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S/020/60/135/005/007/043  
B019/B067

9.7100

AUTHOR: Kartsev, M. A.

TITLE: Principle of Movable Blocking Devices in Constructing  
Electronic Computer Circuits

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 135, No. 5,  
pp. 1064-1067

TEXT: The author, together with the Engineers V. L. Brailovskiy, Yu. N. Glukhov, A. V. Datsko, E. F. Stupin, and G. I. Tanetov, developed semi-conductor systems intended for electronic computers with switching frequencies of 5-7 megacycles. Some essential properties of these systems are discussed without giving further technical details. In principle, two systems are concerned which can be used in arithmetic devices and control devices of computers. The first system is an inverter for voltage levels performing the logical operation "no" and a reduction of the signal level. The second system is a multistage logical system of diodes. Such a system has four stages corresponding to the logical operation "and - or - and - or". The systems are coupled such that the output signal of the logical system

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Principle of Movable Blocking Devices in  
Constructing Electronic Computer Circuits

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of diodes is always fed to the input of the inverter. The signal at the output of the inverter is fed to the input of the logical system. As an example, the author discusses the trigger shown in Fig. 1. Circuits without digital elements which, however, allow various inverter combinations by blocking are called circuits with movable blockings. The circuit shown in Fig. 2 is discussed. Here, x, y, and z are the input signals. If, for instance, two input signals are lacking, the three inverters are coupled to a nonsymmetric trigger. On the other hand, the system has three stable positions in the case of two input signals. The possibilities of this system and its variants are dealt with in detail. The examples show that the use of a movable blocking allows the construction of essentially new circuits. A. B. Zalkind is mentioned. There are 2 figures.

ASSOCIATION: Institut elektronnykh upravlyayushchikh mashin Akademii nauk SSSR (Institute of Electronic Control Machines of the Academy of Sciences USSR)

PRESENTED: April 5, 1960, by S. L. Sobolev, Academician

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Principle of Movable Blocking Devices in  
Constructing Electronic Computer Circuits

S/020/60/135/005/007/013  
B019/BC67

SUBMITTED: March 25, 1960

Legend to Fig. 1: 1) Trigger, 2) outputs to device "0", 3) outputs to  
device "1", 4) inverter, 5) element "or", 6) element "and", 7) inputs to  
device "1", 8) inputs to device "0", 9) outputs.  
Legend to Fig. 2: 1) outputs.

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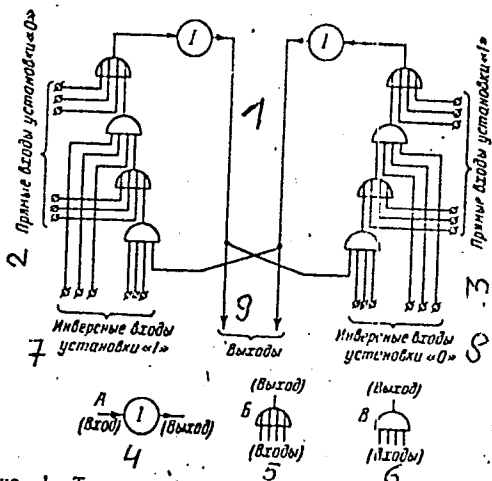


Рис. 1. Триггер. А — инвертор-формирсватель, Б — элемент «или», В — элемент «и»

Card 4/4

KARTSEV, M.A.

Principle of movable block systems in the construction of circuits for digital computers. Dokl. AN SSSR 135 no.5:1064-1067 D '60.

(MIRA 13:12)

1. Institut elektronnykh upravlyayushchikh mashin AN SSSR. Predstavleno akademikom S.L. Sobolevym.

(Electronic calculating machines)

KARTSEV, M.A., kand.tekhn.nauk

Automation of calculation and the development of calculation  
techniques. Vest. AN SSSR 32 no.11:64-69 N '62. (MIRA 15:11)  
(Electronic computers)

KARTSEV, N., inzh.

The "Atmosfera-2m" portable transistor radio. Radio no.1:  
49, 51 Ja '63. (MIRA 16:1)

(Transistor radios)

KARTESEV, P.

Master of the blue roads. Voenn. znan. 40 no.10:42-43 O '64.

(MIRA 17:12)

1. Nachal'nik teekha Voronezhskogo vagonoremontnogo zavoda.



KARPOV, P. P. (Ingr)

Dissertation: "An Investigation of Turbogenerators Under nonsymmetrical Load."  
Venu Tech Sci, Moscow Order of Lenin Power Engineering Institute imeni V. I. Glotov,  
25 Jun 54. (Vechernyaya Moskva, Moscow, 16 Jun 54)

Doc: 513, 23 Dec 1954

KARTSEV, P.K., kand.tekhn.nauk; MATYUKOV, V.Ye., inzh.

Asynchronous motors with aluminum windings of the A and AK series  
having power ratings of 100 to 1000 kw. Vest.elektroprom. 33  
no.4:19-21 Ap '62. (MIRA 15:4)  
(Electric motors, Induction)



KARTSEV, Pavel Tikhonovich; BRAYLOVSKIY, N.G., inzhener, redaktor;  
YUDZON, D.M., tekhnicheskiy redaktor

[Refrigerator cars] Izotermicheskie vagony. Moskva, Gos.  
transp. zhel-dor.izd-vo, 1955. 203 p. (MLRA 8:10)  
(Refrigerator cars)

YEVLEV, V.I., kapitan 2-go ranga; GLUKHOV, G.P., inzh.-kapitan 3-go ranga; ZARUBIN, L.K., kapitan 2-go range; TIMASHEV, V.D., kapitan 3-go ranga; KARTSEV, R.P., kapitan 1-go ranga; MICHURIN, V.I., kapitan 1-go ranga.

Matured problems. Mor. sbor. 49 no. 12:49-53 D ' 65  
(MIRA 19:1)

KARTSEV, S.; KOVALENKO, I.; MUKIN, I.

~~CONFIDENTIAL~~

In the German Democratic Republic. Prof.-tekh.obr. 13 no.9:17-19  
S 56. (MIRA 9:10)

(Germany, East--Technical education)

KARTSEV, S.

AUTHOR: Kartsev, S.

27-9-25/30

TITLE: Professional Schools in Yugoslavia (Professional'nyye shkoly v Yugoslavii)

PERIODICAL: Professional'no - Tekhnicheskoye Obrazovaniye, 1957, # 9(148), p 30-31 (USSR)

ABSTRACT: During this summer, a delegation of Soviet Union educational workers visited Yugoslavia for the purpose of studying the conditions of national education. They visited a number of educational and cultural institutions in various cities of the country and submitted the following report. The basic type of general education school is the 8-year elementary school. The graduates can continue their education at 4-year special schools (technical, agricultural, economical, medical, etc.) from which a part of them can enter universities while the others seek employment in industry or other branches of the national economy. After graduating from the 8-year school, a considerable number of young people enter the 3-year industrial and trade schools. Attendance at these schools is compulsory for youths up to 18 years. Serious attention is paid to the development of both upper and lower professional education. In 1938-1939 there were 53 different professional secondary schools with 10,689 students;

Card 1/2

Professional Schools in Yugoslavia

27-9-25/30

in 1955-1956 the number increased to 190 with 41,942 students. Industrial and home economics schools in 1938-1939 numbered 360 with 21,214 students, in 1955-1956 - 369 with 36,633 students. Trade Schools in 1938-1939 were 410 with 48,658 students, in 1955-1956 there were 640 with 88,320 students. At the industrial and trade schools the biggest number of students - 34,4 per cent - learn metal working professions, 15 % woodworking, 11,3 % textile, 6.6 % business, 4,5 % electrical and 39 % canning trades. Most of the schools are satisfactorily equipped. The schools built in recent years make a good impression. The article further contains particulars in regard to student practical training. The students are also awarded scholarships and supplied with work clothes free of charge. A charge of 4-5000 dinars per month is to be paid by students staying in boarding schools. The graduates must look for employment themselves. In the town of Rijeka, there is a Pedagogical-Professional School, training teachers for the industrial schools during a 2-year term.

AVAILABLE: Library of Congress

Card 2/2



MOSKATOV, P.; ZELENGO, G.; BORDADYN, A.; MAL'TSEV, B.; KIRPICHNIKOV, P.;  
DONSKOY, G.; KARTSEV, S.; MOISEYEV, P.; SAMOYLOV, P.; SHISHEOV, I.;  
NAUGOL'NOV, A.; PAPERNOV, N.; GORBACHEV, S.; SHABLIYEVSKIY, G.;  
GOLUBEV, S.

IA.T. Remizov. Prof.-tekh. obr. 15 no.4:3 of cover Ap '58.  
(Remizov, Iakov Terent'evich, d. 1958) (MIRA 11:5)

27-58-5-4/18

AUTHOR: Kartsev, S., Chief of Administration of Schools and Vocational Schools in the RSFSR.

TITLE: Inter-Oblast Seminars (Mezhoblastnyye seminary)

PERIODICAL: Professional'no-Tekhnicheskoye Obrazovaniye, 1958, <sup>1</sup>Nr 5 pp 6-8 (USSR)

ABSTRACT: Seminars have been held lately in various areas: in Sverdlovsk (covering the Omsk, Chelyabinsk, Perm, Kirov, Tumensk, and Kurgan areas and the North Kazakhstan and Karagandinsk Oblast's and the Udmurtsk ASSR) there were lectures by the following Directors or Deputies: from the Sverdlovskoye tekhnicheskoye uchilishche Nr 1 (Sverdlovsk Technical School Nr 1), Kuznetsov, and Deputy Director Kiselev; from the Technical School 5, Director Bogdanov; the Deputy Director of the Carpentry School 39, Zhuravlev. In Kuybyshev (covering Orenburg, Stalingrad, Astrakhan, Saratov, Penza and Ulyanov Oblast's, and the Mariyskaya, Mordovskaya, Tartarian and Bashkirian ASSR), lectures were given by Directors of Carpentry School Nr 1, Kaurov; Technical School Nr 2, Deputy Director Karaulov; Carpentry School Nr 9, Director Kur'yanov. In Voronezh, over 70 workers took part, including the Director of Railway School, Koptsov. A number of technical manuals were

Card 1/2

Inter-Oblast' Seminars

27-58-5-4/18

discussed and found outdated, especially the standard "Zheleznyy Put", (the Railway). In Tula, there were directors or deputies from 32 schools, of whom only Director Privinger is named. The whole affair was regarded as a great success and is to be followed shortly by seminars for school teachers from schools for builders, the construction, coal-mining, oil and railways industries.

AVAILABLE: Library of Congress

Card 2/2 1. Industrial Training-Seminars

KARTSEV, S.

Vocational schools of Rumania. Prof.-tekh. obr. 19 no.5:30-31  
My '62. (MIRA 15:5)

(Rumani--Vocational education)

KARTSEV, V.N.

PANFILOV, I.I.; MIRSKIY, G.G. glavnyy inzhener; KARTSEV, V.N., arkhitekter.

Elevator shafts in apartment houses. Gor. khoz. Mosk. 32 no.3:35-36  
Mr '58. (MIRA 11:3)

1. Nachal'nik Proyektnoy kontory Moszhilupravlenya (for Panfilov).  
(Moscow--Elevators)

KARTSEV, S. P.

