S/138/61/000/011/004/007
A051/A125

The effect of fillers and softeners on...

in the presence of fillers and softeners. The nature of the relation $\tau_u - \varepsilon$ does not vary to any great extent, and the relation $\tau_p - \varepsilon$ is one of fluctuation, (where ε is the deformation, ε_{cr} - critical deformation). The active fillers in rubbers based on non-polar rubbers (NR) shift the $\varepsilon_{critical}$ towards the greater deformations, and in rubbers based on polar raw material, they have a weak effect (SKN-40), or have no effect at all (nairite) on the ε_{cr}. The non-active fillers (chalk) do not effect the ε_{cr}. The softener shifts the ε_{cr} in polar-based rubbers towards the lower deformation. In two-fold deformation, orientation is developed to a lesser degree than in the case of a single deformation, and the range ε_{cr} disappears almost entirely. The ratio τ_u/τ_p (conditional, since it depends on the thickness of the sample), for samples of equal thickness depends only very slight- ly on temperature and concentration of the ozone. This ratio also changes very slightly in the presence of fillers and softeners, whereby in these cases τ_u is much smaller than τ_p for the investigated thicknesses. It is assumed that the ac- tive fillers sharply increase the inter-molecular activity in the non-polar rubbers, and only slightly in the polar ones. There are 8 figures, 2 tables, and 10 ref- erences: 7 Soviet-bloc and 3 non-Soviet-bloc. The references to the 3 most recent English-language publications read as follows: J. Crabtree, A. H. Kemp, Ind. Eng.

Card 2/3

The effect of fillers and softeners on...

S/138/61/C00/011/004/007
A051/A125

Chem., 38, no. 3, 850 (1946); Van Pul, Trans. IRI, 34, no. 3, 37 (1958); D. S. Thompson, R. H. Baker, R. W. Brownlow, Rubb. Chem. Technol. 25, vyp 4, 948 (1952).

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

Card 3/3

S/190/61/003/002/001/012
B130/B202

AUTHORS: Zuyev, Yu. S., Borshchevskaya, A. Z., Pravednikova, S. I.,
Wu Yuch-ch'in

TITLE: Temperature effect on the durability of rubber in the case of
crazing due to corrosion

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 3, no. 2, 1961, 164-173

TEXT: The authors studied the corrosion destruction of a vulcanizate pro-
duced on the basis of a carboxyl-containing divinyl styrene rubber CKC-30-1
(SKS-30-1) under the action of 1N HCl, 0.24 N CH_3COOH and gaseous HCl

(0.82 mmole/mole) and ozone. On corrosion, the vulcanizing agent MgO passes
into solution; the reaction kinetics can be inferred from the concentration
of $Mg^{..}$ in the solution. It was determined photocolorimetrically with
titanium yellow. τ_r, the time passing until the rupture was assumed to be
the fundamental characteristics of the process. Deformation ε was kept
constant. The specimens were chosen such that they had the same thickness
in deformed state. The apparent activation energy u of the effect of HCl

Card 1/3

Temperature effect on ...

S/190/61/003/002/001/012
B130/B202

on the non-deformed rubber specimens was determined from the inclination of the straight line which is obtained when plotting the kinetic curve of the accumulation of $Mg^{..}$ in the coordinates $c, \sqrt{\tau}$. For ε = const double bands applied to frames were investigated and the mean values were determined from 16-40 experiments. Swelling in HCl is 0.6-1.9% at a temperature of 25-40°C during 2 hr. It was 2.7-14% in acetic acid under equal conditions. The temperature dependence of τ_r for ε = const and σ = const can be expressed by the Arrhenius equation

$\tau_r = Ae^{u/RT}c^{-\alpha}$. The rate of the reaction between non-deformed rubber and a corroding medium is determined by diffusion. The rate of destruction of a deformed rubber is determined by the rate of the chemical reaction with the medium. The apparent activation energy (u) hardly changes in the region of deformation of 30-80%; it amounts to approximately 20 kcal/mole. On passage to deformation from 500-700%, however, it increases to ~30 kcal/mole. The temperature coefficient of the rupture depends on the type of the destroyed bonds and on the ability of the corroding medium of being adsorbed by rubber. On rupture in a gaseous medium the apparent activation energy is lower than in solutions of the same agent. The time

Card 2/3

Temperature effect on ...

