Obrabatvyayemost' staley v svyazi s usloviyami termicheskoy obrabotki i mikrostrukturoy AID 443 - I

Obrabatvyayemost' staley v svyazi s usloviyami termicheskoy obrabotki i mikrostrukturoy AID 443 - I

Purpose: This book is intended for engineers and technicians in machine-building plants and workers in scientific research institutes.
Facilities: The Laboratory of Metal Cutting and the Machine Shops of the Gor'kiy Automobile Plant
No. of Russian and Slavic References: Total 171, 153 Russian.
Available: Library of Congress.

6/6

1, FELD'SHTEYN YE.I.

2. USSR (600)

4. Tool Steel

7. Machinability of high-speed steel. Stan. i instr. 24, no.1, 1953.

9. Monthly List of Russian Accessions, Library of Congress, April 1953, Uncl.

FEL'DSHTEYN, E.I., kandidat tekhnicheskikh nauk, dotsent.

Wearing-off process of cutting tools during the machining of steel. Vest. mash. 33 no.3:41-45 Mr '53. (MLRA 6:5)

1. Laboratoriya rezaniya metallov Gor'kovskogo Avtomobil'nogo zavoda im. Molotova. (Machine tools)

Name:	FEL'DSHTEYN, Emmanuil Iosifovich
Dissertation:	Investigation of the Workability of Steel in Connection with the Conditions of Heat Treatment and Microstructure
Degree:	Doc Tech Sci
Affiliation:	Gor'kiy Automobile Plant imeni Molotov
Defense Date, Place:	17 Jan 55, Council of the Leningrad Polytechnical Inst imeni Kalinin
Certification Date:	28 Apr 56
Source:	BMVO 4/57

FEL'DSHTEYN, E. I.

USSR/Engineering - Metal cutting

Card 1/1 : Pub. 12 - 6/16

Authors : Stigneev, IA. F.; Fel'dshteyn, E. I.; Bol'shakov, V. M.; and Troitskaya, D. N.

Title : The use of V. Kolesov's method in a continuous production

Periodical : Avt. trakt. prom. 7, 23-26, July 1954

Abstract : The article deals with high-speed cutting, and turning of metals at increased feeds on multi-cutter semi-automatic machines, in accordance with methods developed by V. Kolesov. Diagrams; tables; drawings; illustrations.

Institution : .....

Submitted : .....

FEL'DSHTEYN, E.I., kandidat tekhnicheskikh nauk.

On structural changes in the metal of chips produced by high speed cutting. Metalloved. i obr.met. no.1:51-53 Jl '55. (MLRA 9:7)

1.Laboratoriya rezaniya metalov Gor'kovskogo avtomobil'nogo zavoda imeni Moletova.
(Metal cutting) (Metallography)

FEL'DSHTEYN, E. I.

USSR/ Miscellaneous - Industrial processes

Card 1/1 Pub. 103 - 7/20

Authors : Khelimskiy, I. E., and Fel'dshteyn, E. I.

Title : Prevention and correction of flaws during thermal treatment of cutting tools

Periodical : Stan. i instr. 26/3, 22-25, Mar 1955

Abstract : Ways and means are discussed for the prevention and correction of flaws originating during thermal treatment of metal cutting tools. The quality of the metal and proper thermal treatment are the two basic factors determining the strength of the given tool. Tables; drawings.

Institution : .....

Submitted : .....

AUTHOR: Fel'dshteyn, E.I. and Putov, V.M. 121-2-11/20

TITLE: Improvement of the form in grinding the web of twist drills. (Usovershenstvovaniye formy podtochki peremychki spiral'nykh sverl)

PERIODICAL: "Stanki i Instrument" (Machine Tools and Tools), 1957, No.2, pp. 34 - 35 (U.S.S.R.)

ABSTRACT: Tests carried out by the Gorki Motor Car Plant (Gor'kovskiy Avtozavod) imeni Molotova to study several forms of grinding the web in twist drills are reported. A modified form of grinding was proposed by Zhilov ("Stanki i Instrument" No.2, 1954). Compared with the standard form (ГОСТ-2322-43), the modified form reduces the axial force and the torque to 47 and 61% respectively. Nevertheless, the tool life is not increased but reduced to 62%. The new form is based on Oxford ("Machinist" London, March 27, 1954). According to the Gorki tests the tool life has been increased by 38% compared with the standard form. Simultaneously the axial force and torque are reduced to 65 and 89%. respectively. Producing the modified form by hand, following the cutting edge contour is not difficult for a skilled tool grinder. Machine grinding has not been successful owing to inaccuracies of the web position. The effectiveness of the new form is very sensitive to its

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Improvement of the form in grinding the web of twist drills. (Cont.) 121-2-11/20

correct execution. A special fixture for a universal tool grinder has been made and is illustrated. The fixture contains two rotatable mirror screens so situated that the grinder can observe the drill end during grinding. A centre line on one of the mirrors makes it possible to position the web correctly in relation to the grinding wheel. The procedure for using this fixture is described in detail.

There are 5 figures, including 2 photographs, and 1 table.

ASSOCIATION:

2/2

AUTHORS: Fel'dshteyn, E.I., Dr. of Technical Sciences, Lebedinskiy, N.P., I. V. Trush, Kazantsev, V. S., Engineers.

129-7-9/16

TITLE: Investigation of the influence of carbide non-uniformity on the grinding properties of the Steel P18. (Issledovaniye vliyaniya karbidnoy neodnorodnosti na shlifuyemost' stali R18).

PERIODICAL: "Metallovedenie i Obrabotka Metallov" (Metallurgy and Metal Treatment, 1957, No.7, pp.39-42 (U.S.S.R.)

ABSTRACT: The here described investigations were prompted by inconsistencies in the grinding properties of various components of this high speed steel which were heat treated to the same hardness. A rod material of 70 mm dia. was chosen which contained: 0.73% C; 4.0% Cr; 18.56% W; 1.04% V; 0.12% Si; 0.24% Mn; 0.22% Ni; 0.012% S; 0.016% P. For obtaining specimens with various carbide non-uniformities two 50 mm dia. specimens were produced by removing the top layer on a lathe, whilst another two groups of specimens were first forged to 55 mm dia. and then machined to 50 and 45 mm dia. respectively. To obtain a coarse carbide network, cast specimens were produced by re-smelting in a high frequency furnace. The results of the metallographic investigations are entered in Table 1, whilst the results

Card 1/2

Investigation of the influence of carbide non-uniformity on the grinding properties of the Steel P18. (Cont.)

of the grinding performance on the individual specimens are entered in Table 2. It was established that the carbide non-uniformity in this P18 steel influences the specific rate of removal of the metal during grinding and also the surface quality; the surface quality and the rate of removal are higher in specimens with lower degrees of carbide non-uniformity. It is, therefore, essential to ensure the smallest possible carbide non-uniformity in high speed steel tools so as to obtain better cutting properties as well as higher production in the tool manufacturing process. There are 2 figures, 2 tables, no references.

ASSOCIATION: Gorky Automobile Works imeni V. M. Molotov. (Gor'kovskiy Avtomobil'nyy Zavod imeni V. M. Molotova).

AVAILABLE:

Card 2/2

SOV/122-58-5-16/26

AUTHOR: Fel'dshteyn, E.I., Doctor of Technical Sciences, Professor

TITLE: Cutting Forces in the Turning of Aluminium Alloys (Sily rezaniya pri tochenii alyuminiyevykh splavov)

PERIODICAL: Vestnik Mashinostroyeniya, 1958, 38 Nr 5, pp 62 - 65 (USSR)

ABSTRACT: Tests carried out at the metal-cutting laboratory of the Gor'kovskiy avtomobil'nyy zavod (Gorki Motorcar Plant) and Belorusskiy politekhnicheskiy institut (Belorusskiy Polytechnic Institute) are reported, concerned with the tangential cutting force and the chip contraction factor in the cutting of several aluminium alloys and a chromium steel. The force was measured with a capacity-type dynamometer, the contraction factor, by the weighing method. Carbide tools were used in the face turning of "Silumin" A14 (9-12% silicon), duralumin D1 (4.60% copper) and steel 40Kh (0.41 carbon and 1.04% chromium). Positive front clearance angles of 0, 10, and 25° were used. The cutting force is plotted against the cutting speed (up to 300 m/min), the depth of cut and the width of cut (Figures 1, 3 and 4, respectively). In aluminium alloy, as in steel, there is a speed of maximum force, most pronounced at zero front clearance angle. The force is proportional both to the depth and the width of the cut. The force in aluminium alloy

Card1/2

is about 1/4 of that in steel. Certain variations of chemical composition of the aluminium alloy were further investigated. A nickel content reduces the cutting force and so does a zinc content. The chip contraction factor is plotted against the cutting speed (Figure 6). Once again, a speed for maximum contraction is observed. A discussion of the results in relation to the deposition of the workpiece material on the cutting edge establishes the similarity of steel and aluminium and refutes the effect of temper-brittleness on the cutting force in steel. There are 6 figures, 2 tables and 4 Soviet references.

Card 2/2 1. Aluminum alloys--Machining 2. Chromium steel--Machining
3. Cutting tools--Performance

SOV/122-59-3-17/42

AUTHORS: Fal'dshteyn, E.I., Doctor of Technical Sciences, Professor, Naumov, B.I., Candidate of Technical Sciences, Konyashov, V.V., and Ryazanov, A.I.