"Referring to D. I. Polyako's Article, 'Worm Hobs with Inserted Teeth'", Stanki i Instrument 10, No. 3, 1939, Engineer, Frezer Plant.

Report U-1505, 4 Oct 1951.

KARTSEV, S.P.; BASOV, M.I., kandidat tekhnicheskikh nauk, retsenzent;  
KOLLI, A.Ya.; redaktor; BELOSTOTSKIY, L.Ya., inzhener, redaktor;  
BEYSEL'MAN, R.D., inzhener, redaktor; MODIL', B.I.' tekhnicheskii  
redaktor.

[Thread cutting tools] Instrument dlia izgotovleniia rez'by.  
Moskva, Gos.nauchno-tekhn.izd-vo mashinostroitel'noi lit-ry,  
1955. 251 p. (MLRA 8:10)  
(Screw cutting machines)

KRASNOPOL'SKIY, David Zakharovich; KARTSEV, S.P., inzhener, retsenzent;  
BELOSTOTSKIY, L.Ya., kandidat tekhnicheskikh nauk, redaktor;  
SHIMSHURINA, Ye.A., redaktor izdatel'stva; UVAROVA, A.F., tekhnicheskiiy redaktor

[KB screw-cutting machine for cutting female threads and making bores] Rez'bonareznye golovki KB dlia narezaniia vnutrennikh rez'b i rastachivaniia otverstii. Moskva, Gos.nauchno-tekhn.isd-vo mashinostroit.lit-ry, 1957. 29 p. (MLBA 10:7)  
(Screw-cutting machines)



KARTSEV, Sergey Petrovich; BASOV, M.I., inzh., retsenzent; DOLGOVA,  
G.Ye., tekhn.red.

[Screw-thread cutting tools] Rez'bonareznoi instrument.  
Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1959.  
99 p. (MIRA 13:2)  
(Screw-cutting machines)

VINNIK, L.M.; GRINBERG, R.Ya.; KAMINSKIY, Ya.A.; KLEPIKOV, V.D.; KUZNETSOV, A.M.; KUCHENEV, N.I.; STRUZHESTRAKH, Ye.I.; TISHIN, S.D.; KHARITONOV, A.B.; TSEYTS, I.E.; SHAPIRO, I.I.; SHAPIRO, M.Ya.; ANAN'YAN, V.A., retsenzent; VASIL'YEV, D.T., retsenzent; GORETSKAYA, Z.D., retsenzent; KARTSEV, S.P., retsenzent; KEDROV, S.M., retsenzent; KOMISSARZHEVSKAYA, V.N., retsenzent; KOPERBAKH, B.L., retsenzent; KORBOV, M.M., retsenzent; LEONOV, N.I., retsenzent; LUR'YE, G.B., retsenzent; NOVIKOV, V.F., retsenzent; GAL'TSOV, A.D., red.; VOL'SKIY, V.S., red.; KHISIN, R.I., red.; SEMENOVA, M.M., red. izd-va; MODEL', B.I., tekhn.red.

[Reference book for establishing norms in the manufacture of machinery; in 4 volumes] Spravochnik normirovshchikamashinostroitelia; v 4 tomakh. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry. Vol.2. [Establishing technical norms for operating machine tools] Tekhnicheskoe normirovanie stanochnykh rabot. Pod red. E.I.Struzhestrakha. 1961. 392 p.

(MIRA 14:8)

(Industrial management) (Machine tools)

KARTSEV, Sergey Sergeevich; SHAPIRO, Solomon Il'ich; TUCHKOVA, L.K.,  
inzh., ved. red.; VOLODIN, Ye.I., kand.tekhn.nauk, red.;  
SOROKINA, T.M., tekhn. red.

[Universal device for checking hobbing cutters. Height gauge  
for measuring the depth of thread of thread rings]Universal'nyi  
pribor dlia kontrolya cherviachnykh fre.. Vysotomer dlia izme-  
renia vysoty profilia rez'by u rez'bovykh kolets. [By]S.I.  
Shapiro. Moskva, Filial Vses.in-ta nauchn. i tekhn. informa-  
tsii, 1958. 16 p. (Peredovoi nauchno-tekhicheskii i proizvod-  
stvennyi opyt. Tema 21. No.M-58-156/6) (MIRA 16:3)  
(Metal-cutting tools—Testing) (Gauges)

KARTSEV, V.

Based on progressive practice. Fin.SSSR 23 no.6:61-63 Je '62.  
(MIRA 15:7)

1. Nachal'nik otdela kadrov Irkutskogo oblastnogo finansovogo  
otdela.  
(Irkutsu Province—Auditing and inspection)

KOTLOV, G., inzh.; KARTSEV, V., aspirant

At the bottom of the temperature well. Tekh. mol. 31 no.6:1-2 '63.  
(MIRA 16:7)

(Superconductivity)

KARTSEV, V., inzh.

Device for checking and straightening connecting rods. Avt.  
transp. 43 no.6:41-42 Je '65. (MIRA 18:6)

DAUROVA, A.T., inzh. (Moskva); KARTSEV, V.L., inzh. (Moskva)

A two-stage long-range protection system using transistors for 110  
to 220 kv. power transmission lines. Elektrichestvo no.2:73-78  
F '63. (MIRA 16:5)  
(Electric protection) (Electric power distribution)  
(Electric lines--Overhead)

AL'TSHULLER, V.A., inzh.; KARTSEV, V.L., inzh.; MURASHEV, N.V., inzh.; PETROV,  
S.Ya., inzh.

Three-stage distance-type protection system using transistor devices.  
Elek. sta. 35 no.8:63-68 Ag '64. (MIRA 1964:2)



L 9828-66 EWA(h)

ACC NR: AP6003970

SOURCE CODE: UR/0104/65/000/005/0093/0093

AUTHOR: Sarkisov, M. A.; Rokotyan, S. S.; Uspenskiy, B. S.; Sharov, A. N.;  
Zhulin, I. V.; Fedoseyev, A. M.; Korolev, M. A.; Kheyfits, M. E.; Yermolenko, V. M.;  
Petrov, S. Ya.; Azar'yev, D. I.; Krikunchik, A. B.; Polyakov, I. P.; Sazonov, V. I.;  
Khvoshchinskaya, Z. G.; Kartsev, V. L.; Smelyanskaya, B. Ya.; Kozhin, A. N.;  
Losev, S. B.; Dorodnova, T. N.; Rubinchik, V. A.; Smirnov, E. P.; Rudman, A. A.

ORG: none

50  
B

TITLE: Abram Borisovich Chernin

SOURCE: Elektricheskiye stantsii, no. 5, 1965, 93

TOPIC TAGS: electric engineering, electric engineering personnel

ABSTRACT: An engineer since 1929, A. B. Chernin has worked for years in developing new techniques and equipment for relay protection of electric power systems. In this 60th birthday tribute, he is credited with leading the group which produced the directives on relay protection, contributing to the development of a method for calculating transient processes in long distance 400-500 kv power transmission lines and with aiding in planning of the electric portions of power stations, substations and power systems. The results of his engineering and scientific work have been published 46 times, he is a doctor of technical sciences (since 1963), and has taught for 30 years at the Moscow Power Institute. Orig. art. has: 1 figure. [JPRS]

SUB CODE: 09 / SUBM DATE: none

HW  
Card 1/1

*ca* **KARTSEV V. I. N** 30

Compounding of benzine-resisting and oil-resisting rubber mixtures... V. Kartsev and A. Golubev. *J. Rubber Ind. (U. S. S. R.)* 10, 301-11(1963). -A study of the swelling of rubber in org. solvents and the effect of the compn. of the rubber on its resistance to swelling. Mixts. contg. different ingredients were immersed in benzine (for 24 hrs.) and in lubricating oils (for 48 hrs.); the extent of swelling was detd. and expressed as the percentage gain in wt. The ingredients tested included "GRT" black, "Maikop" black, kaolin, ZnO, CaO, MgCO<sub>3</sub>, MgO, chalk, lithopone, talc, infusorial earth, S, horn dust, mica, graphite, animal glue, etc. The results of these tests are given in 48 diagrams and show that to prep. benzine- and oil-resisting rubber mixts. the S should not exceed 10-15%; the addn. of "GRT" black, Se, "Neosone D" and "Agerite" gives excellent results; and lime, lithopone, infusorial earth and horn dust are of no benefit.

James Sorel

ASB-51A METALLURGICAL LITERATURE CLASSIFICATION

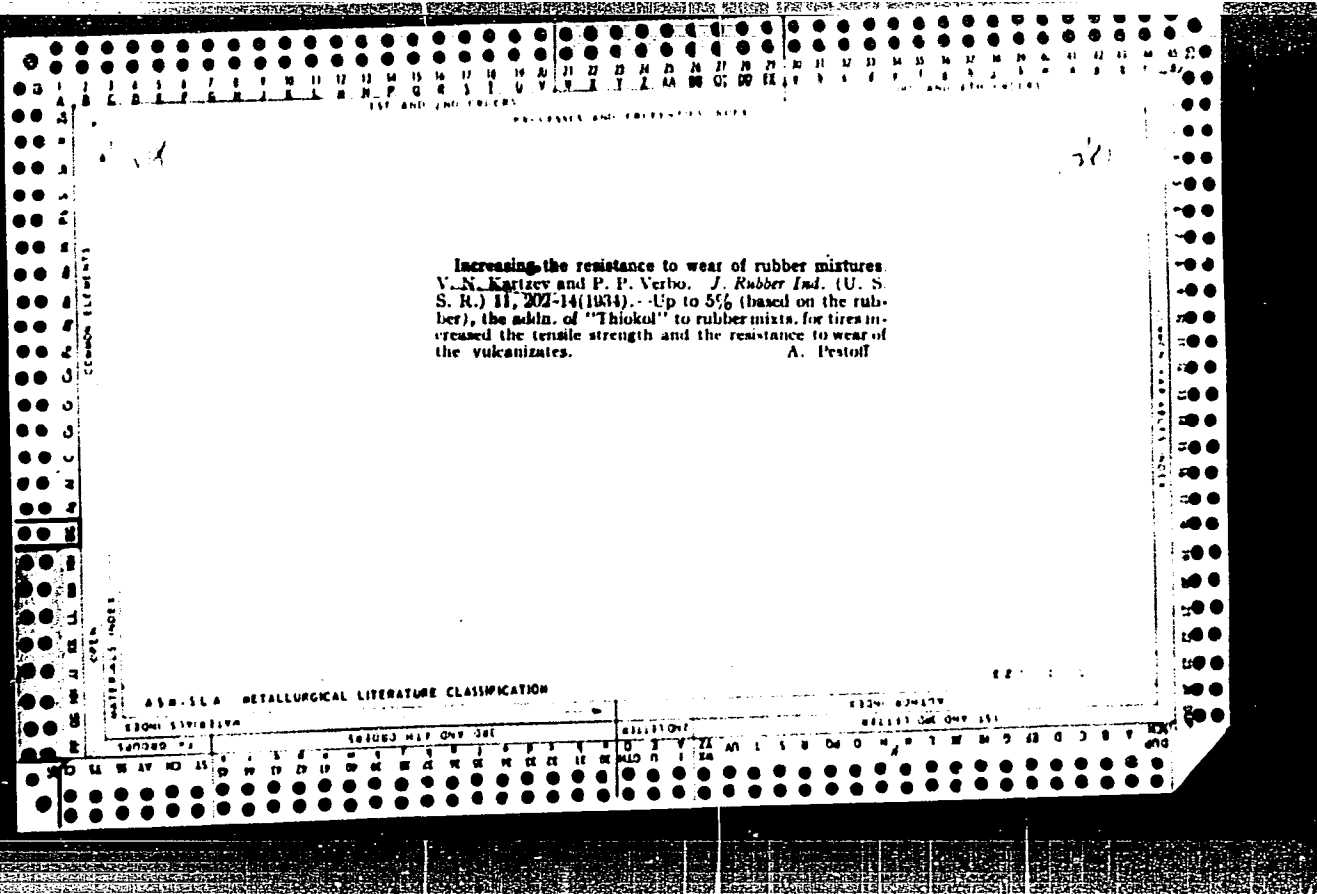
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REVISION