S/190/61/003/002/001/012
B130/B202

passing until the rupture of the rubber depends on complex factors. It attains a minimum in the region of critical deformation ε_{kr}. ε_{kr} depends on temperature, on the type of the corrosive agent, and the state (gas, solution) of the medium. Anomalies may occur as a result of the displacement of ε_{kr} in the case of temperature changes. In the case of lower temperatures, the time passing until the rupture may be shorter than in the case of higher temperatures under equal conditions. G. M. Bartenev, S. N. Zhurkov, L. S. Bryukhanova, B. N. Narzulayev are mentioned. There are 11 figures, 1 table, and 15 references: 14 Soviet-bloc and 1 non-Soviet-bloc. The reference to English language publication reads as follows: B. D. Cadle, S. Schadt, J. Amer. Chem. Soc. 74, 6002, 1952; J. Chem. Phys. 21, 163, 1953.

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

SUBMITTED: June 30, 1960

Card 3/3

ZUYEV, Yu.S.; PRAVEDNIKOVA, S.I.

Methods of testing rubbers for resistance to ozone cracking. Kauch. i rez. 20 no.1:30-32 Ja '61.   (MIRA 14:3)

1. Nauchno-issledovatel'skiy institut rezinovoy promyshlennosti.
(Rubber—Testing) (Ozone)

ZUYEV, Yu. S.; MALOFEYEVSKAYA, V.F.

Effect of moisture on the ozone cracking of rubbers. Kauch. i
rez. 20 no.6:26-29 Je '61.   (MIRA 14:6)

1. Nauchno-issledovatel'skiy institut rezinovoy promyshlennosti.
(Rubber—Testing)
(Ozone)

34941

S/138/62/000/003/005/006

A051/A126

15.9300

AUTHORS: Zuyev, Yu.S., Pravednikova, S.I., Kotel'nikova, G.V.

TITLE: Effect of wax-like substances and anti-ozone aging media on the rubber resistance to ozone cracking

PERIODICAL: Kauchuk i rezina, no. 3, 1962, 21 - 24

TEXT: An evaluation is given of the rubber resistance to ozone cracking, when certain protective substances (waxes and anti-ozone aging media) are included in the composition. The time factor prior to the appearance of cracks τ_i and that of tear τ_t at various deformations are used as criteria. The effects of paraffin, ceresin and anti-lux were investigated for rubbers of NR, $CKC-30$ (SKS-30) and $CKH-40$ (SKN-40), under conditions of static deformation. The values are given of the τ_i/τ_t relation to the values of deformation in NR vulcanizates with 30 weight parts of channel carbon black, in the presence of ceresin and without it. The results show that the waxes increase the τ_i in all deformations. The disappearance of ε crit. (critical deformation), and the occurence of an unchanging relation $\tau_t - \varepsilon$, when 5 w.p. of various waxes or anti-ozone aging agents are introduced into the SKS-30 and NR mixtures, is explained by the fact

Card 1/2

Effect of wax-like......

S/138/62/000/003/005/006
A051/A126

that in the presence of these substances the number of cracks are reduced, especially within the range of deformations greater than the critical value. It is experimentally concluded that waxes increase the time prior to the appearance of cracks under all deformations; the time prior to tear increases in the range of 20 - 40% deformations and decreases within the deformation range higher than these values. The anti-ozone aging agents increase the time prior to the appearance of cracks and the time when the tear occurs under all deformations, but their protective effectiveness decreases with an increase of the deformation. The τ_1/τ_t relation increases with the introduction of protective substances into the vulcanizate. The exception is that case where neozone D is introduced into nairite rubber. When protective substances are introduced in quantities of 5 to 100 w.p. of rubber, the relation $\tau_t - \varepsilon$ becomes monotonous. There are five figures, 1 table and 7 references: 5 Soviet-bloc and 2 non-Soviet-bloc. The reference to the most recent English-language publication reads as follows:
4) H.A. Vodden, M.A., Wilson, Trans.Inst.Rubb.Ind., 35, 82 (1959).

