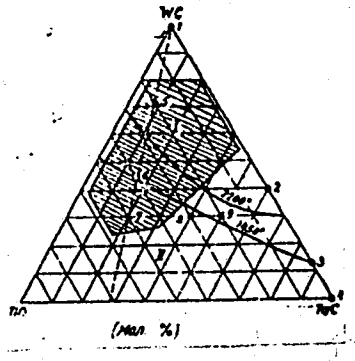

Figure 1

Phase diagram of the WC-TiC-TaC system; solubility of WC at 1,450 and 2,200°C are shown; the biphase range I contains a solid solution of TiC-TaC-WC and WC carbide; the mono-phase range II contains the TiC-TaC-WC phase; points 1 - 9 are the carbide components of the alloys investigated.

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Radiographic Investigation of Recrystallization Processes and Release of a Carbide Phase of Hard Alloys Containing Tungsten, Titanium and Tantalum Carbides

There are 3 figures and 4 Soviet references.

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