LIST AND LETTERS

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

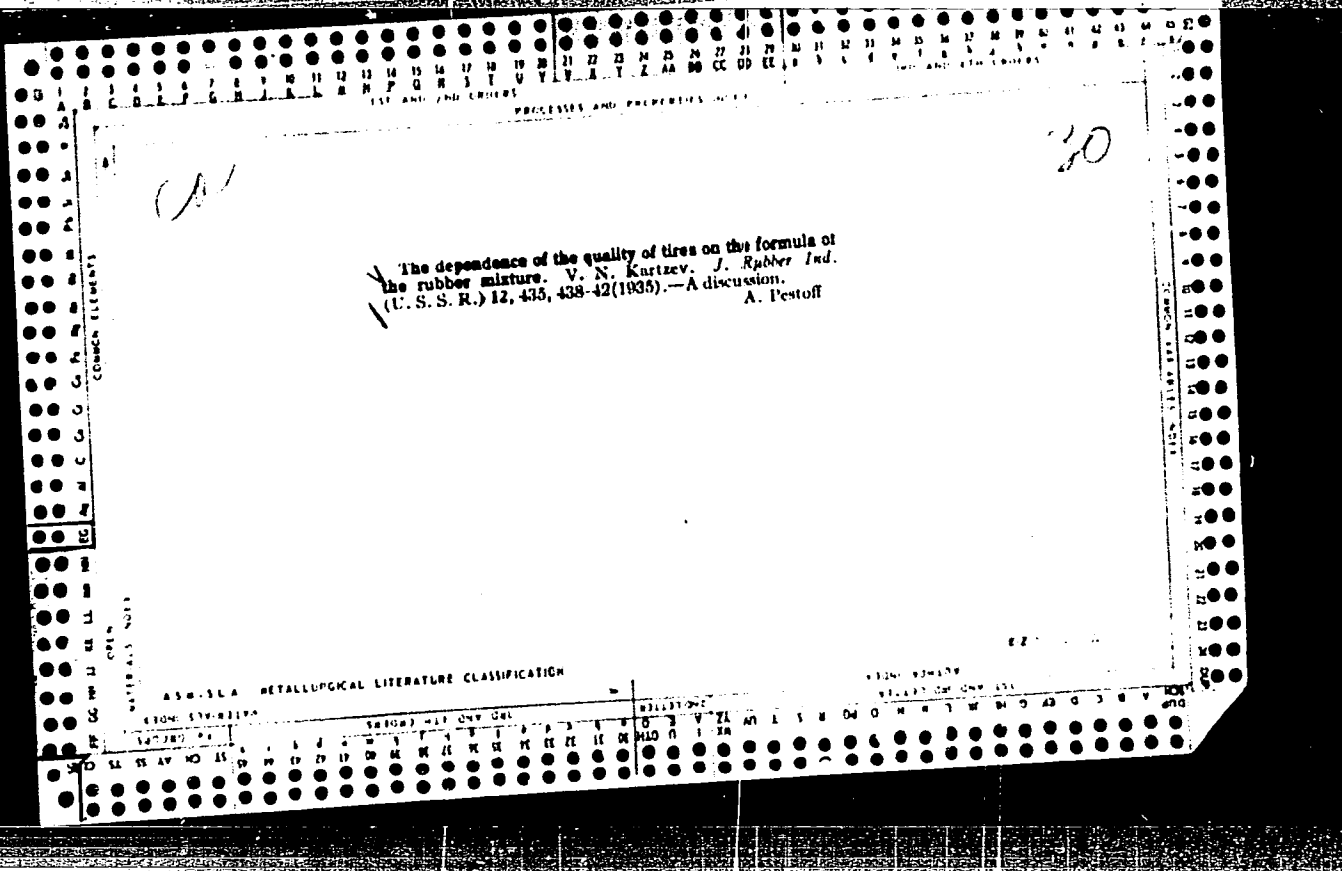


ch

30

The resistance of Thiokol and its mixtures to benzene and oil. V. N. Kattrey and P. P. Verbo. *J. Rubber Ind. (U. S. S. R.)* 11, 319 (1968). Thiokol (I) was prepd. by the reaction of  $C_2H_4Cl_2$  and  $Na_2S_2$ . Increase or decrease of S in the reacting autoclave gave products with different degrees of hardness. Tetrasulfide ( $C_2H_4S_4$ ) (II) is a soft product; trisulfide ( $C_2H_4S_3$ ) (III) is a harder one. II and III are very stable in most org. solvents. The increase in wt. of II after being kept for 72 hrs. at room temp. was: in  $C_6H_6$ , 0.40; benzine, 0; xylene, 0; toluene, 0.35; ligroin, 0; kerosene, 0; machine oil, 0.08; turpentine, 0;  $CCl_4$ , 2.14;  $CHCl_3$ , 15.38;  $CS_2$ , dissolved; ether, 0; EtOH, 0; acetone, 0. Before using,

I must be washed free of  $NaCl$ ,  $Na_2SO_4$ , S,  $H_2S$ , dichloroethane,  $Na_2S_2$ , sand, etc. Water is removed on the mill. I washed I contained 2.50% ash; when washed 3 times, 0.40; and when washed 15 times, 0.34. Addn. of natural rubber to I decreases the oil resistance of vulcanizates. The time (15-30 min.) and temp. (30-60°) of plasticization on a mill does not affect the plasticity of I. Diphenylguanidine (0.25%) and tetramethylthiuram disulfide (0.1%) used together are the best softeners for I mixts., and they decrease the residual elongation of I vulcanizates. Mercaptobenzothiazole does not soften I mixts. The best accelerator is  $ZnO$ . Addn. of gas black and lampblack increases the tensile strength of I vulcanizates. To vulcanize I mixts., no addn. of S is necessary. All work with I mixts. must be done at a low temp. (not higher than 50°), otherwise the volatile gases irritate the eyes. I mixts. have poor adhesiveness; therefore it is recommended to add 20% of natural rubber. A. Pestof



1ST AND 2ND LETTERS  
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z AA AB AC AD AE

1ST AND 2ND LETTERS  
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 PRIORITIES INDEX

36

The replacement of precipitated sulfur in rubber mixtures with separated sulfur. V. Kartsev and P. Verbo. *J. Rubber Ind.* (U. S. S. R.) 12, 626-8; TIME 8(1935). - Ground Seprd. by a Telko separator contained 2% water, had 0.5% ash and a trace of acid. It m. 180-190°, was completely sol. in CS<sub>2</sub> and completely passed through a 325-mesh screen. Tests made to replace pptd. S with this seprd. S in an ebonite mixt. gave satisfactory results. A. Pestoff

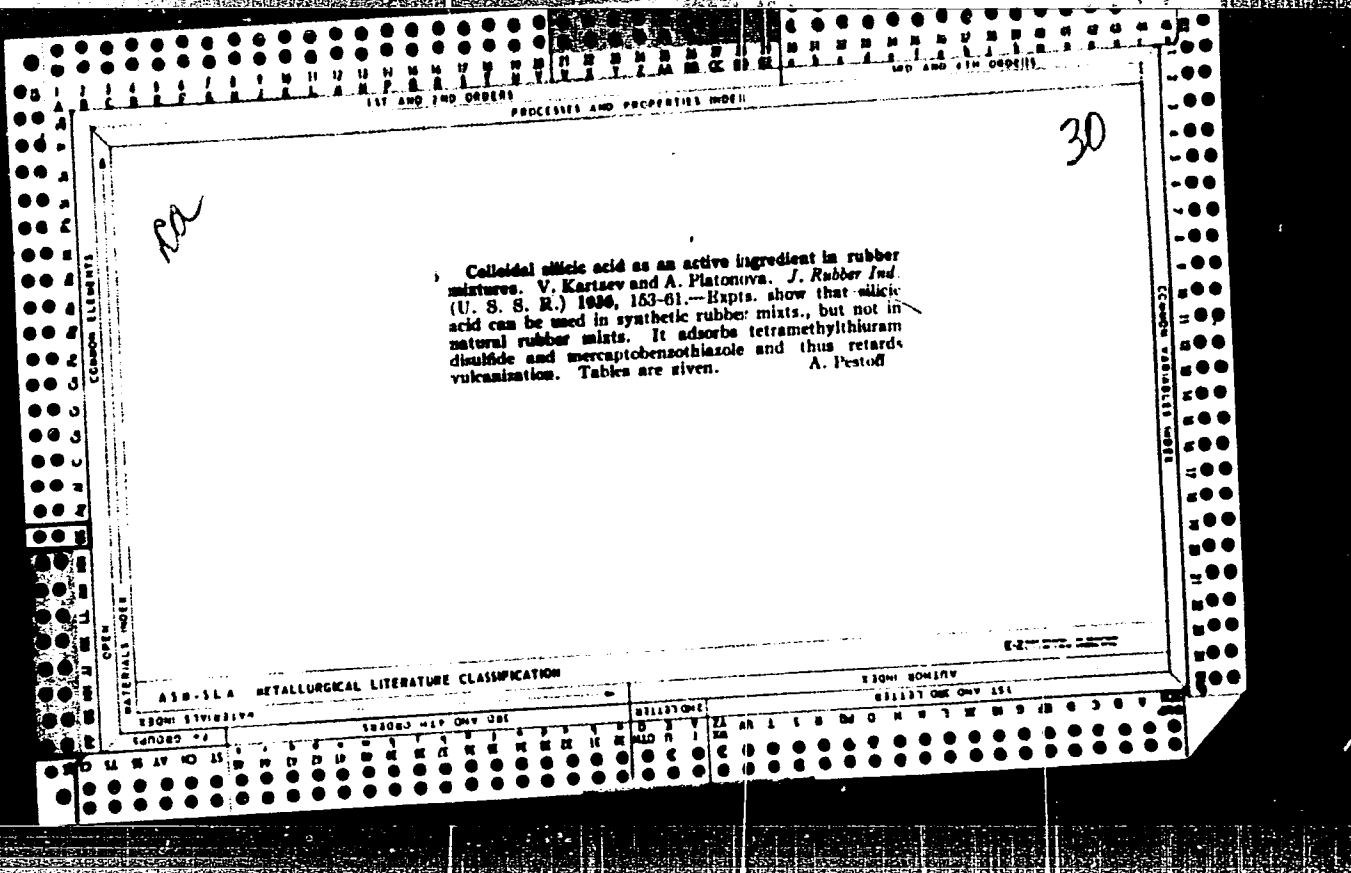
COMMON ELEMENTS  
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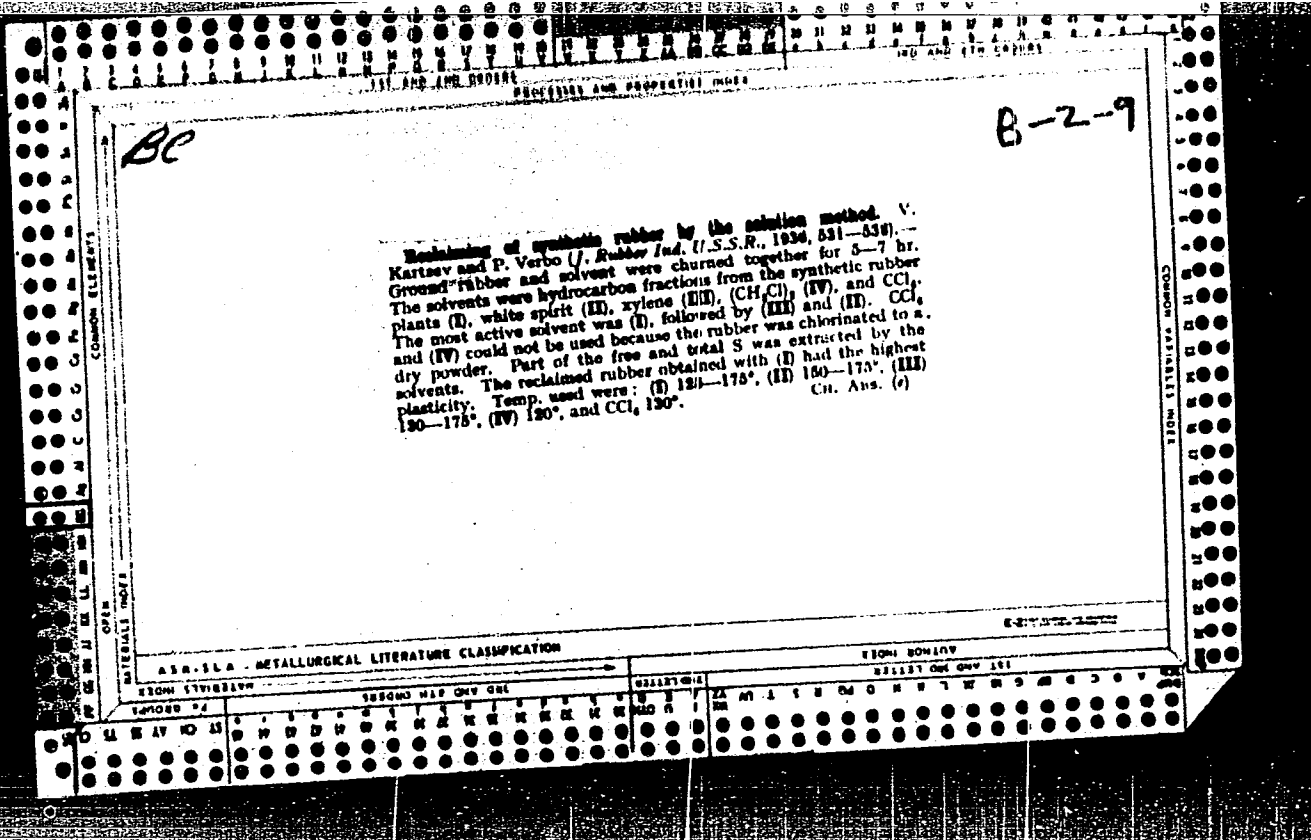
COMMON ELEMENTS  
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND LETTERS  
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