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

Card 2/2

ZUYEV, Yu.S.; PRAVEDNIKOVA, S.I.; KOTEL'NIKOVA, O.V.

Effect of waxlike substances and ozone-aging inhibitors on the
resistance of rubber to ozone cracking. Kauch.i rez. 21 no.3:
21-24 Mr '62.   (MIRA 15:4)

1. Nauchno-issledovatel'skiy institut rezinovoy promyshlennosti.
                    (Rubber, Synthetic—Testing)

37180   S/138/62/000/004/008/008
         A051/A126

15.9300

AUTHORS: Zuyev, Yu.S.; Kirshenshteyn, N.I.; Matveyev, A.A.

TITLE: Rupturing machine with contactless measurement of deformation and automatic tension recording

PERIODICAL: Kauchuk i rezina, no. 4, 1962, 44 - 47

TEXT: Machines for automatic measurement of deformation used at the present time are said to have the following shortcomings: In all cases the measurement between the clamps does not correspond to the deformation of the working section for which the tension in expansion is being measured. An American patent with additional attachment for recording the expansion of the working section is also mentioned as having not given positive results. The Scientific Research Institute of the Rubber Industry has designed an instrument with automatic recording of force and distance between the indications of the working section. The instrument makes it possible to simultaneously measure and test two samples within a wide temperature range. Its dimensions do not depend on the number of samples tested. The introduction of a second parallel line for recording the magnitude of force on the second sample, is the only complication in the instrument (Fig.

Card 1/4

S/138/62/000/004/008/008
A051/A126

Rupturing machine with contactless ....

1). The ПСР-1 (PSR-1) potentiometer is used as the registering device of the tension balance discord. Measurements of the working section length of the test-ed sample, under action of expansion force, are recorded on a "Kiyev 16 C-2" (16S-2) movie camera film. The latter has a filming speed of 16 to 64 frames per second, or can be used for single shots. Figure 2 represents the diagram of the electrical system of the special device for recording the relative elongation. ДГЦ-27 (DGTs-27) semiconductor diodes are used. The device which records the curve, load-moment of time, corresponding to the filming of the given frame, has a mobile recorder ПСР-1 (PSR-1), registering the deformation load, and is sup-plied with a light-weight electromagnet which removes the recorder from the paper when disconnected, thus creating an intermittant line instead of a solid one. The electromagnet is connected through the time relay ЭВ-234 (EV-234) by the col-lector which cuts in the lock of the movie camera. The average quadratic error of measurement when calculating the rupturing tension of the instrument, within a temperature range of from 20 to 100°C, is 9.7%. There are 2 figures and 11 ref-erences: 8 Soviet-bloc and 3 non-Soviet-bloc.

ASSOCIATION: Nauchno-issledovatel'skiy institut rezinovoy promyshlennosti (Sci-entific Research Institute of the Rubber Industry)
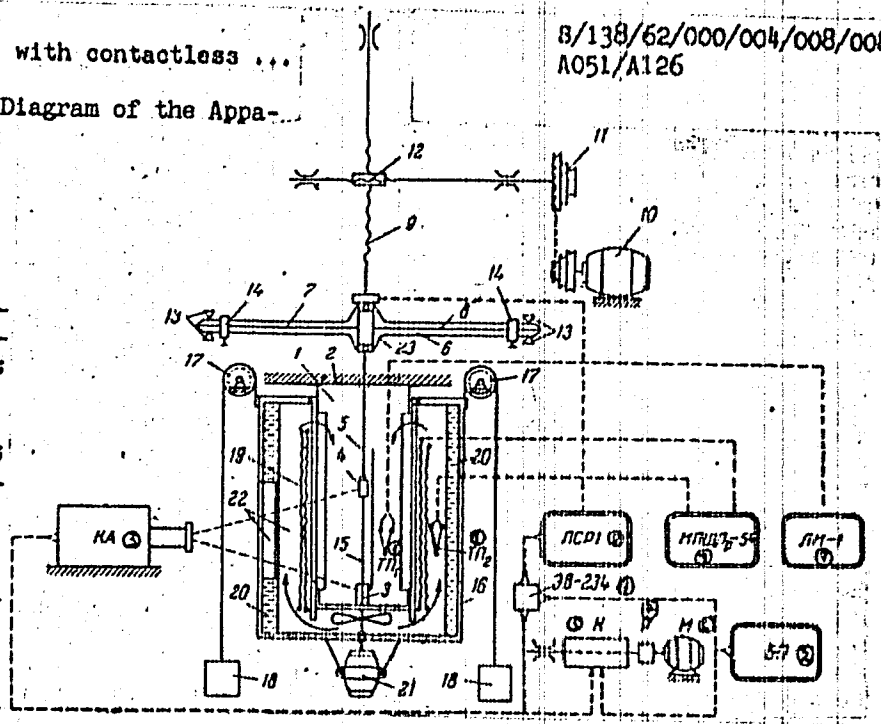
Card 2/4