TITLE: Machinability of Cold-Drawn Steels on Automatic Lathes (Obrabatyvayemost' kholodnotyanutykh staley na tokarnykh avtomatakh)

PERIODICAL: Vestnik Mashinostroyeniya, 1959, Nr 3, pp 57-61 (USSR)

ABSTRACT: Turning and drilling trials were carried out on a number of cold-drawn steels of types frequently turned on automatic lathes for making automobile components. The ends of the bars were face turned with varying rates of cross feed using a constant 5 mm width of cut. An average diameter, d_{cp}, for which a constant speed of cutting for a given number of revolutions would show the same tool wear as with the variable cutting speed actually experienced, was calculated from formula (1). The index, k, in this formula is the tangent of the slope of the curve for tool life versus number of revolutions, when plotted on a logarithmic scale. Graphs of Figs 1 and 2 were constructed for tool life (minutes) versus average cutting velocity (metres/min) for different steels and different rates of cross feed. Using the cutting speed

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Machinability of Cold-Drawn Steels on Automatic Lathes

at which a tool life of 100 minutes was obtained with the A.12 steel, at any given rate of feed, as an index equal to 1, the relative machinability of other cold-drawn steels can be compared as shown in Table 1. Formulae (3) and (4) give an approximate relation between cutting speed, tool life and cross feed for face turning of the A.12 or A.20 steels. Drilling tests were carried out similarly, but in this case for 20 minute life until the drill had become blunted by 0.7 mm; again using the A.12 steel as an index of 1, other steels are compared as shown in Table 2. Formulae (5) and (6) relate cutting speed to drill life, drill diameter and rate of feed. The tangential force on tools with straight, stepped, convex and concave profiles was measured when face turning at a constant speed of 30 metres/min. The results, expressed as force (kg) per mm of tool width, are tabulated for different rates of feed for various cold-drawn steels in Table 3. Force for the A.12 steel is about 25% less than for all other steels. Ball-bearing quality steel, ShKh-15, gave the best class of surface finish at rates of feed from 0.04 to 0.1 mm/rev. Finish deteriorates

Machinability of Cold-Drawn Steels on Automatic Lathes

with increasing cutting speed from 10 to 40 metres/minute and then begins to improve again at higher cutting speeds.
There are 6 figures, 3 tables and 5 Soviet references.

GORETSKAYA, Zinaida Dmitriyevna, inzh.; LARIN, M.N., doktor tekhn.nauk, retsenzent; FEL'DSHTEYN, E.I., doktor tekhn.nauk, red.; CHERNOVA, Z.I., tekhn.red.

[Broaching with large feed] Protiagivanie s bol'shimi podachami. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1960. 203 p. (MIRA 13:9)
(Broaching machines)

PHASE I BOOK EXPLOITATION SOV/4434

Fel'dshteyn, Emmanuil Iosifovich, Boris Ivanovich Naumov, Viktor Vasil'yevich Konyashov, and Leonid Alekseyevich Bykov

Rezhimy rezaniya na tokarnykh avtomatakh (Cutting Regimes for Operations On Automatic Lathes) Moscow, Mashgiz, 1960. 329 p. Errata slip inserted. 13,000 copies printed.

Managing Ed. for Literature on the Economics and Organization of Machine Building (Mashgiz): T. D. Saksaganskiy, Engineer; Ed.: I. I. Pinegin; Tech. Ed.: T. F. Sokolova.

PURPOSE: This book is intended for the technicians, designers, machine-operation time standard setters and foremen of mechanical shops, and also for the setup-men of automatic lathes.

COVERAGE: The book includes methods for calculating cutting regimes of single-and multiple-spindle automatic lathes. Reference data are given on recommended feeds and cutting speeds and on the kinematics and dynamics of the most popular models of automatic lathes. Standards for cams (of the multiple-spindle automatic lathes) and instructions for design (of single-spindle automatic lathes) are

Card 1/3

Cutting Regimes for Operations (Cont.) SOV/4434

provided. The technique for calculations is illustrated with detailed examples. These data and standards are based on experimental studies conducted and put through practical tests at the Gor'kovskiy avtozavod (Gor'kiy Automobile Plant). No personalities are mentioned. There are 22 references, all Soviet.

TABLE OF CONTENTS:

Card 2/3

41902
S/226/62/000/004/012/012
I003/I203

1.1600

AUTHOR: Fel'dshtein, E.L., Bel'kevich, B.A., and Dechko, E.K.

TITLE: Some problems of machining sintered iron-graphite powder materials

PERIODICAL: Poroshkovaya metallurgiya, no.4, 1962, 105-114

TEXT: The aim is to determine the optimum conditions for the turning of iron-graphite powder materials. The investigations were carried out on busings of the above material sintered at 1050-1100°C in an atmosphere of hydrogen. The highest turning speed was attained with cutters containing a small amount of cobalt. Materials with a "ferrite + perlite" structure are much more easily machined than materials with a perlite structure. The shapes of the cutting edge and the depth of turning are also discussed. The most suitable alloy for the manufacture of cutters for turning the above materials are T30K4 and VK3M. The VK4 and VK6 alloys are considered to be the second best for this purpose. There are 10 figures and 1 table.

Card 1/2

S/126/62/000/004/012/012
I003/I203

Some problems of machining sinte.ed...

ASSOCIATION: Belorusskii politekhnicheskii institut, g. Minsk (The Belorussia Polytechnic Institute, Mink)

SUBMITTED: December 25, 1961

Card 2/2

S/276/63/000/004/004/007
A052/A126

AUTHORS: Fel'dshteyn, E.I., Molochkov, A.V., Izrailevich, Ya.S., Korzhenevskiy, Z.I.

TITLE: New method of tool cooling on gear-cutters

PERIODICAL: Referativnyy zhurnal, Tekhnologiya mashinostroyeniya, no. 4, 1963, 183 - 184, abstract 4B1021. (Prom-st' Belorussii, no. 7 (50), 1962, 35 - 39)

TEXT: The atomizing of liquids in the form of a spray by means of compressed air has found its application in turning and milling operations. It prolongs considerably the service life of the tool whereas the liquid consumption decreases and makes up 100 - 700 g/hour for emulsion and 0.5 - 2 g/hour for oil. The results are reported of the introduction of tool cooling with atomized liquids on gear-milling and gear-shaping machines at the Minsk spare part plant. The investigation has established that the introduction of this method prolongs the service life of the tool and cuts the sulfofraesoel consumption. This secures a yearly saving of 300 roubles per gear-milling machine and 150 roubles per gear-shaping machine.. A compara-

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New method of tool cooling on gear-cutters

S/276/63/000/004/004/007
A052/A126

tive testing of three installations was carried out. The design of the Ivanovo textile institute was approved as the best installation securing a stable and easily controlled air mixture "torch". Seven sorts of lubricating-cooling liquid were tested in gear-milling. The best results with respect to the service life of the tool (an 1.5 increase) gives atomized anticorrosion water (0.3% sodium nitrite, 0.3% calcined soda, the balance water) at 2 kg/cm^2 air pressure and 600 - 700 g/hour liquid consumption. In gear-shaping the application of atomized anticorrosion water also prolongs the service life of the tool by a factor of 1.5 compared with sulfofraesoel cooling (dropping jet). The installation for atomizing cooling liquids and the mixture design are described. There are 5 figures and 2 tables.

[Abstracter's note: Complete translation.]

Card 2/2

FEL'DSHTEYN, Emmanuil Iosifovich, doktor tekhn. nauk, prof. [deceased]; KUZ'MICHENKO, G.A., red.

[Methodological establishment of the most favorable cutting conditions] Metodika nasnacheniia naivygodneishikh rezhimov rezaniia. Minsk, Vysshaia shkola, 1963. 72 p. (MIRA 17:10)

FEL'DSHTEYN, E.I., doktor tekhn. nauk, prof.

Conference of cutting-tool industry workers of White Russia.
Mashinostroitel' no.5:3 My '63. (MIRA 16:7)

(White Russia—Metal-cutting tools)

SHAGUN, V.I.; FEL'DSHTEYN, E.I.

Device for measuring internal threads. Izm. tekh. no.7: 7-10 Jl '63. (MIRA 16:8)

(Calipers)

FEL'DSHTEYN, E.I., doktor tekhn. nauk; MISHIN, P.A.; SOKOLOVA, Ye.I.; FEYGIN, Z.E.

Sulfo-cyaniding of metal-cutting tools. Avt. prom. 29 no.4: 37-39 Ap '63. (MIRA 16:6)

1. Minskiy avtozavod.
(Case hardening)
(Metal-cutting tools)

S/121/63/000/002/007/010
D040/D112

AUTHORS: Fel'dshteyn, E.I., Molochkov, A.V., Izrailevich, Ya.S., and Korzhenevskiy, Z.I.

TITLE: Cooling gear cutting tools by sprayed fluid

PERIODICAL: Stanki i instrument, vol. 34 no. 2, 1963, 31-33

TEXT: Experiments conducted jointly by the Belorusskiy politekhnicheskiy institut (Belorussian Polytechnic Institute) and the bazovaya zuboreznaya laboratoriya (Basic Gearcutting Laboratory) of the SNKh BSSR at the Minskiy zavod zapasnykh chastey (Minsk Spare Parts Plant) have shown that a water spray with 0.3% of sodium nitrite and 0.3% of soda ash was the best cutting fluid. The life of cutters cooled by this spray was 1.5 times longer than those cooled by sulfofrezol, which in turn gives a considerably longer tool life than oil spray or emulsions. This effect is explained by the intensive cooling of the worn surfaces of the tool, and by the peculiar dissociation effect of the aqueous electrolyte solutions. Use of the water spray also eliminates gear washing after cutting, facilitates machine cleaning, and generally improves working conditions for the operators. The new method is now being used on dozens of gear generators at the above-

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Cooling gear ...

mentioned Minsk plant with an automatic spraying unit designed by the Ivanovskiy tekstil'nyy institut (Ivanovo Textile Institute). The recommended spray nozzle shape is shown in a diagram. Practical recommendations are given. There are 6 figures and 2 tables.

Card 2/2

FEL'DSHTEYN, E.I., doktor tekhn. nauk, prof.; SHAGUN, V.I., inzh.

Interrelationship between the difference in dimensions of the tap and internal thread and the precision of this thread. Nauka - proizv. no.1:34-40 '63.