1ST AND 2ND LETTERS  
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







KARTSEY, V. N.

~~Diisobutylene and styrene-butadiene oil rubber. P.~~

~~Zakharov, A. B.; Zaitseva, A. I.; Kartsey, V. N.; Kart-~~

~~sev, O. B.; Litvin, M. S.; Galichin, and S. A.~~

~~U.S. Pat. 1,051,363, Apr. 25, 1963.~~

from a mixt. of an aq. emulsion of oil and stearic acid combined before agulation. As plasticizer and filler used a solution of "Avtol-18" in an aq. emulsion made with trimethylamine sulfate. The stearic acid is suspended in the oil and cooked to 20-25°. Before combining the latex with the oil, the latex is cooled to 25-35° to prevent stratification.

M. Hozob

11  
4E20-1  
may 2

PM  
MTA

KARTSEV, V.N.; SMIRNOV, M.A.

Means of raising the physical and mechanical indices of  
vulcanizates from SKT polysiloxane rubber. Kauch. i rez. 17 no.3:3-5  
Mr '58. (MIRA 11:6)

1.Vsesoyuznyy nauchno-issledovatel'skiy institut sinteticheskogo  
kauchuka imeni akademika S.V. Lebedeva.  
(Rubber, Synthetic)

SOV/138-59-4-2/26

AUTHORS: Kartsev, V.N. and Fomicheva, V.N.

TITLE: Properties of Siloxane Rubber Vulcanisates Containing Vinyl Groups (SKTV). (Svoystva sulkanizatorov siloksanovykh kauchukov, sodержashchikh vinyl'nyye gruppy (SKTV) )

PERIODICAL: Kauchuk i Rezina, 1959, Nr 4, pp 3-7 (USSR)

ABSTRACT: Dimethyl siloxane rubber and its vulcanisates are widely used in industry since they possess high thermal stability. In the Soviet Union siloxane rubbers containing vinyl groups were first manufactured in 1956. The present paper describes experiments on the vulcanisation capacity of rubbers containing 1 and 3 mol. % vinyl-ethyl siloxane chains in the dimethyl siloxane polymer chain (SKTV-1 and SKTV-3). Their properties are given in Table 1. This type of rubber can be vulcanised with sulphur in the presence of diphenyl guanidine (DFG), pentaldehyde diamine, cyclohexylethylamine salts of cyclohexyldithiocarbamic acid (Vulkatsit 774), dimethyl diphenyl thiuram disulphide (Vulkatsit 1), triethylene tetramine (TETA), and some aldehyde diamines and also with tetramethyl thiuram disulphide (Tiuram). Vulcanisation proceeded at 160°C in the presence of all the above-mentioned accelerators,

Card 1/3

SOV/138-59-4-2/æ

Properties of Siloxane Rubber Vulcanisates Containing Vinyl Groups (SKTV)

except TETA. Using TETA as an accelerator vulcanisation could be carried out in thirty minutes at 140°C (Table 2). Mixtures of SKTV-3 could be vulcanised at a faster rate than SKTV-1 mixtures. Changes in the physico-mechanical properties of vulcanisates, depending on the period of vulcanisation when using thiuram and sulphur, are shown in Figure 1. Tests on the thermal stability of SKTV-3 and SKTV-1 at 175°, 200°, and 250°C showed that the thermal stability of SKTV-1, SKTV-3 and SKT rubbers was unsatisfactory (Figures 2 and 3). The SKTV-1 rubbers maintained their elasticity at 175°C for 50 days, at 200°C for 30 to 40 days and at 250°C for 4 days. Thick-walled 28 x 32 mm cylinders made from standard mixtures SKT and SKTV-1, and containing powdered silica gel, were also tested. In this case benzoyl peroxide was used as a vulcanisation accelerator. Vulcanisation was carried out for 15 minutes at 150°C. The vulcanised cylinders were subjected to further heat treatment (in a thermostat) for 6 hours at 200°C. The SKT vulcanisates had macro-pores, the SKTV-1 vulcanisate had a micro-porous structure (Figure 4). The vinyl groups in the siloxane polymer facilitate the vulcanisation of thick-walled rubber articles. It was also found that with an

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Properties of Siloxane Rubber Vulcanisates Containing Vinyl Groups (SKTV)

increasing number of vinyl groups in the chain the frost resistance of the polymer increases (Table 3). The swelling resistance of siloxane rubber vulcanisates, due to various vulcanisation agents, is given in Table 4. The amount of residual deformation can be decreased by modifying the vulcanisation group and by increasing the time of processing in the thermostat (Table 5). Vinyl-containing siloxane SKTV rubbers are good insulating agents. The dielectric characteristics of vulcanisates SKTV-1 up to the time of swelling, and after swelling for 14 days in water, are given in Table 6. It is also possible to prepare vulcanisates from SKTV-1 by using channel black in the presence of sulphur and TETA. The strength of such vulcanisates, after vulcanisation for 60 minutes at 150°C, equalled 53kg/cm<sup>2</sup>, and the relative elongation equalled 827%. Their thermal stability was unsatisfactory. The elastic properties of vulcanisates were considerably poorer when the period of ageing at 175°C and 150°C was reduced by 50%. There are 4 figures, 6 tables and 11 references, 9 of which are English and 2 Soviet.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut sinteticheskogo kauchuka im. S.V. Lebedeva (The S.V. Lebedev All-Union Card 3/3 Scientific-research Institute for Synthetic Rubber)

S/138/60/000/007/001/010  
A051/A029

AUTHORS: Klebanskiy, A.L., Kartsev, V.N., Fomina, L.P., Trenke, Y.V.

TITLE: The Effect of Admixtures Present in Chloroprene<sup>15</sup> on the Stability of Nairite

PERIODICAL: Kauchuk i Rezina, 1960, No. 7, pp. 1-3

TEXT: In the present article the authors have submitted data collected from a study of the effect of monovinylacetylene, divinylacetylene and air oxygen admixtures on the properties of nairite. In addition to this, the effects of iron salts on the polymerization process conducted in an emulsion and on the aging process were determined for salt concentrations of 0.02 - 0.2%. Although the effect of admixtures such as those investigated in the initial chloroprene monomer were previously studied and found to have the most harmful effect on the properties of rubber, for polymers of chloroprene, however, obtained by the polymerization process in an emulsion, this aspect was not sufficiently clarified. The presence of 0.1 - 0.2% monovinylacetylene admixtures in chloroprene was investigated and found not to have any effect on the nairite properties in this concen- ✓

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A051/A029

The Effect of Admixtures Present in Chloroprene on the Stability of Nairite

tration. Larger amounts were not considered since they actually do not occur in the monomer (Fig. 1). As much as 0.05 - 0.2% of divinylacetylene in chloroprene decreases the plasticity of nairite and also decreases its stability during thermal aging (Fig. 2 and 3). The latter effect is explained; 1) by the participation of the admixtures in the process of copolymerization with the formation of ramified structures due to the multi-functional nature of these compounds; 2) by the activation of the oxidizing process, since it is known that the divinylacetylene admixtures activate the oxidizing processes of chloroprene with the oxygen from air. These data point to the necessity of purifying the monovinylacetylene admixtures. The stability of nairite is also lower when it is polymerized in an air medium, and it has a greater tendency to scorching, than when polymerized in a nitrogen medium (Fig. 4). Nairite is oxidized and forms active peroxides. The amount of saponifiable chlorine increases in proportion to the amount of oxygen absorbed. The increased quantity of the saponifiable chlorine causes the polymers to undergo structuralization when being stored or processed and also causes the premature vulcanization as a result of the interaction between the metal oxides

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The Effect of Admixtures Present in Chloroprene on the Stability of Nairite

during the processing. Finally, Figure 5 shows that the presence of a 0.02 - 0.2% concentration of iron salts in chloroprene does not affect the plasticity of nairite. There are 5 graphs.