Rupturing machine with contactless ...

Figure 1: Block Diagram of the Appa-
ratus for testing
rubbers in expan-
sion: 1 - cylin-
der; 2 - panel;
3 - lower clamp;
4 - upper clamp;
5 - traction; 6 -
lower spring; 7 -
double-spring rod;
8 - upper spring;
9 - upper trac-
tion; 10 - motor;
11 - pulleys; 12-
worm gear; 13 -
prisms; 14 -
clamps; 15 -
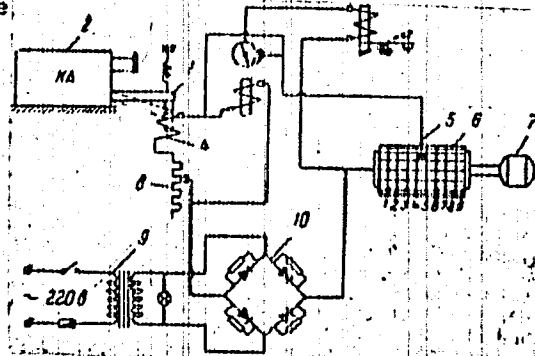tested sample; 16-
thermo-chamber;

Card 3/4

Rupturing machine with contactless ....

17 - weighted blocks; 18 - balancing weights; 19 - electroheater; 20 - thermo-insulating layer; 21 - ventilator; 22 - viewing window; 23 - spring-type collar with transmissions; (1) thermocouples; (2) feeding block; (3) movie camera "Kiyev 16S-2); (4) time relay; (5) collector drum; (6) motor; starting up the collector drum; (7) reductor; (8) potentiometer; (9) instruments of the thermocouple, correspondingly ТП$_1$ and ТП$_2$ (TP).

Figure 2: Electrical circuit of the device for recording the relative elongation.
1 - clamp of the movie camera; 2 - movie camera; 3 - stand; 4 - electromagnet; 5 - sliding contact; 6 - collector drum; 7 - motor; 8 - rheostat; 9 - transformer; 10 - rectifier.

Card 4/4

S/020/62/144/004/020/024
B101/B138

AUTHORS: Zuyev, Yu. S., and Borshchevskaya, A. Z.

TITLE: Influence of the concentration of chemically aggressive media on the durability and creep of rubbers

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 144, no. 4, 1962, 849 - 852

TEXT: The dependence of the breaking time τ_{br} of rubber on the concentration C of the aggressive medium (O_3 or acids) was studied under constant stress σ. Determinations were made of τ_{br}, the creep rate W, the durability D, the relative creep CR and the "concentration threshold" P_c at which the aggressive medium begins to intensify the damage. Results: (1) The curves for $W = W(C)$ and τ_{br} are made up of three sections. In the first section $\tau_{br}(W)$ is constant up to a certain value of C. In the transition section the function is curved and finally $\tau_{br} C^k = const.$ (k~1). (2) W can be expressed as the combined effect of steady fatigue (such as would

Card 1/4 3

S/020/62/144/004/020/024
B101/B138

Influence of the concentration...