(MIRA 18:3)

SHAGUN, V.I., inzh.; FEL'DSHTEYN, E.I., doktor tekhn. nauk, prof. [deceased]

Analysis of the precision of internal screw threads. Izv.vys.ucheb. zav.; mashinostr. no.4:147-159 '64. (MIRA 18:1)

1. Belorusskiy tekhnicheskiy institut.

SHAGUN, V.I.; FEL'DSHTEYN, E.I. [deceased]

Effect of geometrical parameters of mechanical taps on the dimensions of screw threads cut in cast iron. Avt. prom. 30 no.5:37-40 My '64. (MIRA 17:9)

1. Belorusskiy politekhnicheskiy institut.

ACCESSION NR: AR4027673 S/0276/64/000/001/B075/B075

SOURCE: RZh. Tekhnologiya mashinostroyeniya, Abs. 1B407

AUTHOR: Fel'dshteyn, F. I.; Bel'kevich, B. A.

TITLE: Turning of metalloceramic materials

CITED SOURCE: Tr. N.-i. in-ta tekhnol. avtomov. prom-sti, vyp 10, 1963, 45-53

TOPIC TAGS: metalloceramic material, metalloceramic, metalloceramic material machining, metalloceramic material turning

TRANSLATION: The authors studied the processing of metalloceramic materials by turning. The first stage of the study consisted in the collection of data on the relative machinability of the most widespread compositions of metalloceramic materials. The authors give data on the geometric parameters of the cutting portion of the cutting tools assuring the greatest or least machined surface roughness. Initial data were obtained for the setting of speeds, forces, and cutting temperatures, as well as the effect of porosity and saturation on the process of metalloceramic materials cutting. 6 illustrations.

Card 1/1

MOGIL'NYY, D.G.; FEL'DSHTEYN, I.Ya.; YEPIFANOV, V.S.

Device for determining the number of collector plates in electric machine collectors. Biul.tekh.-ekon.inform. Gos.nauch.-issl.inst.nauch.i tekh.inform. no.9:46-47 '62. (MIRA 15:9)
(Electric generators--Design and construction)

FEL'DSHTEYN, L.

Large-block assembly of heavy equipment. Na stroi. Kos. no.9:35-36 S '61. (MIRA 14:10)

1. Glavnyy inzh. tresta Vostokneftezavodmontazh.
(Machinery--Erecting work)

FEL'DSHTEYN, L.

Assembly of a heavyweight column. Npv.neft.tekh.: Stroi.i mont. no.4:3 '48. (MLRA 9:5)
(Petroleum--Refining) (Building, Iron and steel)

FEL'DSHTEYN, L.M. (Chernikovsk)

Unit assembly of the metal elements of refinery installations.
Stroi.pred.neft.prom.1 no.4:21-23 Je '56. (MLRA 9:9)
(Petroleum--Refining) (Building, Iron and steel)

FEL'DSHTEYN, L.M., inzhener (Chernikovsk)

Rapid assembly of cracking installation. Stroi.pred.neft.prom. 1 no.7:19-24 S '56. (MLRA 9:10)

(Building) (Cracking process)

FEL'DSHTEYN, L.M., inzh. (Ufa)

Organization of work in the shop preparing pipeline units. Stroi. pred. neft. prom. 3 no.2:21-25 F '58. (MIRA 11:4)
(Petroleum--Pipelines)

FEL'DSHTEYN, L.M., inzh.

Unit pre-assembly methods in assembling heavy oil refinery equipment. Stroi. pred. neft. prom. 3 no.4:21-25 Ap '58. (MIRA 11:5)
(Oil refineries—Equipment and supplies)

FEL'DSHTEYN, L.M., inzh.

Organizational planning of assembling operations at the enterprises of petroleum and petrochemical industries. Nov.tekh.mont. i spets. rav. v stroi. 21 no.10:14-16 O '59. (MIRA 12:11)

1. Trest Vostokneftezavodmontazh.
(Petroleum industry—Equipment and supplies)

FEL'DSHTEYN, L.M., inzh.; MAGID, B.G., inzh.; YENIKEYEV, R.Kh., inzh.

Selecting the most efficient sizes of tower hoists.
Mont.i spets.rab.v stroi. 22 no.9:5-8 S '60.
(MIRA 13:8)

1. Trest Vostoknefteavtomontash i Bashkirskiy nauchno-issledovatel'skiy institut stroitel'stva.
(Hoisting machinery)

FEL'DSHTEYN, L.M., inzh.

Special problems in assembling petrochemical plants. Mont. i spets. rab. v stroi. 23 no. 2:12-13 F '61. (MIRA 14:1)

1. Trest Vostoknefteneftezavodmontazh.
(Petroleum refinaries)

FEL'DSHTEYN, L.M., inzh.

Assembling heavy columns at a synthetic rubber plant in Sterlitamak. Mont.i spets.rab.v stroi. 23 no.6:17-19 Je '61. (MIRA 14:7)

1. Trest Vostokneftezavodmontazh.
(Sterlitamak—Columns)

FEL'DSHTEYN, L.M., inzh.; MAGID, B.M., inzh.; YENIKEYEV, R.Kh., inzh.; DYUKAREV, P.Z., inzh.

Selecting effective means for mechanizing the assembly of equipment and structural elements of petroleum refining enterprises. Trudy BashNIIStroi no.1:5-108 '62. (MIRA 17:3)

LYUBCHANSKAYA, L.I.; FEL'DSHTEYN, L.S.; KUZMINSKIY, A.S.

Aging of rubbers under stress. Kauch.i rez. 21 no.1:23-29 Ja '62. (MIRA 15:1)

1. Nauchno-issledovatel'skiy institut rezinovoy promyshlennosti.
(Rubber—Testing) (Strains and stresses)

AUTHORS: Reytlinger, S. A., Kuz'minskiy, A. S., Fel'dshteyn, L. S. SOV/20-120-2-33/63

TITLE: On the Nature of the Bindings and the Gas Penetrability of Space-Structured Polybutadiene (O prirode svyazey i gazopronitsayemosti prostranstvenno-strukturirovannogo polibutadiyena)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol. 120, Nr 2, pp. 343 - 345 (USSR)

ABSTRACT: First the authors discuss various previous papers and give a survey of the results obtained. The interest of the authors was directed towards the clarification of the separate influence of the bridge-like covalent bindings and of the intermolecular bindings upon gas penetrability. Space-structured polybutadienes differing as to the chemical nature of the transverse bonds were investigated. The space lattice in polybutadiene was made visible by the following means: Heating in a press at 220°, irradiation by radiation from Co^{60}, heating with sulfur and diphenyl guanidine, heating with sulfur and thiouram. The density of the lattices was varied by several methods. The results of the investigations

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On the Nature of the Bindings and the Gas Penetrability of Space-Structured Polybutadiene

SOV/20-120-2-33/63

are illustrated in a diagram. The dissolved sulfur exercises almost no influence upon the penetrability of rubber to nitrogen. Even if sulfur is bound intramolecularly, only a small modification of the penetrability is found. The bridge-like sulfur bindings between the chain-like molecules of the polymer exercise a greater influence upon the reduction of the penetrability than the same amount of sulfur-containing groups which are bound intramolecularly. A diagram illustrates as an example the typical dependence of the equilibrium modulus and of the nitrogen penetrability upon the duration of heating (220°). The reduction of gas penetrability which is found at a space structuring is accompanied by an inversely proportional increase of the equilibrium modulus. There are 3 figures and 12 references, 6 of which are Soviet.

ASSOCIATION: Nauchno-issledovatel'skiy institut rezinovoy promyshlennosti (Scientific Research Institute of Rubber Industry)

PRESENTED: January 13, 1958, by P.A.Rebinder, Member, Academy of Sciences, USSR

Card 2/3

On the Nature of the Bindings and the Gas Penetrability of Space-Structured Polybutadiene

SUBMITTED: January 15, 1958

1. Butadienes--Theory 2. Gases--Penetration 3. Heat --Applications 4. Molecular association--Theory

Card 3/3

FEL'DSHTEYN, L.S.

83295
S/138/59/000/010/007/010
A051/A029

15,9130

AUTHORS: Kuz'minskiy, A.S.; Frenkel', R.Sh.; Khanin, S.Ye.; Fel'dshteyn, L.S.

TITLE: The Effect of Certain Organic Acid Salts on Rubber Vulcanization

PERIODCIAL: Kauchuk i Rezina, 1959, No. 10, pp. 32 - 35

TEXT: The problem of increasing the rate of vulcanization of rubber without decreasing the initial plasticity of the mixtures and without causing any detriment to the scorching resistance and the physico-mechanical properties of the vulcanizates was studied. The use of inorganic bases as activators did not always render favorable results due to the poor distribution of the base in the mixture and the tendency of the mixtures to scorching. Organic substances with an alkaline nature, such as aliphatic amines, were also applied with the result that the vulcanizates had better physico-mechanical properties and a higher rate of vulcanization, but the mixtures containing triethanolamine acquired an elevated hardness, had a tendency to scorching and too wide a range of their physico-mechanical properties. The accelerating effect of potassium, sodium and ammonium salts of weak acids, such as orthophosphoric acid, acetic acid and benzoic acid

Card 1/3

S/138/59/000/010/007/010
A051/A029

The Effect of Certain Organic Acid Salts on Rubber Vulcanization

were investigated. In the case of the salts of ortho-phosphoric acid, there was some accelerating action, but the same shortcomings were observed as in the case of sodium hydroxide or sodium. The salts of acetic and benzoic acids proved to be very good activators of the organic accelerators.[5] The strongest activator was shown to be ammonium benzoate, obtained from the reaction between an aqueous solution of ammonia and benzoic acid. The physical and chemical properties of this salt are listed and Tables 1 - 3 show the compositions and the physico-mechanical indices of the rubbers investigated. Figures 1 and 2 show the vulcanization level of the mixtures with ammonium benzoate. The latter actually serves as an activator of other organic accelerators, since it has only a slight accelerating action itself. The activating effect of this salt is present in mixtures not containing sulfur. The accelerating action of ammonium benzoate is explained by the alkaline properties of ammonia which forms during the vulcanization process. In addition to this, the benzoic acid which forms upon the decomposition of the ammonium benzoate also has been found to have some activating effect in the last stages of the vulcanization process. It increases the hardness of the vulcanizates and slows up the vulcanization at the processing temperature of the mixture.