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S/138/60/000/008/003/015  
A051/A029

AUTHORS: Klebanskiy, A.L.; Fomina, L.P.; Kartsev, V.N.; Trenke, Yu.V.

TITLE: The Effect of Various Types of Stabilizers on the Change in Nairite Properties During Aging

PERIODICAL: Kauchuk i Rezina, 1960, No. 8, pp. 9 - 13

TEXT: The authors studied the selection of more effective stabilizers of Nairite (chloroprene rubber) than those commonly used, such as thiuram E (2.5%) combined with neozone (an antioxidant, phenyl-beta-naphthylamine, 2%). Since the oxidizing effect of air on the stability of Nairite is considered one of the main factors during its storage and vulcanization for avoiding scorching especially at elevated temperatures, the proper selection of stabilizers acquires great significance. The effect of the above-mentioned commonly-used stabilizers was described in Refs. 2 and 3. These stabilizers, during longer storage periods at room temperature, as well as during the long-lasting processing of the mixtures at high temperatures (over 120°C), do not ensure a sufficient stabilizing effect of the Nairite: the plasticity of the standard rubber mixtures drops when these are heated for 1 hour. This drop in plasticity is assumed to be connected with the scorching effect of Nairite. In choosing the proper stabilizers, the structural charac-  
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The Effect of Various Types of Stabilizers on the Change in Nairite Properties During Aging

teristic of Nairite are considered, and thus the structuralizing features of the latter. It is deducted therefrom that in order to stabilize Nairite, a complex of substances must be used which is capable of preventing the oxidizing processes of the chloroprene, and bind the easily detachable hydrogen chloride. Two groups of compounds were investigated as anti-oxidants: phenyl- $\beta$ -naphthylamine derivatives (neozone D) and polyphenols. During the oxidation of the rubber molecule an inactive polymer molecule is formed as well as a neozone D radical, which is no longer capable of continuing the growth of the chain due to the stability. It is assumed that the anti-oxidizing effect of neozone could be increased by introducing polar substitutes (Cl, OH, etc) or substitutes containing conjugated systems of double bonds (Ref. 3). However, it was found in investigating other compounds, such as diphenylthiazine ( $C_6H_4NHSC_6H_4$ ), phenylnaphthylthiazine ( $C_6H_4NHSC_{10}H_6$ ), diphenylphenylenediamine ( $C_6H_5NHC_6H_4NHC_6H_5$ ), dinaphthylphenylenediamine ( $C_{10}H_7NHC_6H_4NHC_{10}H_7$ ), oxyneozone ( $C_{10}H_7NHC_6H_4OH$ ), that in the formation of radicals from these compounds less energy is spent, than from neozone D, and it is further assumed that these radicals formed would be more stable, and less given to a shift in

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The Effect of Various Types of Stabilizers on the Change in Nairite Properties During Aging

the chains. Based on these assumptions, it is stated that the listed compounds would be better and more effective inhibitors of the oxidizing processes, than neozone D. The application of neozone D derivatives, with polar substitutes (oxy-  
-group, sulfide bonds) as stabilizers, or increasing the degree of linkage (di-phenyl- and dinaphthylphenylenediamines), does not increase the stability of Nairite. It does, however, increase its tendency to scorching during thermal aging (120 hours at 70°C). From these observations it is concluded that the scorching mechanism of the chloroprene polymers is not dependent on the oxidizing processes, but is due rather to the radical decay of the molecules along the polysulfide bonds forming polymer radicals, which in the presence of thiuram and other compounds, recombine with their radicals. Further deliberation follows on the disadvantages of neozone as an oxidizing inhibitor. As to the polyphenols in the role of stabilizers, it was found that in testing compounds containing phenol and oxide groups (lignin, dimethylphenyl-n-cresol, paradi-tertiarybutyldioxyphenylene-sulfide), these also had a negative effect on the stability of Nairite, increasing the scorching tendencies (Fig. 3). The accelerating effect of the phenols in this connection is thought to be associated with the fact that in the presence of a

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The Effect of Various Types of Stabilizers on the Change in Nairite Properties During Aging

base they react with the mobile tertiary chlorine atom in the polymer and cause a suturing together of the polymer molecule. Compounds containing one phenol group were also investigated, such as  $\alpha$ - and  $\beta$ -naphthol and ditertiarybutylphenol. Their stabilizing effect was determined from the change in solubility in thermal mastication. It was found that these monophenols, as well as the polyphenols, had a negative effect on the stability of Nairite. The dithiocarbamates of various metals, such as dibutyl- and diethyldithiocarbamate of nickel, magnesium, bismuth and lead, were also checked for stabilizing effects. It was established that with the introduction of 1 - 2% of nickel dibutyldithiocarbamate, in addition to neozone D and replacing it, the stability to thermal aging of the rubber and the vulcanizates was increased and the scorching of the rubber mixtures was prevented. However, the latter do not increase the stability of Nairite. Nickel dibutyldithiocarbamate was found to increase the stability of Nairite to ozone, using a 1 - 2% quantity of the stabilizer, by comparison to mass-produced Nairite. From the latter it is concluded that nickel diethyldithiocarbamates do not have a similar stabilizing effect on the Nairite. There are 5 figures, 1 table, 3 references:

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A051/A029

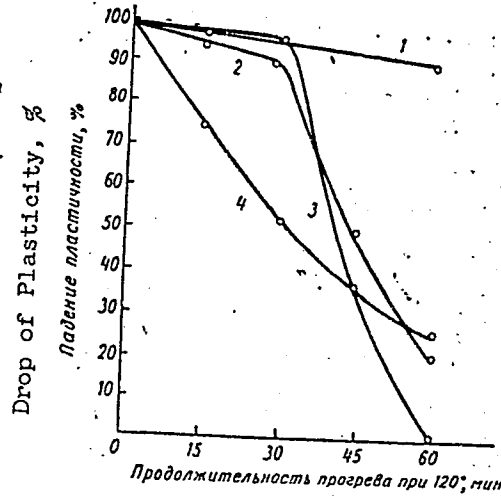
The Effect of Various Types of Stabilizers on the Change in Nairite Properties During Aging

2 Soviet, 1 English.

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Figure 3: The Effect of Polyphenols on the Stability of Nairite:

1 - Control; 2 - 2% dimethylphenyl-n-cresol; 3 - 2% para-tert-butyl-dioxyphenylene-sulfide; 4 - 2% lignin.



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Duration of Heating at 120°C, min

15.9205 2109,2209

S/138/60/000/009/002/012  
A051/A029

AUTHORS: Poddubnyy, I.Ya.; Kartsev, V.N.; Aver'yanov, S.B.; Trenke, Yu.V.;  
Aver'yanova, L.A.; Yevdokimov, V.F.

TITLE: The Vulcanization of Polydimethylsiloxane Rubber Using  $\gamma$ -Radiation

PERIODICAL: Kauchuk i Rezina, 1960, No. 9, pp. 5 - 15

TEXT: Vulcanizates produced by the ionizing radiation method were found to have improved properties, since the formation of transverse bonds at relatively low temperatures can be accomplished without the use of chemical vulcanizing agents (Ref. 1 - 6). The vulcanization process of polydimethylsiloxanes is accomplished according to the free-radical mechanism (Refs. 1,4,7,8,2,5,6,10, 11 - 14). The results are cited of experimental work conducted in order to increase the temperature-stability of polymethylsiloxane (KT (SKT))-based vulcanizates and to improve their physico-mechanical properties by using the radiation method of vulcanization combined with a change in the preparation of the rubber mixture and by introducing new components into the rubber composition.  $Co^{60}$  with an activity of 1,450g -equ. of radium was used as the source of the gamma-emission. The dose was 0.28 - 0.72 Mr/h. It is pointed out that the characteristic feature of radiation vulcaniza-

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A051/A029

The Vulcanization of Polydimethylsiloxane Rubber Using  $\gamma$ -Radiation

tion appears to be the absorption energy by the filler, the possibility of further redistribution of the energy by the polymer and the filler and the formation of a chemical bond between them. Rubbers with satisfactory tensile and elastic properties could be obtained by the radiation vulcanization of SKT in combination with the introduction of various additives into the rubber mix containing  $\gamma$ -333 (U-333) powdered silica gel after a lengthy period of thermal aging at 300°C. These rubbers were found to exceed vulcanizates and those obtained earlier by the radiation method in their thermal resistance. By further refining the rubber mixture increases in the thermal resistance could be achieved. Radiation vulcanizates of polymethylsiloxane rubber filled with furnace carbon black could be produced with relatively high physico-mechanical properties and an elevated thermal resistance. The vulcanizates were current-conducting. Radiation vulcanizates of polymethylsiloxane rubber filled with powdered silica gel and furnace carbon blacks are much superior to the peroxide vulcanizates in their temperature stability. At a temperature of 200°C radiation vulcanizates of SKT rubber were obtained with considerably high physico-mechanical properties. The tensile properties of radiation vulcanizates filled with U-333 powdered silica gel could be considerably increased by introducing iron oxides or zirconium oxides into the rubber mix.

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A051/A129

15.9202

**AUTHORS:** Klebanskiy, A. L., Tsukerman, N. Ya., Kartsev, V. N., Labutin, A. L.,  
Trenke, Yu. V., Mal'shina, L. P., Borovikova, N. A., Karelina, G. G.,  
Rozhkov, Yu. P.

**TITLE:** A new type of chloroprene rubber: liquid nairite  
(This work was awarded the second prize at the VKhO im. D. I. Mendele-  
yev competitions in 1959)

**PERIODICAL:** Kauchuk i rezina, no. 5, 1961, 1 - 5

**TEXT:** The high chemical stability, the gasoline-petroleum stability and  
ozone-resistance of chloroprene rubber makes it a suitable material for anti-corro-  
sion coating and hermetic sealing. However, the difficulty of producing highly-  
concentrated solutions based on commercial nairite limited the application of the  
latter in anti-corrosion technique. It has been assumed that the use of low-mole-  
cular polymers for this purpose would enable one to obtain low-viscose, highly-con-  
centrated solutions satisfying the anti-corrosion techniques. One of the methods  
for producing low-molecular polymers is the use of the polymerization of increased  
concentrations of regulator-compounds able to break the chains and to form new ac-

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A new type of chloroprene rubber; liquid nairite

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A051/A129

tive centers. Sulfurous compounds, such as mercaptane, thioacids, xanthogenesulfides, are widely used as regulators. When studying the action of n-tetradecylmercaptane, diisopropylxanthogenedisulfide and bisethylxanthogenedisulfide during the process of polymerization of chloroprene, it was established that with an increase in the concentration of the regulator the molecular weight of the polymer drops correspondingly and the plasticity of the rubber increases. It was assumed that the use of greater quantities of bisethylxanthogenedisulfide in the polymerization of chloroprene in emulsion decreases the molecular weight of the polymer and yields low-viscosity solutions of rubber. An attempt was made to produce low-molecular polychloroprene by polymerization of chloroprene in the presence of sulfur with subsequent destruction of the polymer. It was shown that the action of sulfur differs from that of other regulators. The effect of sulfur on the polymers of chloroprene is shown by the scheme:  $-(\text{CH}_2-\text{CCl}=\text{CH}-\text{CH}_2)_n-\text{S}_x-(\text{CH}_2-\text{CCl}=\text{CH}-\text{CH}_2)_m-\text{S}_x$ , where  $x=2-6$ . The sulfur forms linear bonds in the polymer chain. With an increase in the bound sulfur content in the polymer the molecular weight of the polymer decreases in the subsequent interaction with thiuram from 600,000 to 280,000 with 0.3% of bound sulfur and from 300,000 to 43,000 with 1% of bound sulfur. The quantity of reacted thiuram increases respectively. The destruction scheme is given as follows:

- 1) The formation of free radicals under the effect of the thermal action or thiuram:

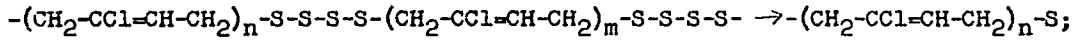
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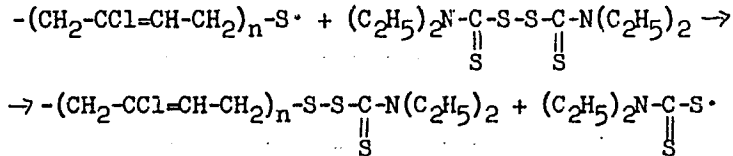
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A new type of chloroprene rubber: liquid nairite

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2) Recombination of the polymer radical with molecular thiuram and splitting off of the latter along the -S-S-bond:



Based on the outlined assumptions of the mechanism of the sulfur action during the process of chloroprene polymerization and destruction of the polymer under the effect of the chemical masticating substances, the conditions for producing low-molecular chloroprene rubber-"liquid" nairite were developed. The liquid types of nairite can be obtained on a typical apparatus. The sulfur can be introduced in the form of solutions in mineral oils as well as aqueous dispersions obtained in the presence of emulsifiers and protective colloids. It was shown by V. N. Kartsev, M. A. Gutman, G. G. Karelina, F. Ye. Berman, Ye. G. Malinovskaya, M. B. Shur at VNIISK, no. 2389, 1951, that for mastication the most effective system is mercapto-

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A new type of chloroprene rubber: <sup>26988</sup> liquid nairite

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benzothiazol (captax)-diphenylguanidine (DPHG). To increase the activity of these agents, tetramethylthiuramdisulfide was added (thiuram D) or tetraethylthiuramdisulfide (thiuram E). Literature data indicate that active masticating agents of polychloroprene are the piperidine salt of hexamethylenedithiocarbamine acid or ammonium hexamethylenedithiocarbamate. The order of introduction of the agents plays an important role. The effect of the type and composition of the carbon black on the solubility of the rubber mixtures from "liquid" nairite was investigated. Only the thermal carbon black helps to retain complete solubility. Higher indices of relative elongation when filling with 100 w.p. and over are achieved with thermal carbon black. The composition and technology for preparing the rubber mixtures based on the "liquid" nairite with thermal carbon black as filler yielded highly-concentrated solutions (70 - 75%). These solutions are suitable for sealing various equipment by the same methods which are used in the case of dye and varnish coatings. Tests of coatings made of liquid nairite in experimental and natural samples in various industrial fields showed the expediency of using this product as a material for protecting the metal from corrosion, erosion, cavitation and also as a material for hermetic sealing. There are 4 tables and 21 references: 2 Soviet-bloc, 19 non-Soviet-bloc. The references to the 4 most recent

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A051/A129

A new type of chloroprene rubber: liquid nairite

English-language publications read as follows: Corros. Technol., 5, no. 4, 107 (1958); R. B. Seymour a. oth., Plastics for Corrosion Resistant Application, N.Y., 1955, 90; Rubb. a. Plast. Age, 39, no. 8, 684 (1958); Corros. Technol., 3, no. 3, 89 (1956).

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut sinteticheskogo kauchuka im. S. V. Lebedeva (All-Union Scientific Research Institute of Synthetic Rubber im. S. V. Lebedev)

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27544  
S/138/61/000/006/002/006  
A051/A129

**AUTHORS:** Labutin, A. L., Klebanskiy, A. L., Tsukerman, N. Ya., Kartsev, V. N.,  
Trenke, Yu. V., Mal'shina, L. P., Borovikova, N. A., Karelina, G. G.,  
Rozhkov, Yu. P.

**TITLE:** "Liquid nairite" - a new material for rubberizing

**PERIODICAL:** Kauchuk i rezina, no. 6, 1961, 5 - 8

**TEXT:** The authors state that in the chemical destruction of "liquid" nairite, highly concentrated solutions can be produced which are applicable as a material for rubberizing. In the USSR a safer binary solvent, consisting of 2 weight parts of ethylacetate and 1 w.p. of gasoline is used in nairite adhesives. Experiments showed, however, that this solvent in "liquid" nairite is not suitable for many technical reasons. Better results were obtained in using a ternary solvent consisting of 76% solvent, 19% turpentine and 5% n-butanol. The latter component does not dissolve the nairite, but facilitates the use of the brush for painting and good coating distribution. It was noted that film vulcanization from liquid nairite at 20°C does not show positive results. Thus various forms of thermal vulcanization were investigated: vulcanization with heated air, live vapor, hot water

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A051/A129

"Liquid nairite" - a new material for rubberizing

and infra-red irradiation. It was established that the most suitable method was vulcanization by hot air. The physico-mechanical indices of nairite coatings vulcanized in air at various temperatures are given in Fig. 1. Fig. 2 shows the relationship between the temperature and duration of the vulcanization. The most suitable temperatures of vulcanization in air are within the range of 100 - 142°C. It was noted that the liquid nairite coatings did not possess the proper adhesion to metal. Thus certain other adhesives or coatings ensuring better adhesion between metal and coating were sought. The best results were obtained with the following three materials: standard leuconate (organic base: n, n', n" - triisocyanate-triphenylmethane), chloronairite adhesive (organic base: chloronairite and nairite) and a primer, tentatively called epoxide primer (organic base: epoxide resin, chloronairite and nairite). The chemical stability and anti-corrosion properties of the vulcanized nairite coatings were studied. The conclusion was drawn that 1.2-mm nairite coatings in combination with a water-resistant coating applied three times can reliably protect metals from corrosion due to aqueous solutions of many acids, alkali and salts. The coatings were not resistant to the action of oxidizing agents, aromatic and halided solvents. Rubber coatings differ from varnish and plastic coatings by an increased resistance to abrasive wear. An attempt was made

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"Liquid nairite" - a new material for rubberizing

to determine the resistance of nairite coatings under conditions of dry friction using the Grosselli-type machine. It is concluded that coatings of so-called crystallizing liquid nairite obtained in low-temperature polymerization are superior to other rubbers in their wear-resistance, excepting vulcollane, which has a unique resistance to abrasive wear. It was established that coatings of liquid oil nairite are superior to coatings of bakelite, polyethylene and caprone, when tested in rapidly flowing sea water. Tests have further shown that liquid nairite as a material for coatings will become widely used in industry in the next few years. At present tests are being conducted in the North Sea and the Atlantic Ocean on propellers of fishing trawlers coated with liquid nairite for protection from corrosion, erosion and cavitation. Mechanical plants are testing steel covers of refrigerators and condensators coated with nairite. These were previously manufactured from non-ferrous metals. Certain chemical plants have installed diaphragm valves, the interior of which is covered with liquid nairite to prevent corrosion from acid solutions, alkali and salts. The possibility of using nairite coatings in various instruments as a means for preventing spark formation in percussion has also been revealed. Finally, it was established that these coatings can be used in certain constructions for hermetic sealing. At the Moscow TETs NO 12 a vacuum-condensator of a mass-produced 50 thousand kw steam turbine withstood a

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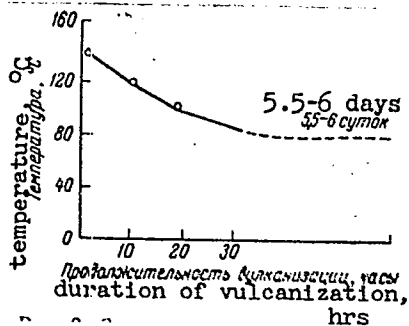
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A051/A129

"Liquid nairite" - a new material for rubberizing

testing period of one and a half years with the brass pipes and steel pipe boards coated with liquid nairite. K. S. Shmurey, O. P. Abolina, A. I. Konstantinova and G. A. Selivanovskaya took part in the work. There are 2 tables and 2 sets of graphs.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut sinteticheskogo kau-  
chuka im. S. V. Lebedeva (All-Union Scientific Research Institute of  
Synthetic Rubber im. S. V. Lebedev)

Fig. 2. Dependence of the vulcanization duration of the coatings made of liquid nairite on the temperature



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A051/A126

15.9205  
AUTHORS: Kartsev, V.N.; Karelina, G.G.; Rozova, N.I.  
TITLE: Properties of siloxane rubber vulcanizates with a low content of vinyl groups

PERIODICAL: Kauchuk i rezina, <sup>20</sup>no. 12, 1961, 7 - 11  
TEXT: Experimental results are submitted from an investigation of test samples of vinylsiloxane polymers with a low content of vinyl groups [CKTB (SKTV)], as compared to dimethylsiloxane rubber [CKT (SKT)]. The SKTV samples were produced on an experimental ВНИИСК (VNIISK) equipment, using "acetic" (samples no. 1, 2, 226) and "alkaline" (sample no. 19) catalysts. The SKTV and SKT based mixes were produced on laboratory rollers, according to the following composition in weight parts to 100 weight parts of raw rubber:

silica gel Y -333 (U-333) .....	SKTV	SKT
zinc oxide .....	50	5
benzoyl peroxide paste (95% benzoyl peroxide and siloxane oil, in the ratio of 1 : 1) .....	5	4.2
	1.26	

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A051/A126

Properties of siloxane rubber vulcanizates with ...

It was found that vulcanizates based on a SKTV rubber mix containing silica gel U-333 and a lowered quantity of benzoyl peroxide (0.6 w.p.) are characterized by a reduced residual deformation and a higher thermal stability than vulcanizates of the standard SKT rubber mixes. The thermal stability of the SKTV-based mixes may be increased by replacing the zinc oxide with iron oxide or titanium dioxide. The SKTV and SKT vulcanizates do not differ in their tendency to destruction when heated in a closed system, at 200°C. They also have similar dielectric properties. The vulcanizates of the SKTV siloxane rubber, produced in the presence of the "acetic" and "alkaline" catalysts, were found to be the same in their main physico-mechanical characteristics. The SKTV vulcanizates, produced with dicumyl peroxide or ditertiary butyl peroxide, as compared to vulcanizates containing benzoyl peroxide, were found to have a lower residual deformation and a much lesser tendency to destruction when heated without air. It was further found that mixes containing channel black, do not vulcanize, even in the presence of increased amounts of dicumyl peroxide or ditertiary butyl. In the case of furnace carbon black, vulcanizates were obtained with satisfactory properties. The SKTV vulcanizates containing the furnace carbon black and the ditertiary butyl peroxide are equivalent to vulcanizates based on the same rubber, containing the U-333 silica gel, but the former do have in-

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KASHARSKIY, E.G.; KARTSEV, V.P.