occur in the absence of an aggressive medium) and chemical corrosion. From this it can be deduced that $\tau_{br}W^m = $ const., wherein the exponent m does not depend upon C until C = 0. (3) Plots of log W against ln X and of $\log_{br}$ against log X' are linear (X = 1 + $k_{ch}C^n/W_{st}$; X' = 1 + $\tau_{st}C^k/k'_{ch}$; the index st relates to the steady process and the index ch to the chemical process). (4) P_c may best be determined from the intersection of the two curves W = W(C) and $\tau_{br} = \tau(C)$; P_c being the lowest concentration at which D = τ_{st}/τ_{br} and CR become greater than unity. The relation log D = m log CR is valid. (5) For CKC-30-1 (SKS-30-1) vulcanized rubber and nairit, the influence of O_3, acetic acid and hydrochloric acid on the ratio log W_{mean}/W_{st} was studied (Fig. 3). Action of HNO_3 on butyl rubber gave P_c = 5.6·10⁻³ mmole/mole and on fluorine-containing rubber of Kel-F type P_c = 4.5 mmole/mole. If, however, C_{HNO_3} is increased to 4 N the

Card 2/4

Influence of the concentration...

$S/020/62/144/004/020/024$
$B101/B138$

value of D for butyl rubber increases and D begins to depend on C_{HNO_3}.

(6) There is a continuous transition from steady fatigue of rubber under the effect of stress alone to its destruction under the combined effect of stress and an aggressive medium. There are 4 figures.

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

PRESENTED: January 15, 1962, by P. A. Rebinder, Academician

SUBMITTED: December 12, 1961

Fig. 3. Influence of C on the relative durability and creep of rubbers at 35°C. (1) SKS-30-1, O_3, $\sigma = 434$ kg/cm^2; (2) nairit, O_3, $\sigma = 434$ kg/cm^2; (3) SKS-30-1, acetic acid, $\sigma = 91$ kg/cm^2; (4) SKS-30-1, hydrochloric acid, $\sigma = 84$ kg/cm^2; (5) SKS-30-1 vulcanized with sulfur, hydrochloric acid, $\sigma = 50$ kg/cm^2.

Card 3/4

ACCESSION NR: AP4017642

AUTHORS: Zuyev, Yu. S.; Borshchevskaya, A. Z.

TITLE: Dependence of rubber durability upon concentration of a chemically corrosive medium

SOURCE: Vy*sokomolekulyarny*ye soyedineniya, v. 6, no. 2, 1964, 323-328

TOPIC TAGS: rubber, corrosive medium, polymer hardening, activation energy, rupture, reaction rate, adsorption interaction, stressed state

ABSTRACT: The effect of stress on the threshold concentration P_0 has been determined and the relationship $\tau_p = kc^{-\alpha}$ was evaluated (C - concentration of corrosive material, τ_p - breakdown time). For small deformations close to rupture, τ_p decreases with an increase in σ, and for intermediate regions τ_p increases. Under polymer hardening stresses, P_0 shifts towards lower concentrations with a rise in stress. In regions of corrosive concentration, where the relationship $\tau_p = kc^{-\alpha}$ is satisfied, the slopes of the straight lines $\lg \tau_p - \lg c$ are independent of the stress (α - constant), and the apparent activation energy becomes independent of the concentration. The chemical interaction between rubber and the corrosive medium is

Card 1/2

ACCESSION NR: AP4017642

represented by $\Pi + qA \to \Pi A_q$, where r, q - constants, π - active part of rubber.

$K + rA \to KA_r$

When τ_p is determined from the rate of growth of cracks, and the latter in turn is proportional to the chemical reaction rate between the polymer and the medium, the coefficient α depends on the absorption interaction (m), the order of the chemical reaction q, and the concentration of the stressed regions of the polymer P. Orig. art. has: 4 formulas and 4 figures.

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

SUBMITTED: 04Jan63

DATE ACQ: 23Mar64

SUB CODE: MT

NO REF SOV: 006

ENCL: 00

OTHER: 001

Card 2/2

ACCESSION NR: AP4045429

AUTHOR: Zuyev, Yu. S., Bartenev, G.M., Kirshenshteyn, N.I.