S/138/59/000/010/007/010
A051/A029

The Effect of Certain Organic Acid Salts on Rubber Vulcanization

The following conclusions are drawn: it is possible to accelerate the vulcanization of rubber using ammonium benzoate; by using this salt the range of activators can be increased and a saving on expensive organic accelerators is gained; the time needed to reach the optimum of the rubber mixture vulcanization can be decreased by 2 to 3 times; the scorching resistance and the physico-mechanical properties of the vulcanizates are not jeopardized from the use of the ammonium benzoate salt. There are 3 tables, 2 graphs and 11 references: 10 Soviet and 1 English.

ASSOCIATION: Nauchno-issledovatel'skiy institut rezinovoy promyshlennosti (Scientific Research Institute of the Rubber Industry)

Card 3/3

KUZ'MINSKIY, A.S., doktor khimicheskikh nauk; FEL'DSHTEYN, L.S.; REYTLINGER, S.A., kand.tekhn.nauk

Surface crystallization of the ingredients of rubber mixtures. Trudy NIIRP no. 6:84-91 '60. (MIRA 13:12)
(Rubber)

FEL'DSHTEYN, L.S.; KHANIN, S.Ye.; FRENKEL', R.Sh.; KUZ'MINSKIY, A.S.

Vulcanization of rubber with mercaptan in the presence of carbon blacks. Kauch. i rez. 20 no.8:28-32 Ag '61. (MIRA14:8)

1. Nauchno-issledovatel'skiy institut rezinovoy promyshlennosti.

(Vulcanization)

S/020/61/136/004/015/026
B016/B075

AUTHORS: Fel'dshteyn, L. S., Reytlinger, S. A., and Kuz'minskiy, A. S.

TITLE: The Problem of Crystallizing Low-molecular Substances From Solutions Into High Polymers

PERIODICAL: Doklady Akademii nauk SSSR, 1961, Vol. 136, No. 4, pp. 843 - 845

TEXT: The authors attempted to find the reasons for an undesirable phenomenon, the so-called "efflorescence" (Ref.1), i.e., the formation of oversaturated solutions of low-molecular substances in high-polymer solvents. The former mostly crystallize on the interface polymer - gas. The system sulfur (2g) - polybutadiene (100 g) (CKB-30 (SKB-30)) served as test object. By using S^{35} (Ref.2), the relative quantity of sulfur crystallized on the polybutadiene surface was determined. Platelets, 2 mm thick and 26 mm in diameter, were obtained by pressing a mixture of the two components for 60 min at 100°C in a cellophane foil. Before measuring the activity by means of an end-window counter, the cellophane foil was removed from one side. Already 24 hours after removing the cellophane

foil, a considerable increase in activity was observed (Fig.1). The authors explain this phenomenon by sulfur crystallization on the surface, since a concentration gradient had formed. The side covered by cellophane showed no increase in activity even after additional pressing. When storing the specimens wrapped in cellophane for a longer period efflorescence decreased until it completely vanished. On the strength of these data, the authors conclude that equilibrium was established due to crystallization inside the specimen. Crystallization sets in immediately after removing the cellophane foil. The time necessary for establishing equilibrium is determined by the diffusion rate of the sulfur from inside the specimen. When the cellophane was removed from none of the two surfaces even after 60 days equilibrium was not established. Therefrom the authors concluded that crystallization proceeds considerably slower inside the specimen than on its surface. The quick establishment of equilibrium in the case of strong oversaturation indicates that the formation of seed crystal is inhibited. By admixing pulverized metallic selenium, the authors succeeded in initiating the crystallization inside the specimen. Selenium is insoluble in rubber, but since it is isomorphous with sulfur it easily forms mixed crystals with the latter. The authors

refer to the processes during crystal formation (Ref.4) and state that the difference between the diffusion coefficient of the dissolved substance and the self-diffusion coefficient of the polymer solvent inhibits the formation of crystallization centers inside the specimen. Plasticizers increase the mobility of polymer molecules and the probability of crystallization inside the specimen. Thus, sulfur does not effloresce in factices (Ref.2). There are 3 figures, 1 table, and 6 references: 4 Soviet.

ASSOCIATION: Nauchno-issledovatel'skiy institut rezinovoy promyshlennosti (Scientific Research Institute of the Rubber Industry)

PRESENTED: July 8, 1960, by P. A. Rebinder, Academician

SUBMITTED: June 30, 1960

FEL'DSHTEYN, L.S.

USSR

13

DOGADKIN, B. A., and TARASOVA, Z. N., Moscow Institute of Fine Chemical Technology imeni M. V. Lomonosov [1961 position] - "Influence of vulcanisation structures on physical and mechanical properties of vulcanisates" (Session II)

KUZ'MINSKIY, A. S., LYUBCHANSKAYA, L. I., FEL'IGHTEYN, L. S., Scientific Research Institute of Rubber Industry, Moscow [1960 locations] - "Influence of mechanical stresses on the ageing of vulcanised rubbers" (Session VIII)

NOVIKOV, A. S., GILINSKAYA, N. S., DYUMAYEVA, T. N., GRIBACHEVA, A. V., NUDEL'MAN, Z. N., and GALIL-OGLY, F. A., Scientific Research Institute of Rubber Industry, Moscow [1961 locations] - "Investigation of amine vulcanisation of SKF-26 fluoroco-polymer" (Session II)

REZNIKOVSKIY, M. M., and BRODSKIY, G. I., Scientific Research Institute of Tire Industry, Moscow - "Special features of the mechanism of abrasion of high-elastic materials" (Session V)

report to be submitted for the 4th Rubber Technology Conference, London, England, 22-25 May 1962.

33728 S/138/62/000/001/006/009
A051/A126

15.9300
11.2211

AUTHORS: Lyubchanskaya, L.I.; Fel'dshteyn, L.S.; Kuz'minskiy, A.S.

TITLE: Rubber aging in the strained state

PERIODICAL: Kauchuk i rezina, no. 1, 1962, 23 - 29

TEXT: The authors investigated the major law sequences in the process of chemical relaxation of tension and studied the effect of various composition factors. The accumulation kinetics of residual deformation and changes of the equilibrium standard (proportional to the number of transverse chemical bonds), were further examined. Natural and sodium-butadiene rubber were chosen as the experimental material. An axial compression relaxometer was used to test the chemical relaxation of tension. It was found that the rate of the relative drop in tension does not depend on the compression degree within the 20 to 5% deformation range. The tension drop is the result of the break in the bonds under tension; the accumulation of the residual deformation is determined primarily by structurating. According to the rate increase of tension relaxation, the vulcanizates are arranged in the following sequence: thiuram < vulcanizate with sulfur and captax < vulcanizate with sulfur and diprenylguanidine. The rate con-

Card 1/3

Rubber aging in the strained state

stants of the relaxation process, calculated according to the monc-molecular reactions are: 1 : 6 : 39. With the presence of transverse bonds in the vulcanizates, the reactivity of the polymer, with respect to the oxygen, strongly affects the ratio of tension relaxation. Data obtained further revealed that: 1) in aging of the deformed vulcanizates there are two competing processes taking place - oxidizing destruction of the polymer's molecular chains, and a thermo-mechanical decomposition of the transverse sulfur bonds. 2) In the presence of strong transverse mono- or disulfide bonds in the vulcanizates, the chemical relaxation of tension is determined by the oxidizing destruction of the molecular chains of the polymer and thus, the relaxation rate depends in this case on the reactivity of polymers and oxygen concentration. 3) Various carbon blacks (channel, furnace, thermal and lamp) increase the rate of chemical relaxation in the following sequence: channel > furnace > lamp > and thermal. The nature of the transverse bonds appears to be the main factor, determining the behavior of rubber in aging under conditions of static deformations. The selection of the appropriate polymer followed by the filler range next in importance. It is concluded that in rubber aging in the presence of oxygen, the tension relaxation process is determined by a thermal break of the transverse bonds for rubbers with polysulfide bonds and by thermo-oxidizing destruction of the polymer in vul-

Card 2/3

33728
S/138/62/000/001/006/009
A051/A126

Rubber aging in the strained state

canizates with strong transverse bonds. There are 8 figures.

ASSOCIATION: Nauchno-issledovatel'skiy institut rezinovoy promyshlennosti (Scientific Research Institute of the Rubber Industry)

Card 3/3

3h939
S/138/62/000/003/003/006
A051/A126

15.9701

AUTHORS: Frenkel', R. Sh., Kuz'minskiy, A. S., Fel'dshteyn, L. S., Khanin, S. Ye., Vinogradova, L. F.