Equivalent circuit of a coil with a solid steel core. Sbor.  
rab. po vop. elektromekh. no.10:217-226 '61. (MIRA 17:8)

KASHARSKIY, E.G., kand. tekhn. nauk; KARTSEV, V.P., inzh.

Axial magnetization of turbogenerator rotors. Vest. elektroprom  
34 no.6:8-12 Je '63. (MIRA 16:7)

(Turbogenerators)

KASHARSKIY, E.G., kand.tekhn.nauk; KARTSEV, V.P., inzh.

Concerning the magnetization of steam turbines. Izv.vys.  
ucheb.zav.; energ. 7 no. 4:35-42 Ap '64. (MIRA 17:5)

KAZOVSKIY, Ye.Ya., doktor tekhn. nauk; KARTSEV, V.P., inzh.

Prospects of the use of superconductors in electrical  
engineering. Elektrotehnika 35 no.1:22-26 Ja '64.

(MIRA 17:2)

L 00730-66 EWT(1)/EWT(m)/EPF(c)/EWP(t)/EWP(b) IJP(c) JD/GG  
ACCESSION NR: AP5020218

UR/0170/65/009/001/0096/0101

AUTHOR: Kazovskiy, Ye. Ya. Kartsev, V. P.

61  
57  
B

TITLE: The problem of conductors in superconducting apparatus

SOURCE: Inzhenerno-fizicheskiy zhurnal, v. 9, no. 1, 1965, 96-101

TOPIC TAGS: superconducting alloy / magnetic field, cryogenic device, helium, vaporization

ABSTRACT: Superconductors capable of retaining their superconducting properties in very strong magnetic fields have recently been discovered. The advantage of using superconductors as windings in electrotechnical installations will be greater, with respect to efficiency as well as dimensions, the less refrigerant for the cooling agent (helium) is required for normal operation of the installation. The article presents a mathematical method for calculating the influx of heat through electrical leads into a cryostat containing liquid helium. The heat balance equation is first set up. Then, the law governing the distribution of temperature along the length of the conductor is determined. Finally, the article presents

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Card 2/2

L 22420-66 EWT(1)/EWA(d)/T-2 IJP(c) AT

ACC NR: AP6013615

SOURCE CODE: UR/0105/65/000/011/0022/0025

AUTHOR: Kartsev, V. P. (Moscow); Sapozhnikova, A. N. (Moscow); Sychev, V. V. (Moscow)

ORG: none

TITLE: Optimization of superconducting magnetic systems of MHD generators

SOURCE: Elektrichestvo, no. 11, 1965, 22-25

TOPIC TAGS: MHD generator, electronic computer, digital computer, superconductivity

ABSTRACT: Superconducting magnetic systems for MHD generators (with or without ferromagnetic cores) should offer significant advantages as compared with the usual systems because 1) they are much smaller in weight and size; 2) they use much less electric power for self-consumption; 3) the size of the entire MHD generator may be reduced by increasing the field strength within the generator channel; and 4) there is an automatic damping of the current reaction within the generator plasma and the generator emf is independent of the load, due to the properties of the superconductive circuit which maintains the current constant. The design of superconductive magnetic systems has distinctive peculiarities (the existence of a critical current beyond which the conductor stops being superconductive; the superconductor

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UDC: 621.3.045.2:537.312.62

L 22420-66

ACC NR: AP6013615

critical current varies in a sharply nonlinear manner with the magnetic field strength; very high cost of superconductor material). Consequently, the author investigates the methods for the determination of rational geometric dimensions of a superconducting magnetic system without a permanent core. Following the formulation of the pertinent theoretical relationships the actual optimization calculation was carried out on the electronic digital computer "Ural-1". Orig. art. has: 5 figures and 8 formulas. [JPRS]

SUB CODE: 09, 20 / SUEM DATE: 20May65 / ORIG REF: 003 / OTH REF: 002

Card

2/2 *sw*



I 17014-66 EWT(L)/ETG(C)/ENG(M)/EWA(H) TT/AT

ACC NR: AP6002685

SOURCE CODE: UR/0292/66/000/001/0058/0059

AUTHOR: Kartsev, V. P. (Engineer)

ORG: none

TITLE: Current control in a shorted superconductive circuit

SOURCE: Elektrotehnika, no. 1, 1966, 58-59

TOPIC TAGS: superconductivity, superconducting circuit, power supply, magnetic circuit

ABSTRACT: The Moscow Power Engineering Institute and the Institute of Physical Problems of the Academy of Sciences SSSR have developed a twelve-terminal static unipolar generator with a superconductive screen. It can operate at industrial frequencies and ensures a rapid increase of the magnetic field in the load. The generator is separated from the load solenoid by a superconductive disk which shields the contacts of the operating screen containing the solenoid outputs from the solenoid field. The operating screen, mounted between the stator and the "rotor" is a cylindrically shaped nickel foil. The generator can both excite the current in the closed superconductive circuit at various speeds and pump out the field from the solenoid. Tests showed that it was possible to achieve a field intensity of 17.5 koe at a

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UDC: 537.312.62

L 17014-66

ACC NR: AP6002685

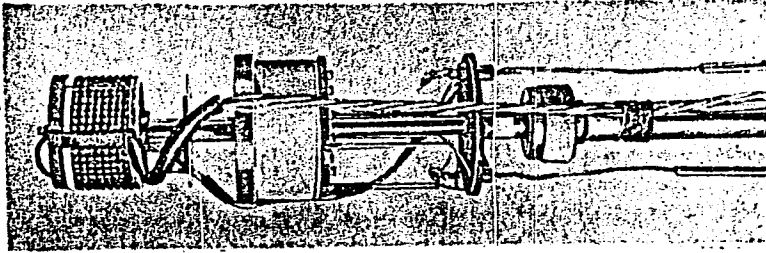


Fig. 1. External view of generator and load solenoid

feed current frequency of 50 cps in 2 hr. Solenoid inductance was 0.3 h. An external view of the generator is shown in Fig. 1. Orig. art. has: 4 figures. [DW]

SUB CODE: 09/ SUBM DATE: none/ ORIG REF: 001/ OTH REF: 003/ ATD PRESS: 4207

Card

212

7195

ACC. NR: AP6031715

SOURCE CODE: UR/0144/66/000/006/0595/0605

AUTHOR: Kartsev, V. P. ; Yegorov, I. M.

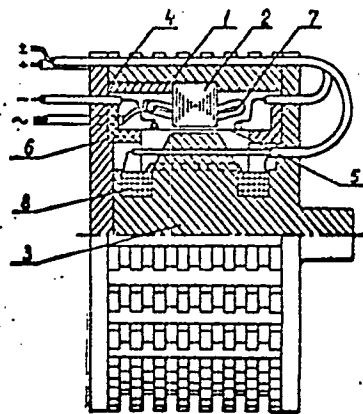
ORG: none

TITLE: Static multipole acyclic generator with a superconducting shield

SOURCE: IVUZ. Elektromekhanika, no. 6, 1966, 595-605

TOPIC TAGS: acyclic generator, superconductivity, dc generator, electric generator

ABSTRACT: An improvement of the J. Volger and Admiraal acyclic superconducting-shield generator (Phys. Letters, 1962, 2, 257) is proposed by the authors. Essentially, a 12-pole 3-phase system without any moving mechanical parts is suggested to effect the ac/dc power inversion at helium temperature. An experimental apparatus (see figure) consists of synchronous-micro-machine frame 1 which houses low-loss stator core 2; internal stationary rotor-like member 3 serves to increase the permeance of the magnetic circuit. End



Multipole acyclic generator

Card 1/2

UDC: 621.373 + 621.313½

ACC NR: AP6031715

shield 4 supports core 2. Superconducting diamagnetic shield 5 placed in the gap has a cylindrical shape. Other parts: 6 - insulating bushing; 7 - stator winding; 8 - superconducting coils producing the acyclic field. Superconducting cylinder 5 consists of a 100- $\mu$  thick Ni backing and a 5- $\mu$  thick Pb coating. A method of electromagnetic design of the acyclic generator is set forth; techniques for calculating leakage reactances are recommended. Estimated rate of field rise was 1.45 oe/sec. "In conclusion, the authors wish to thank Corresponding Member AN SSSR G. N. Petrov and also V. V. Sychev, V. B. Zenkevich, and Yu. G. Kovalevskiy for their comprehensive assistance." Orig. art. has: 7 figures and 10 formulas.

SUB CODE: 09, 20 / SUBM DATE: 01Nov65 / ORIG REF: 003 / OTH REF: 004

Card 2/2

ACC NR: AT7005787 (N) SOURCE CODE: UR/0000/65/000/000/0166/0178

AUTHOR: Kartsev, V. P. (Engineer)

ORG: none

TITLE: Excitation of current in short-circuited superconducting circuits with the help of a superconducting transformer

SOURCE: Moscow. Energeticheskiy institut. Nauchno-tekhnicheskaya konferentsiya po itogam nauchno-issledovatel'skikh rabot za 1964-1965 gody; sektsiya elektromekhanicheskaya, podsektsiya elektricheskikh mashin. Doklady. Moscow, 1965, 166-178

TOPIC TAGS: superconductivity, transformer, electric transformer

ABSTRACT: Superconducting transformers designed to feed currents to cryostats without adding significant amounts of heat to the cryostats are described. Two types of superconducting transformers are discussed: single-action and cyclic. Conversion of cyclic to single-action transformers entails short-circuiting one of the cyclic transformer windings. The setup used to study superconducting transformers consisted of a cryostat in which the superconducting transformer and the load inductor were placed, a power supply bench, and a measuring bench. The transformer consisted of a toroidal steel core (cross-section, 1.8 x 3.8 cm;

Card 1/2

UDC: none

ACC NR: AT7005787

inside diameter, 1.8 cm) on which two superconducting windings were wound: the primary (850 turns), and the secondary (10 turns). The load inductor consisted of a superconducting solenoid wound from a sixteen-strand cable. The superconducting transformers were found to be convenient devices for feeding powerful superconducting circuits. The secondary transformer current strongly depended on the load inductance. The leakage and basic currents of superconducting transformers were damped with the same time constant. The maximum transformation ratio obtained with a single-action transformer was 11.7; the transformation ratio of a cyclic transformer was ten times greater than that for a single-action superconducting transformer. Orig. art. has: 7 figures, and 12 formulas. [IV]

SUB CODE: 09, 20/ SUBM DATE: none/ ORIG REF: 005/ OTH REF: 002

Card 2/2

KARTSEV, Vladimir Petrovich; FAYNBOYM, I.B., red.

[Superconductors in physics and engineering] Sverkh-  
provodniki v fizike i tekhnike. Moskva, Izd-vo "Znanie,"  
1965. 47 p. (Novoe v zhizni, nauke, tekhnike. IX Seria:  
Fizika, Matematika, Astronomiia, no.8) (MIRA 18:5)

KARTSEV, V.Ya., inzh.; MADEKIN, I.A., inzh.; SMOLIN, V.I., inzh.

MKS-1 automatic guard for the prevention of the flying out of boards.  
Der. prom. 8 no.10:26 0 '59. (MIRA 12:12)

1.Gosudarstvennyy institut po proyektirovaniyu novykh mashin dlya  
lesozagotovok i splava.  
(Circular saws)



KARTSEV, Ya.P.