S/0190/64/006/009/1629/1636

TITLE: Longevity and strength of rubberlike polymers

SOURCE: Vy*sokomolekulyarny*ye soyedineniya, v. 6, no. 9, 1964, 1629-1636

TOPIC TAGS: radiation vulcanization, polymer longevity, polymer strength, filler, synthetic rubber, vulcanized rubber, nitrile rubber, polymer structure

ABSTRACT: An investigation of the longevity and strength of unfilled radiation vulcanizates from nitrile rubbers (SKN-18, 26, 40) (equilibrium modulus = 3, 7, 12 and 24 kg/sq. cm) and filled vulcanizates from SKT and SKF rubber showed that under the influence of a constant stress, the relation $\tau = f(\sigma)$ can be expressed by the formula $\tau = B\sigma^{-n}$ (1). In many cases, however, in the same experimental range of longevity within the limits of variation, the relation $\tau = Ae^{-\alpha\sigma}$ (2) is valid; thus, a vulcanizate of SKN-26 filled with carbon black complies with relation (2). The $\log \tau - \log \sigma$ curves are usually parallel at high temperatures (100-150C). On decreasing the temperature to 40C, the 25° angle of inclination of the curves decreases. The apparent activation energy of destruction at high temperatures is independent of the stress, and for radiation vulcanizates, the order of

Card 1/3

ACCESSION NR: AP4045429

magnitude of the activation energy corresponds to the energy of intermolecular interaction of the segments of flow. In the presence of relatively weak crosslinks, they participate to a considerable extent in the rupturing process and the activation energy increases. Over the temperature range 25-40C, the apparent activation energy increases with increasing stress. The latter can be explained by the fact that with increasing stress, either the destruction of the supermolecular structure increases, or the contribution of the ruptured chemical bonds increases. With increasing temperature, for many vulcanizates such as SKN-40, SKN-26 and SKN-18, an inversion of longevity and strength is observed. This is probably due to the fact that at increased temperatures, the strength properties are determined by the imperfection of the molecules, which is greater for SKN-40 than for a SKN-18, while at normal temperatures, the negative influence of the imperfection of the molecules is overlapped by the positive effect of the intermolecular interaction and the supermolecular structures. On increasing the density of the three-dimensional network, the longevity (as well as the strength) varies according to a curve with a maximum. The location of this maximum does not change with increasing temperature. An increase in temperature

Card 2/3

ACCESSION NR: AP4045429

diminishes the effect of the density of the network and the effect of the amount of inter-
molecular interaction on the longevity. Finally, the longevity of vulcanizates char-
acterized by the nature of the crosslinks is much greater when the crosslinks have
a greater mobility. Orig. art. has: 7 figures, 2 tables and 3 formulas.

ASSOCIATION: Nauchno-issledovatel'skiy institut rezinovoy promy*shlennos.: (Scientific
Research Institute of the Rubber Industry)

SUBMITTED: 26Oct63

ENCL: 00

NO REF SOV: 016

OTHER: 001

SUB CODE: OC, MT

Card 3/3

BARTENEV, Georgiy Mikhaylovich, doktor khim. nauk, prof.;
ZUYEV, Yuriy Sergeyevich, kand. khim. nauk; NEFOMNYASHCHIY,
A.I., red.

[Strength and deterioration of highly elastic materials]
Prochnost' i razrushenie vysokoelasticheskikh materialov.
Moskva, Khimiia, 1964. 387 p.   (MIRA 18:1)

1. Problemnaya laboratoriya fiziki polimerov Moskovskogo
gorodskogo pedagogicheskogo instituta (for Bartenev).
2. Nauchno-issledovatel'skiy institut rezinovoy promysh-
lennosti (for Zuyev).

ZUYEV, Yu.S.; POSTOVSKAYA, A.F.

Effect of tetramethyl thiuram disulfide on the ozone and photoozone aging
of rubber. Kauch. i rez. 24 no.5:18-20 My '65.
(MIRA 18:9)

1. Nauchno-issledovatel'skiy rezinovoy promyshlennosti.

ZUYEV, Yu.S.; KOSHELEV, F.F.; OTOPKOVA, M.A.; MIKHALEVA, S.B.