TEXT: The effect of ingredients in rubber mixes on the structuralizing of butadiene-nitrile rubber

PERIODICAL: Kauchuk i rezina, no. 3, 1962, 10 - 12

TEXT: An investigation was conducted to determine the effect of ingredients other than altax, for example (in the absence of sulfur), on the process of thermal structuralizing in synthetic rubbers. Butadiene-nitrile rubber СКН-26 (SKN-26) (commercial) was used in the experiments in an air medium. The thermomechanical method was used to determine the initial temperature of the mixture structuralizing. Accelerators and activators of vulcanization have a significant effect on the rate of thermal structuralizing. The accelerators increase the rate of structuralizing and lower the initial temperature. At the addition of zinc oxide into the system rubber-altax decreases the initial temperature and increases the rate of structuralizing. Thus, it is thought that the zinc oxide serves as a catalyst in the process of thermal decomposition. Data on the reaction kinetics with

X

The effect of...

iodine prove this supposition. The following conclusions are drawn: Certain fillers (gaseous and thermal carbon black) and accelerators (captax) increase the tendency to structuralizing of the mixtures based on butadiene-nitrile rubber. Those filled with gaseous carbon black, containing altax or captax, are particularly prone to structuralizing. Zinc oxide increases the structuralizing action of captax in mixtures with gaseous carbon black. In the case of altax, the zinc oxide speeds up the structuralizing process both in filled and non-filled mixtures. The zinc oxide increases the ratio of the thermal decomposition of altax to free radicals. There are 3 figures, 2 tables and 5 Soviet-bloc references.

ASSOCIATIONS: Volzhskiy filial Nauchno-issledovatel'skogo instituta rezinovoy promyshlennosti i Nauchno-issledovatel'skiy institut rezinovoy promyshlennosti (Volga Branch of the Scientific Research Institute of the Rubber Industry and the Scientific Research Institute of the Rubber Industry)

X

S/844/62/000/000/098/129
D234/D307

AUTHORS: Kuz'minskiy, A. S., Fel'dshteyn, L. S., Zhuravskaya, Ye. V. and Lyubchanskaya, L. I.

TITLE: Radiation ageing of rubbers in stressed state

SOURCE: Trudy II Vsesoyuznogo soveshchaniya po radiatsionnoy khimii. Ed. by L. S. Polak. Moscow, Izd-vo AN SSSR, 1962, 576-580

TEXT: Stress relaxation was investigated by means of an axial compression relaxometer described in a previous paper. The compression degree was 20%. Specimens were irradiated by a Co^{60} source, the dose being varied from 0.5 to 1 Mr/hr. The specimens consisted of vulcanized natural НК (NK), butadiene-nitryl СКН-26 (SKN-26), sodium-butadiene СКВ (SKB) and butadiene-styrene СКС-30 (SKS-30) rubbers. With respect to the velocity of relaxation, NK > SKV > SKS-30 > SKN-26, and with respect to that of residual deformation, SBK > NK > SKN-26 > SKS-30. Structurization and destruction outputs are compared. Presence of anti-radiation substances (N-phenyl-N'-

Card 1/2

Radiation ageing of ... S/844/62/000/000/098/129
D234/D307

cyclohexyl-p-phenylenediamine and N,N'-diphenyl-p-phenylenediamine) in the quantity of 5% by weight did not affect the chemical relaxation rate but slightly affected the rate of accumulation of residual deformation and decreased considerably the rate of structurization. The rate of residual deformation was decreased by anti-radiation substances only in the case of irradiation in air but not in vacuum. There are 4 figures and 1 table.

ASSOCIATION: NII rezinovoy promyshlennosti (NII of the Rubber Industry)

Card 2/2

FEL'DSHTEYN, L.Ye., inzh.; MAGID, B.M., inzh.

Self-propelled cranes assemble technical equipment. Mekh. stroi. 19 no.10:10-12 O '62. (MIRA 15:12)
(Cranes, derricks, etc.)

TIKHONIN, I., prof.; FEL'DSHTEYN, M., dotsent, MART'YANOV, S., dotsent

Losses in the weight of livestock and meat. Mias.ind.SSSR 31 no.2:37-38 '60. (MIRA 13:8)

1. Moskovskiy tekhnologicheskiy institut myasnoy i molochnoy promyshlennosti.
(Cattle--Transportation)

FEL'DSHTEYN, M.

"Thousand details." Sov. torg. 36 no.3:47-52 Mr '63. (MIRA 16:3)

1. Nachal'nik otdela organizatsii torgovli Moskovskoy torgovoy organizatsii po optovoy i roznichnoy torgovle tsvetami i rassadoy. (Hardware stores)

Fel Dshteyn

USSR/General Biology - Individual Development B-4

Abs Jour : Ref Zhur - Biol., No 3, 1958, No 9522

Author : Kaplan, L.E., Fel'dshteyn, M.A.

Inst : Not Given

Title : Effect of Parenteral Protein Introduction on Healing of Wounds

Orig Pub : Dokl. VASKhNIL, 1956, 21, No 9, 14-20

Abstract : A study was conducted on the effect of N.G. Belen'ky medicinal serum (MS) on the healing of skin-muscular wounds. Wounds of an area 25 cm^2 were localized within the region of 9-11th ribs of 48 rabbits. The wounds fully healed on the 35-40th day in animals to whom were administered MS intravenously 3 times (1-5 days after being wounded) in doses of 5 ml/kg. When the MS dose was decreased to 0.5 ml/kg the healing occured on the 50-60th day. The healing of wounds in animals to whom 3 intravenous blood transfusions of isogenous blood in doses of 5 ml/kg were also administered occurred in 55-60

Card : 1/2

days. Control animals died in 75% of the cases. Microbiological examination of wound exudations has shown that the microflora of the group under experimentation were less virulent than those of the control. Histologically it was found that in the group under experimentation granulated tissues aged earlier by comparison with the control. Aside from rabbits, the action of MS was verified on 8 horses. The animals were wounded in the region of the 10-12 ribs on an area of 81 cm^2. MS was administered to animals under experimentation 1-5 days after having been wounded, in doses of 5 ml/kg weight. The differences in wound healing were observed in the second phase of the regenerative process (at the 16-18th day). Complete healing of wounds in animals under experimentation was noted after 70-76 days; in the control after 95 days. Viscosity index and speed of blood coagulation in animals under experiment were restored to normal on the 5-10th day, in the control on the 20-30th day. The author recommends administration of MS for treatment of wound defects in animals.

Card : 2/2

FRL'DSHTEYN, M.A., dotsent

A device for measuring wounds. Khirurgiia 32 no.7:84-86 Jl '56.
(MLRA 9:11)

1. Iz kafedry khirurgii veterinarnogo fakul'teta Moskovskogo tekhnologicheskogo instituta miasnoy i molochnoy promyshlennosti
(WOUNDS AND INJURIES
wound measurement device)
(APPARATUS AND INSTRUMENTS
same)

GASANOV, M.I.; FEL'DSHTEYN, M.A.

Using biological films in treating burns. Dokl. AN Azerb. SSR 19 no.1: 55-58 '63. (MIRA 16:4)

1. Kirovabadskiy sel'skokhozyaystvennyy institut. Predstavlen akademikom AN AzSSR F.A.Malikovym.
(BURNS AND SCALDS) (TRANSPLANTATION OF ORGANS, TISSUES, ETC)

TIKHONIN, I.Ya.; FEL'DSHTEYN, M.A.; MART'YANOV, S.N.; ZEL'MANOV, I.S.; ROMANDINA, V.P.

Injuries in cattle raised for meat. Izv.vys.ucheb.zav.;pishch. tekh. no.5:79-83 '58. (MIRA 11:12)

1. Moskovskiy tekhnologicheskiy institut myasnoy i molochnoy promyshlennosti, kafedra khirurgii i akusherstva.
(Cattle)

FEL'DSHTEYN, M. A., MARTYANOV, S. M. SHIRYAYEVSKIY, V. V. POLIKOV, S. P. and TIKHOMIN, I. Ya.

"Means for dehorning calves and cattle."

Veterinariya, Vol. 38 No. 5 1961

Feldshteyn, M. A. - Assistant Professor Moscow Technological Institute of Meat and Milk Industry

USSR / Diseases of Farm Animals. General Problems. R

Abs Jour : Ref Zhur - Biol., No 22, 1958, No 101313

Author : Fel'dshteyn, M. A.
Inst : Moscow Technological Institute of Meat and Dairy Industry.
Title : Using Regulated Exercises for Some Open Traumas in Cattle.

Orig Pub : Tr. Mosk. tekhnol. in-t myasn. i molochn. prom-sti, 1958, vyp 7, 83-87.

Abstract : When animals (bull calves, heifers, and cows), after impact wounds were inflicted upon them within the areas of their triceps, brachii, and biceps femori, were subjected to active exercises beginning with the 3rd day of the test, their general state of well-being improved. Also, granulation development was terminated and wounds healed 2-4 days earlier than in animals kept at rest. An apparatus is suggested to be used for active regulation of exercises in mall [sic] horned cattle. -- I. I. Magda.

Card 1/1

GASANOV, M.I.; FEL'DSHTEYN, M.A.; MART'YANOV, S.N.

First aid and prevention of dewclaw diseases in farm animals on animal farms. Dokl. AN Azerb. SSR 19 no.3:71-73 '63.
(MIRA 17:8)

1. Institut veterinarii AN AzSSR. Predstavleno akademikom AN AzSSR F.A. Melikovym.

TIKHONIN, I.Ya., prof.; [redacted], M.A., dotsent; MART'YANOV, S.N., dotsent; ZEL'MANOV, I.S., veterinarnyy vrach; ROMANDINA, V.P., veterinarnyy vrach;

Losses in the meat industry from hidden injuries in cattle. Veterinariia 36 no.9:49-51 S '59. (MIRA 12:12)

1.Moskovskiy tekhnologicheskiy institut myasnoy i molochnoy promyshlennosti.
(Meat industry and trade)

GORBACH, V.L.; FEL'DSHTEYN, M.M., inzh., red.; MOROZOVA, P.B., izd.red.; ROZHIN, V.P., tekhn.red.

[Kinematics of working parts of grinding and polishing machines for optical parts] Kinematika rabochikh organov opticheskikh shlifoval'no-poliroval'nykh stankov. Moskva, Gos. izd-vo obor. promyshl., 1958. 107 p. (MIRA 12:2)
(Machinery, Kinematics of) (Grinding and polishing)
(Lenses)

FEL'DSHTEYN, M. M.