For correct selection and placement of cadres. Zhel.dor.transp.  
39 no.9:41-45 S '57. (MIRA 10:10)

1. Zamestitel' nachal'nika Glavnogo upravleniya kadrov Ministerstva  
putey soobshcheniya.  
(Railroads--Employees)

KARTSEV, Ya.P.

Wages and stimulation of labor productivity of railwaymen. Zhel.dor.  
transp. 44 no.12:14-19 D '62. (MIRA 15:12)

1. Zamestitel' nachal'nika Upravleniya truda, zarabotnoy platy  
i tekhniki bezopasnosti.

(Wages--Railroads)

KARTSEV, Ya. P.

Technological progress and labor organization of railroad employees. Zhel.dor.transp. 45 no.10:13-19 0 '63. (MIRA 16:11)

1. Zamestitel' nachal'nika Upravleniya truda, zarabotnoy platy i tekhniki bezopasnosti.

~~KARTSEV, Yakov Petrovich~~; EZERIN, Arnol'd Ernstovich; BODERSKOVA,  
N.N., red.; SHCHEDRINA, M.L., tekhn. red.

[Working time and the rest period of railroad transportation workers] Rabochee vremia i vremia otdykha rabotnikov sheleznodorozhnogo transporta. Moskva, Gosizdat, 1963.  
99 p. (MIRA 16:8)

(Railroads--Employees)

KARTSEV, Ye.B., inzh.; VOYNOV, Ye.S., inzh.; BRAYNIN, V.N., tekhnik

Mechanized departments of welding and flame machining of metals.  
[Trudy]LMZ no.11:83-98 '64. (MIRA 17:12)

KARTSEV, Ye. S.; KHILAY, A. N.

Automatization of the control of the reversing mechanism for heating coke ovens. Koks i khim. no.10:35-36 '60. (MIRA 13:10)

1. Bagleyskiy koksokhimicheskiy zavod.  
(Dneprodzershinsk--Coke ovens)

KARTSEV, Ye.S.

Automatic control of rolling conveyors for coke bins. Koks i khim.  
no.12:28-30 '60. (MIRA 13:12)

1. Bagleyskiy koksokhimicheskiy zavod.  
(Dneprodzherzhinsk--Coke industry--Equipment and supplies)

KRAVCHENKO, I.I.; KARTSEV, Ye.V.

Using the method of the Ufa Petroleum Research Institute for industrial experiments on the exclusion of bottom waters in Bashkir fields. Neft. khoz. 38 no.10:20-25 0 '60.

(MIRA 13:9)

(Bashkiria--Oil field brines)



ACCESSION NR: AT3012803

S/2964/63/000/000/0110/0113

AUTHOR: Kartsev, Yu. A.

TITLE: Magnetic properties of a relativistic electron gas at zero temperature

SOURCE: *Primeneniye metodov kvantovoy teorii polya k zadacham mnogikh tel.* Moscow, 1963, 110-113

TOPIC TAGS: relativistic electron gas, relativistic ideal electron gas, zero temperature, Green's function method, chemical potential, ground state energy, diamagnetic susceptibility, paramagnetic susceptibility

ABSTRACT: The Green's function method is used to analyze the behavior of a relativistic ideal electron gas at zero temperature in a homogeneous magnetic field. Corrections are obtained for the chemical potential, ground-state energy, and also expressions for

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ACCESSION NR: AT3012803

the diamagnetic and paramagnetic susceptibilities of the system. These corrections agree with the results of A. Rukadze and V. Silin (Zh. eksperim. i teor. fiz. v. 38, No. 2, 1960). Just as in the nonrelativistic case, the relation between the susceptibilities is  $\chi_{\text{dia}} = -(1/3)\chi_{\text{para}}$ . Orig. art. has: 6 formulas.

ASSOCIATION: None

SUBMITTED: 00

DATE ACQ: 07Oct63

ENCL: 00

SUB CODE: PH

NO REF SOV: 001

OTHER: 001

Card 2/2

38722

S/191/62/000/007/009/011  
B124/B144

15.8.80

AUTHORS: Belakovskiy, Ya. I., Buzkov, V. A., Kartsev, Yu. M.

TITLE: Applicability of polyamides to bearings for small propeller shafts

PERIODICAL: Plasticheskiye massy, no. 7, 1962, 62-64

TEXT: Bushes for propeller shafts of ships were made of caprone, and of caprone with 10% silvery graphite, dipped into boiling water before casting in order to remove low-molecular compounds and then dried to a moisture content of 0.15-0.20%. The temperature of the melt in the casting cylinder was 230-240°C and the corresponding pressure 40-50 kg/cm<sup>2</sup>. The molds were heated to 80-100°C, and the bushes cooled slowly to 30-40°C after casting. The low-molecular compounds (3.9%) were then removed by immersion in boiling water for 10 min per mm of wall thickness. The molecular weight of the finished polyamide was 28,000. The polyamide bushes were compressed in metal bushes, dipped in water for 10 days, and turned on a lathe to the dimensions required. River and sea water is suited for lubricating polyamide bushes, as was experimentally ascertained  
Card 1/2

Applicability of polyamides ...

S/191/62/000/007/009/011  
B124/B144

on the basis of high hydrodynamic pressures (up to  $50 \text{ kg/cm}^2$ ) in the lubricant layer, expanding over a large area in the transverse and longitudinal sections of the bearing. Those bearings which have two bulges give the least friction, followed by bearings with three grooves and smooth bearings, finally by bearings with 10 facets, 10 strips, and bearings of rubber and metal. Bearings with two bulges are recommended for navigation in clean water, bearings with three grooves for waters contaminated by abrasive particles. In rivers the resistance of caprone bushes to wear is 1.2-1.5 times, greater than that of bronze, babbitt metal, and textolite bushes, in the sea 3 times greater. Their life is 3 or 4 times as long. The mechanical properties of caprone are not deteriorated by 1 month of storage at  $-15^\circ\text{C}$ . There are 3 figures and 1 table.

Card 2/2

X

BELAKOVSKIY, Ya.I.; BUZKOV, V.A.; KARTSEV, Yu.M.

Use of polyamides in small propeller shaft bearings. Plast.  
massy no.7:62-64 '62. (MIRA 15:7)

(Polyamides)  
(Bearings (Machinery))

*Handwritten:* KARTSEV, Yu. V.

GORBUSHIN, P.B.; GUREVICH, M.S.; NEBOL'SIN, I.S.; BUKSHEYN, D.I.;  
VAYNTSVAYG, A.S.; LAZAREVICH, S.K.; KARTSEV, Yu.V.; KONTOROVICH,  
I.A.; KHLIBOVA, A.S.; TSIMBALYUK, A.F.; KUPSENOVA, A.A., red.  
izd-va; NAUMOVA, G.D., tekhn.red.; TEMKINA, Ye.L., tekhn.red.

[Long-range planning for the expansion and location of sources  
of supply of building materials and equipment for the construction  
industry in economic administrative regions; basic regulations]  
Perspektivnoe planirovanie razvitiia i razmeshcheniia material'no-  
tekhnicheskoi bazy stroitel'stva v ekonomicheskikh administrativnykh  
raionakh; osnovnye polozenia. Moskva, Gos.izd-vo lit-ry po stroit.,  
arkhit. i stroit.materialam, 1960. 78 p. (MIRA 13:9)

1. Akademiya stroitel'stva i arkhitektury SSSR. Institut ekonomiki  
stroitel'stva. 2. Institut ekonomiki Akademii stroitel'stva i arkhitektury  
SSSR (for Nebol'sin, Buxsheyn, Vayntsvayg, Lazarevich,  
Kartsev). 3. Otdel ekonomiki i organizatsii Gosstroya SSSR (for  
Kontorovich, Khlybova, TSimbalyuk).  
(Building materials industry) (Construction industry)

KARTSEVA, A.G. [Kartseva, A.H.]; TARANENKO, V.M.

Nature of changes in the basic hemodynamic indices following  
compression of the abdominal aorta. Fiziol. zhur. [Ukr.] 10  
no.2:183-189 Mr-Apr '64. (MIRA 18:7)

1. Laboratoriya krovoobrashcheniya Instituta fiziologii im.  
A.A.Bogomol'tsa AN UkrSSR, Kiyev.

KARTSEVA, A.M.

Preparing a powder of aluminum-magnesium addition alloys  
for exothermic mixtures. Lit. proizv. no.7:43-44 J1 163,  
(MIRA 17:1)



AUTHORS: Kartseva, A.M., Vikhoreva, T.A.

32-24-4-11/67

TITLE: Control of Gas Saturation in Melts on a Copper Basis (Kontrol' gazonasyschennosti v rasplavakh na mednoy osnove)

PERIODICAL: Zavodskaya Laboratoriya, 1958, Vol. 24, Nr 4, pp. 410-413 (USSR)

ABSTRACT: For carrying out determinations in aluminum alloys Dardel (Ref 1) suggested a method in which the moment of formation of the first gas bubble in the metal melt was recorded at a certain vacuum and temperature. In the present method this is applied to alloys on a copper basis, in which case the higher melting temperature is necessary. It may be seen from a drawing that the test apparatus consists of a heatable container with melting crucible, a mercury manometer, a connection to the vacuum, etc. It is not the absolute gas content of the melt that is determined, but only a sort of quality control based upon the gas content is carried out. The actually characterizing quantity is the pressure at which the first gas bubble is formed under fixed conditions. In this manner several alloys were investigated; by subsequent mechanical tests it was found that the gas content of the melt exercises

Card 1/2

Control of Gas Saturation in Melts on a Copper Basis

32-24-4-11/67

considerable influence upon the mechanical properties of the alloys. A comparison between results obtained by the described investigation method with those obtained in laboratories showed good agreement. Determination is said to take from 2 to 3 minutes. There are 1 figure, 4 tables, and 1 reference, which is Soviet.

1. Copper alloys---Quality control
2. Copper alloys---Testing equipment
3. Gases--Determination
4. Gases---Metallurgical effects

Card 2/2

18(7)

SOV/128-59-7-3/25

AUTHOR: Kartseva, A.M., Engineer

TITLE: Exothermic Mixes for Risers of Copper-Base Alloy Castings

PERIODICAL: Liteynoye Proizvodstvo, 1959, Nr 7, pp 9-11 (USSR)

ABSTRACT: One of the most efficient methods to improve the quality of special shape castings is the combustion with exothermic mixes. The composition of such alloy used for steel casting cannot be used for casting of colored metals (including alloys with copper base) as the starting temperature (1,300°C) is too high. Tests have been made with an alloy of aluminum and magnesium (40 to 55%), Mg, Al<sub>3</sub>. A such composition and a temperature of e.g. 460<sup>0</sup> can be highly recommended. As additional exothermic compounds are to be mentioned: powder of aluminum and magnesium (50% Al, 50% Mg), iron ore powder (iron glance), copper oxide, manganese ore, and protoxide of sodium. A table shows the results of the tests amde with such exothermic components. For the different types of casting shapes - according to wall

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307/123-59-7-3/25

Exothermic Mixes for Risers of Copper - Base Alloy Castings

thickness and materials - different types of exothermic components should be suggested. Comparison tables for such suggestions are published. Conclusions drawn from the laboratory and the field tests made: This method should be used when pouring small or large shapes from copper alloys. The components containing iron ore powder (iron glance) are cheaper than those made with copper oxides. There are 6 tables and 5 diagrams

Card 2/2