Effect of antiozonants on the ozonization of rubber at various
temperatures. Kauch. i rez. 24 no.8:12-16   '65.

1. Nauchno-issledovatel'skiy institut rezinovoy promyshlennosti.

(MIRA 18:10)

ACC NR, AP5028899   JD/WW/WB/RM

AUTHOR: Zuyev, Yu. S.; Borshchevskaya, A. Z.

SOURCE CODE: UR/0138/65/000/011/0010/0013

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

TITLE: Relationship between the failure and creep of rubbers in corrosive media

SOURCE: Kauchuk i rezina, no. 11, 1965, 10-13

TOPIC TAGS: rubber, creep, material failure, material deformation

ABSTRACT: In the interaction between rubbers and corrosive media under conditions of constant stress, the processes of failure and deformation are related by the formula $\tau_w{}^m = A$. Parameter m characterizes the relationship between the change in the rates of failure and the creep rate of rubbers over a certain range of concentrations of the medium, stress, or temperature. As the process of failure shifts toward a more "brittle" rupture of the rubber, $m > 1$, and A decreases; in the case of a more "plastic" rupture, $m < 1$, and A increases. A shift toward a more "brittle" rupture is observed when the concentration threshold of the corrosive medium drops, and when there is an increase in the intermolecular interactions due to molecular orientation at high deformations or when active fillers are introduced. Certain antiozonants decrease the failure and creep rates without affecting their ratio both at different ozone concentrations and different stresses. The ratio of the rates of the two processes may change in the same medium ($m \neq$ const) at a constant

Card 1/2   UDC: 678.063:678.019.3

ACC NR: AP5028899

stress and temperature when the nature of the chemical interaction changes at cer-
tain concentrations of the medium. In the absence of this phenomenon, when
m = const, the method of calculating the durability from the measured creep rate
can be used. Orig. art. has: 2 tables and 5 formulas.

SUB CODE: 11 / SUBM DATE: none / ORIG REF: 006

Card 2/2

ACC NR: AP6016908   (A)

SOURCE CODE: UR/0138/66/000/001/0023/0028

AUTHOR: Zuyev, Yu. S.; Borshchevskaya, A. Z.

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

TITLE: The effect of fillers on the durability of rubber in aggressive media

SOURCE: Kauchuk i rezina, no. 1, 1966, 23-28

TOPIC TAGS: rubber, filler, durability, chemical stability, rupture strength, creep

ABSTRACT: Fillers may have the following effect on the durability of rubber: 1. they may change the number of chemically active centers in the system; 2. they may affect the rate of diffusion of the aggressive medium into the rubber; 3. they may change the stress distribution in a deformed specimen. 4. they may change the relationship between deformation and fatigue. Experiments are performed using various types of rubber, fillers and aggressive media. Results show that in the majority of cases there is no change in the exponential nature of the relationship between the dura- bility of the rubber and stress in an aggressive medium when fillers are added. Never- theless fillers do have an effect on the parameters of this relationship. When rubber is subjected to the simultaneous action of stress and an aggressive medium, the stress grows while the filler increases the chemical stability and strength of the

Card 1/2

UDC: 678.4.063.678.046:678.019.34

ACC NR: AP6016908

rubber. The intensity of the relationship between durability and stress due to fill-ing is determined by the ratio between rupture and creep. The sequential arrangement of filled rubber with respect to rupture resistance is correlated with the sequential arrangement of this rubber according to durability, where durability is determined at high stresses. Orig. art. has: 5 figures, 1 table, 1 formula.