5824. Viktorov, S. V. i Fel'dshteyn, M. M. Organizatsiya torgovli v slaonakh. (iz opyta mosk. gos. univers. magazina glavuniversmaga m.) Gostorgizdat, 1954, il, slozh. v 8s., s ill 21 sm. 20.000 ekz. 50 k Avt. ukazany v kontse teksta (55-1071) 658.871 (47.311)

SO:: Knizhnaya, Letopis, Vol. 1, 1955

FEL'DSHTEYN, M. M.

4766. FEL'DSHTEYN, M. M. Novogodnyaya torgovlya elochnymi igrushkami i ukrasheniyami. pod red. n. a. kirsanova. m., dostorgizdat, 1954. 23s. vklyuch. obl. 22cm. 20,000 eks. lr. -- avt. ukazany v kontse teksta. -- (55-56)P. 658.8:688.72

SO: Letopis' Zhurnal' nykh Statey, Vol. 7, 1949

FEL'DSHTEYN, F. M.

5826. Zaochnyye konferentsii polupatoley. (F.) Gostorgizdat, 1954. 11, slozh. v 8s. 22sm. 20.000 ekz. 25k.-Avt. ukazany v kontse teksta.-(55-1065) 658.871 (47.37)

SO: Knizhnaya, Letopis, Vol. 1, 1955

[redacted], N. N.

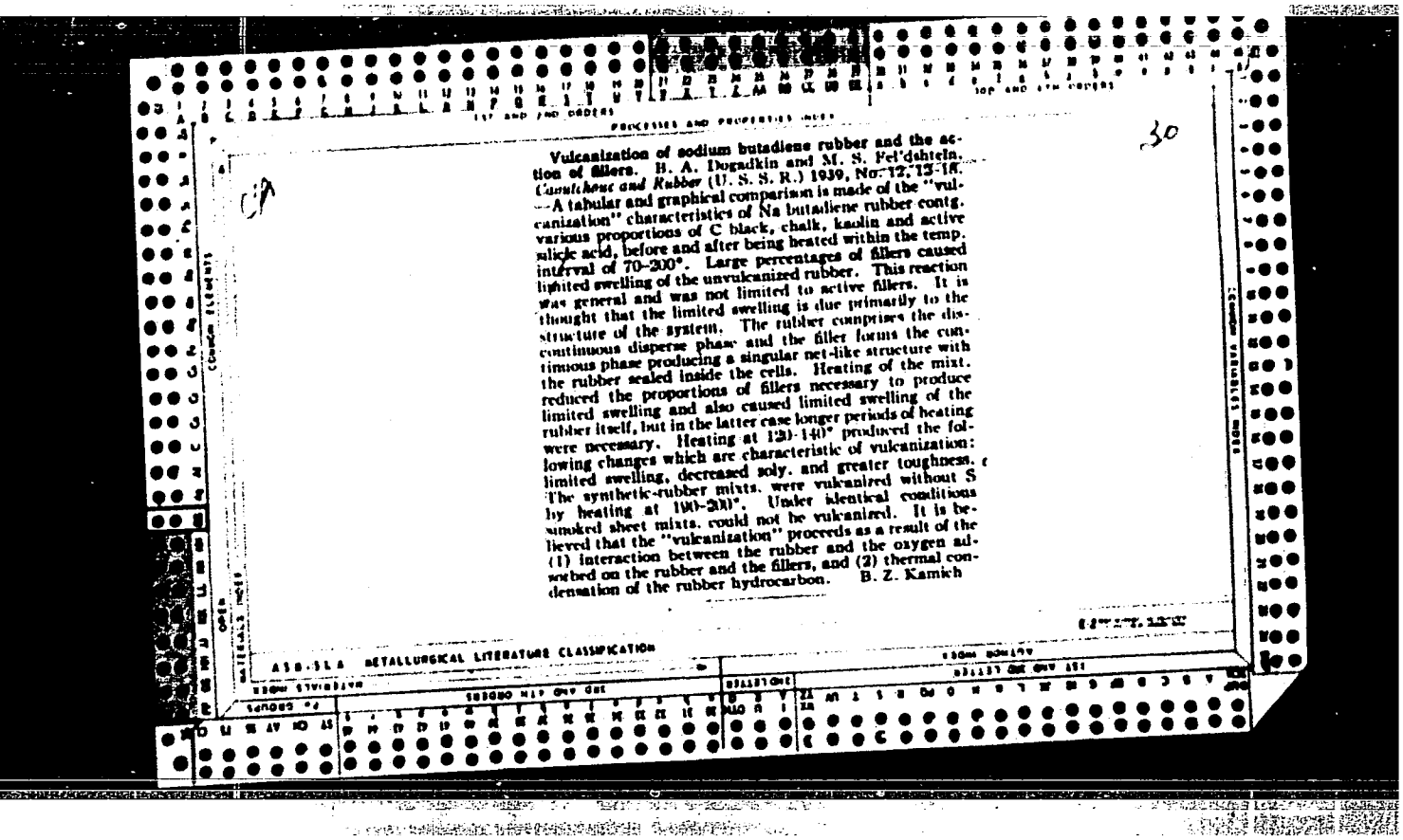
5828. Organizatsiya shkol'nykh bazarov v [illegible] poo red. N. A. Kirsanova, M, Gostorgizdat, 1954. [illegible] Avt. Ukazany v kontse teksta. (55-1072) 658.871 /658.8 : 646.8

SC: Knizhnaya, Letopis, Vol. 1, 1955

Pel'shenko, M. I.

5835. Organizatsiya prodazhi tovarov bez pomoshchi prodavtsa. (M.,) Gostorgizdat, 1954. 1 l., slozh. v 8 s. s ill. 21sm. 25,000 ekz. bok-Avt. ukaz n v kontse teksta. (55-1070) 658.871 (47.311)

SO: Knizhnaya Letopis, Vol. 1, 1955



Vulcanization of sodium butadiene rubber and the action of fillers. B. A. Dogadkin and M. S. Fel'dshtein. *Caoutchouc and Rubber* (U. S. S. R.) 1939, No. 12, 13-16.—A tabular and graphical comparison is made of the "vulcanization" characteristics of Na butadiene rubber contg. various proportions of C black, chalk, kaolin and active silicic acid, before and after being heated within the temp. interval of 70–200°. Large percentages of fillers caused limited swelling of the unvulcanized rubber. This reaction was general and was not limited to active fillers. It is thought that the limited swelling is due primarily to the structure of the system. The rubber comprises the discontinuous disperse phase and the filler forms the continuous phase producing a singular net-like structure with the rubber sealed inside the cells. Heating of the mixt. reduced the proportions of fillers necessary to produce limited swelling and also caused limited swelling of the rubber itself, but in the latter case longer periods of heating were necessary. Heating at 120-140° produced the following changes which are characteristic of vulcanization: limited swelling, decreased soly. and greater toughness. The synthetic-rubber mixts. were vulcanized without S by heating at 190-200°. Under identical conditions smoked sheet mixts. could not be vulcanized. It is believed that the "vulcanization" proceeds as a result of the (1) interaction between the rubber and the oxygen absorbed on the rubber and the fillers, and (2) thermal condensation of the rubber hydrocarbon. B. Z. Kamich

FEL'DSHTEYN, M. S.

"Investigation of the Action of Molecular Oxygen in the Process of Vulcanization of Natural and Sodium-Butadiene Rubber." Thesis for degree of Cand. Chemical Sci. Sub. 28 Nov 49, Moscow Inst of Fine Chemical Technology imeni M.V. Lomonosov.

Summary 82, 18 Dec 52, Dissertations Presented For Degrees in Science and Engineering in Moscow in 1949. From Vechernyaya Moskva, Jan-Dec 1949.

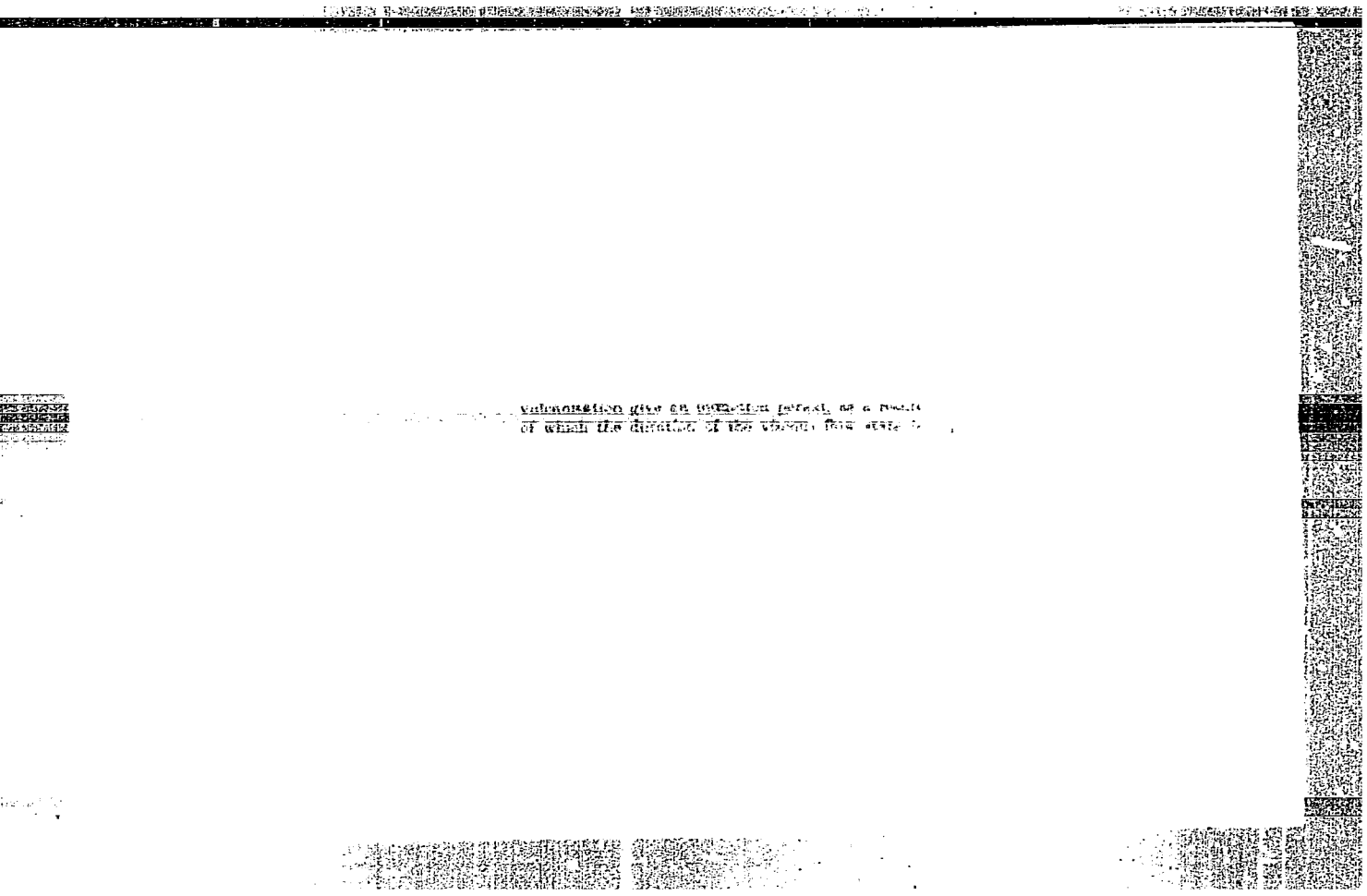
FEL'DSHTEYN, M

(10)

Polymerization phenomena in the vulcanization process. B. A. Dogadkin, M. Fel'dshtein, A. Pobedimskaya, V. Shkurina, and M. Kaplunov (M. V. Lomonosov Fine Chem. Technol. Inst., Moscow). *Doklady Akad. Nauk S.S.S.R.* 92, 61–4(1953); cf. *C.A.* 34, 4301⁵; *Khimiya i Fizika Kauchuka* 1947(*C.A.* 43, 5624*b*).—In the complex of forces that comprise the formation of vulcanized rubber the principal ones are those existing as true chem. bond formed through the agency of the vulcanizing agents, along with possible true polymerization phenomena induced by free radical formation and resulting in C-C bond formation between the rubber chains. When a rubber mixt. is heated to 143° with either benzothiazolyl disulfide (I) or benzothiazolesulfenodiethylamide (II), vulcanization takes place; the effect is least pronounced with natural rubber; I vulcanizes most effectively Na-butadiene rubber (III), II is most effective with butadiene-styrene rubber. The rate of the reaction of such a mixt. of III contg. lampblack is much greater than the rate with S. Since no free S is evolved, the reaction must proceed by radical formation, which is confirmed by the detd. content of chemically-bound S and N in the final product. With II, approx. 45% of the N enters the rubber structure. Carefully purified II was heated in N in sealed vessels in toluene in the presence of I, labeled with S^{35} in the disulfide bridge. Typical vulcanization took place. The radioactivity of the vulcanizate was detd. It corresponded to the expected level if the reaction is assumed to proceed by formation of free radicals of $C_6H_4SC(S—)N$, which then attack the unsatd. points in the rubber chain, causing a chain polymerization effect. Mercaptobenzothiazole, the expected by-product, was detected. G. M. Kosolapoff

Chem Abs V48
1-25-54
Elastomers

IF
7-13-54



FEL'DSHTEYN, M.

7

1933. Theory of vulcanisation and of the action of accelerators. B. DOGADKIN, V. SHLYUKOVA, Z. TARASOVA, A. DOBROMYSLOVA, M. FEL'DSHTEIN, and M. KAPLUNOV, *Colloid J., U.S.S.R.*, 1955, 17, 199-210. English translation. Vulcanisation of rubber by dibenzthiazolyl disulphide (without sulphur) is a radical-type reaction. Kinetic curves were obtained for the conversion of dibenzthiazolyl disulphide into mercaptobenzthiazole and the addition to the rubber molecules. Changes in molecular weight were followed during vulcanisation of rubber solutions. Vulcanisation trebled the molecular weight. Vulcanisates were found to contain transverse C.C. bonds between the molecular chains of rubber and the presence of benzthiazolyl groups in the vulcanisate structure was proved. The kinetics of the vulcanisation of rubber by sulphur in the presence of dibenzthiazolyl disulphide was studied. Seventeen references are given. 33729

Moscow Inst Fine Chem Technology

FEL'DSHTEYN, M.

AID P - 3427

Subject : USSR/Chemistry

Card 1/1 Pub. 152 - 12/18

Authors : Dogadkin, B., M. Fel'dshteyn, and D. Pevzner

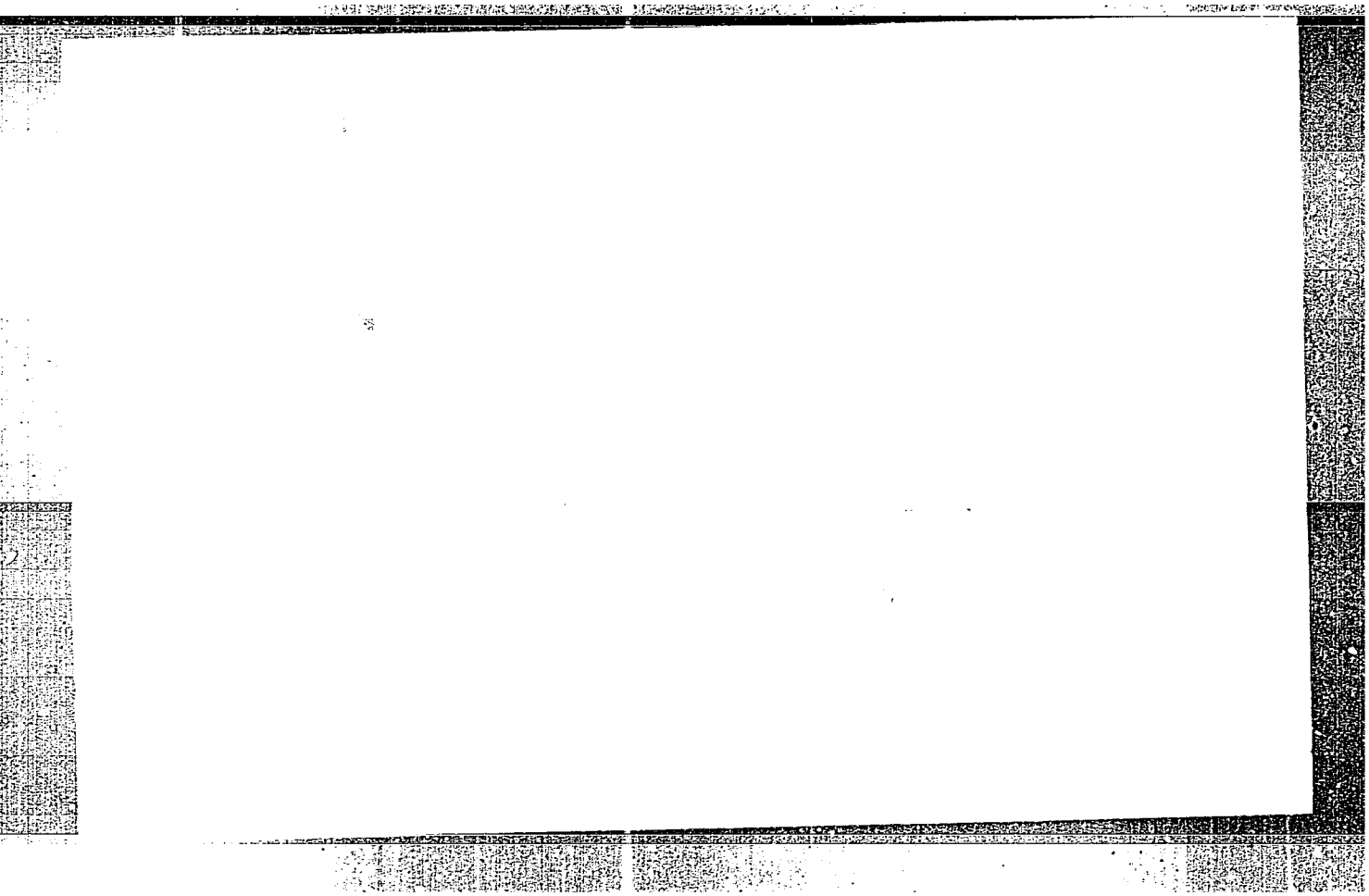
Title : Vulcanization of butadiene-styrene rubber in the presence of sulfenamide accelerators

Periodical : Zhur. prikl. khim., 28, 5, 533-542, 1955

Abstract : Experiments with benzothiazolesulphenodiethylamide showed that this accelerator exerts a higher vulcanizing action than sulfur. The effect of benzothiazolesulphenamide and of sulfur mixtures is discussed. Eleven diagrams, 5, references, 2 Russian (1947-1953).

Institution : Scientific Research Institute of the Tire Industry.

Submitted : Ag 10, 1953



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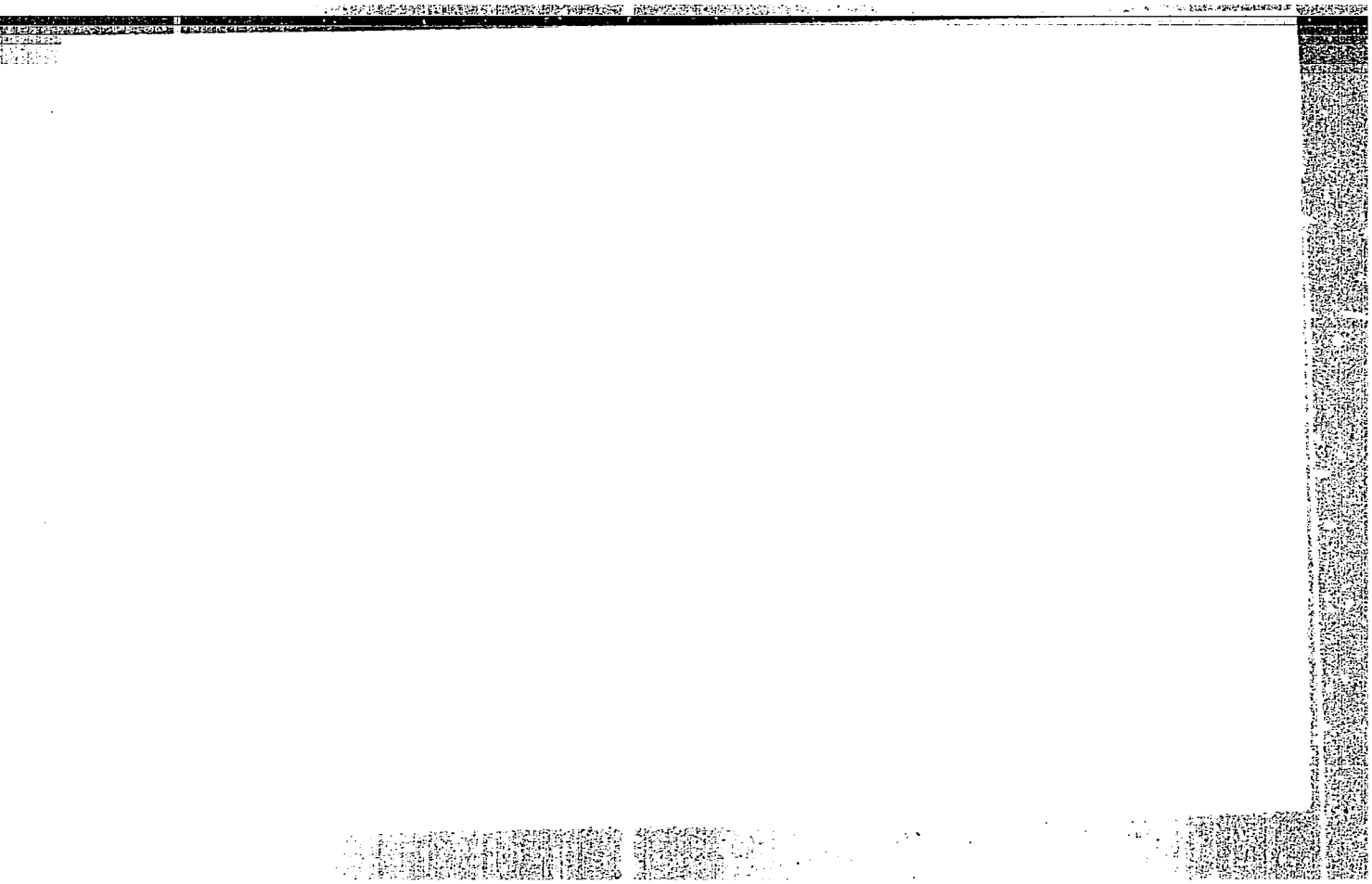

APPROVED FOR RELEASE: Monday, July 31, 2000 CIA-RDP86-00513R000412830

SOV/138-58-9-3/11

AUTHORS: Dogadkin, B. A; Fel'dshteyn, M. S; Eytingon, I. I. and Pevzner, D. M.

TITLE: Action of Some Heterocyclic Disulphides as Vulcanisation Agents and Accelerators (O deystvii nekotorykh geterotsiklicheskikh disul'fidov, kak agentov i uskoriteley vulkanizatsii)

PERIODICAL: Kauchuk i Rezina, 1958, Nr 9, pp 7 - 12 (USSR)

ABSTRACT: Experiments were carried out on the action of heterocyclic disulphides containing in the molecule >N-S-S-N< bonds, especially N,N'-dithiodimorpholine (DTM). This compound was obtained by reacting morpholin with sulphur dichloride in a dichlorethane solution at 2 - 4°C in the presence of alkali. Pure DTM was obtained after distillation and subsequent crystallisation. A percentage analysis of the product is given. The vulcanisation activity of DTM was investigated in butadiene-styrene rubber SKS-30A, with or without the addition of fillers, but which did not contain S. 7.4% of DTM was added to the rubber. The vulcanisation kinetics of a mixture containing sulphur was defined at the same time. Data on the kinetics of sulphur addition to the rubber at a vulcanisation temperature of 143°C is given

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in a graph (Fig.1). Fig.2: kinetics of changes in the rate of swelling of mixtures containing N,N'-dithiodimorpholine (1) DTM, N,N'-dithiodipiperidine (2) DTP and sulphur (3). When sulphur is used as vulcanisation agent for 120 minutes, no normal vulcanisates are formed. When DTM is used as vulcanising agent good results are obtained after 45 minutes (Fig.3). The effect of DTM on mixtures containing sulphur is graphically shown in Fig.4A. The vulcanising activity of DTM increases sharply when small quantities of mercaptobenzothiazole MBT or of sulphonamide BT are added. Vulcanisation systems containing DTM and dibenzothiazole disulphide (DBTD), but without sulphur, can be vulcanised in 40 - 50 minutes at 138°C; these optimum conditions are the same as for vulcanisates prepared by using sulphonamide and considerable quantities of sulphur (Fig.4B). Fig.5: Variations in the plasticity (according to Mooney) in mixtures containing DTM and sulphonamide BT. Values on swelling in xylene and solubility in chloroform after heating for 60 minutes at 100, 110, 120 and 130°C are given (Table 1). The

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addition of DTM influences the resistance of the vulcanisates during repeated deformations (Fig.6). These experiments show conclusively that DTM improves considerably the properties of the vulcanisates. The kinetics of the addition of S and N, when using DTM and DTP, are discussed and shown in 2 graphs (Figs. 7 and 8). There are 8 Figures, 1 Table and 8 References: 2 English, 5 Soviet and 1 German.

ASSOCIATION: Nauchno-issledovatel'skiy institut shinnoy promyshlennosti (Scientific-Research Institute of the Tyre Industry)

69-20-3-5/24

AUTHORS: Fel'dshteyn, M.S.; Eytingon, I.I.; Pevzner, D.M.; Dogadkin, B.A.

TITLE: The Vulcanization Action of Some Heterocyclic Disulfides (Vulkanizuyushcheye deystviye nekotorykh geterotsiklicheskikh disul'fidov)

PERIODICAL: Kolloidnyy zhurnal, 1958, vol. XX, Nr 3, pp 288-292 (USSR)

ABSTRACT: The organic di- and polysulfides are very important for the intensification of technological processes, because they act at the same time as accelerator and as independent vulcanization agents. In the article, heterocyclic disulfides which contain in the molecule >N-S-S-N< bonds are investigated. To these compounds belongs N,N'-dithiodimorpholine. Rubber vulcanized by this substance is resistant to the formation of cracks at frequent deformations with an increase of the corresponding index from 117.5 to 225 cycles, and is also resistant to aging due to the presence of resistant vulcanization bonds. The vulcanization by N,N'-dithiodimorpholine is accompanied by the joining of sulfur and nitrogen. The content of the bound sulfur considerably surpasses the content of bound nitrogen. The vulcanizing action of the sub-

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The Vulcanization Action of Some Heterocyclic Disulfides

stance is regarded as a consequence of the asymmetrical decomposition of the compound into free radicals.
There are 5 graphs and 5 references, 3 of which are Soviet and 2 English.

ASSOCIATION: Nauchno-issledovatel'skiy institut shinnoy promyshlennosti, Moskva (Scientific Research Institute of the Tire Industry, Moscow)

SUBMITTED: January 23, 1958

Card 2/2 **1. Disulfides—Heterocyclic—Vulcanization**

DOGADKIN, B.A.; FEL'DSHTEYN, M.S.; BELYAYEVA, E.N.

Effect of double systems of vulcanization accelerators. Vysokom soed. 1 no.2:254-264 F '59. (MIRA 12:10)

1. Nauchno-issledovatel'skiy institut shinnoy promyshlennosti, Moskva.
(Vulcanization)

DOGADKIN, B.A.; BELYATSKAYA, O.N.; DOBROMYSLOVA, A.V.; FEL'DSHTEYN, M.S.

Vulcanization of rubber in the presence of N,N-diethyl-2-benzothiazylsulfenamide as accelerator. Vysokom. soed. 1 no.6:878-888 Je '59. (MIRA 12:10)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii im. Lomonosova.
(Vulcanization)

15(9) SOV/63-4-1-4/31

AUTHORS: Fel'dshteyn, M.S., Candidate of Chemical Sciences, Orlovskiy, P.N., Candidate of Technical Sciences

TITLE: Modern Chemical Materials for the Rubber Industry (Sovremennyye khimicheskiye materialy dlya rezinovoy promyshlennosti)

PERIODICAL: Khimicheskaya nauka i promyshlennost', 1959, Vol 4, Nr 1, pp 26-34 (USSR)

ABSTRACT: Sulfur is the universal vulcanization accelerator. For polychloroprene and carboxylate rubbers metal oxides are employed as accelerators. Among organic compounds the thiazoles are extensively applied in vulcanization. Mercaptobenzothiazole derivatives are used as accelerators for butadiene-styrene rubbers. Organic di- and polysulfides are vulcanization agents and accelerators at the same time. For butyl-rubber the special agent and accelerator of vulcanization n-quinonedioxime has been developed. Retarders prevent the premature vulcanization. The most important of them is phthalic anhydride. The age resistors belong to the primary and secondary aromatic amines, the aromatic diamines, the condensation products of aromatic amines with aldehydes, and the phenols. Phenyl-β-naphthyl-

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