SUB CODE: 07,11/ SUBM DATE: 26Mar64/ ORIG REF: 007/ OTH REF: 000

Card 2/2

AUTHOR: Zuyev, Yu. S.; Dorfman, T. I.   (A)   SOURCE CODE: UR/0138/66/000/003/0021/0024

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

TITLE: Influence of defects on the life of rubbers

SOURCE: Kauchuk i rezina, no. 3, 1966, 21-24

TOPIC TAGS: natural rubber, butadiene styrene rubber, filler

ABSTRACT: The life τ of a rubber acted upon by a steady tensile stress σ is described by the empirical formula $\tau = Be^{-b}$, where b and B are constants characterizing the life of the rubber. The extent to which defects affect constants b and B was studied. Defects of various types (punctures, cuts, fissures, inert filler, molecular microdefects) qualitatively influence constants b and B and also σ_1 ($\sigma_1 = B-b$, i. e., the stress at which the specimen tears in 1 sec) to the same extent. An active filler affects constants b and B to the same degree as an inert one. Constants b and B of filled vulcanizates decrease as do those of an unfilled rubber. The value of σ_1 increases sharply upon introduction of an active filler, and decreases when an inert one is introduced. Owing to the change of b upon introduction of fillers, standard short-time strength tests give an idea of the comparative effect of fillers and defects.

Card 1/2

UDC: 678.063:678.019:539.43

L 46169-66

ACC NR: AP6021205

Orig. art. has: 4 figures, 1 table, and 4 formulas.

SUB CODE: 11/ SUBM DATE: 28Dec63/ ORIG REF: 011/ OTH REF: 002

Card 2/2

L 05650-67   EWP(j)/EWT(m)   IJP(c)   RM

ACC NR: AP6026761   (A)   SOURCE CODE: UR/0138/66/000/005/0024/0027

AUTHOR: Grozhan, Ye. M.; Zuyev, Yu. S.; Kikabidze, E. V.

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

TITLE: Study of the chemical stability of cured rubbers from raw butadiene-styrene rubbers

SOURCE: Kauchuk i rezina, no. 5, 1, 1966, 24-27

TOPIC TAGS: butadiene styrene rubber, carbon black, corrosion

ABSTRACT: The behavior of cured rubbers prepared from SKMS-30RP and SKMS-30ARKM-15 raw rubbers charged with furnace, lamp and channel gas black was studied in mineral acids (20% HCl, 50% H_2SO_4, 75% H_3PO_4) at 70°C by determining the swelling and strength characteristics after 25 days of contact with the acids. HCl was found to be the most corrosive medium. The cured rubbers from SKMS-30RP and SKMS-30ARKM-15 charged with lamp black were equivalent in plasticity and heat and chemical stability to the rubber from SKB, and somewhat superior to the latter in resistance to 20% HCl. Since SKMS-30RP raw rubber had a set of properties superior to SKMS-30ARKM-15, it was charged with lamp black and used in further studies. The optimum amount of lamp black was found to be 80 pts. by wt. Rosin softener in the amount of 5 pts. by wt. was added with lamp black in order to improve the plasticity of the rubber. After 25 days of contact with

Card 1/2   UDC: 678.762.2-134.622:678.019.34

L 05650-67

ACC NR: AP6026761

20% HCl at 70°C, the tensile strength of this experimental rubber remained unchanged, whereas that of cured rubber from SKB decreased by 40%; the percent decrease of elongation in the experimental rubber was one-half that of the rubber from SKB, and its swelling was 12.5% versus 42% in the rubber from SKB. Orig. art. has: 2 figures and 3 tables.

SUB CODE: 11/ SUBM DATE: 31May65/ ORIG REF: 007/ OTH REF: 001

Card 2/2

ZUYEV, Yu.S.; BARTENEV, G.M.; KIRSHENSHTEYN, N.I.

Life and strength of rubberlike polymers. Vysokom.soed. 6 no.9:1629-1636 S '64.   (MIRA 17:10)

1. Nauchno-issledovatel'skiy institut rezinovoy promyshlennosti.

ZUYEV, Yu.S.; BARTENEV, G.M.; KIRSHENSHTEYN, N.I.

Analyzing the lasting quality of rubber under various methods of testing. Kauch. i rez. 23 no.9:14-16 S '64.

(MIRA 17:11)

1. Nauchno-issledovatel'skiy institut rezinovoy promyshlennosti.

REZNIKOVSKIY, Mark Moiseyevich; LUKOMSKAYA, Aleksandra Il'inichna;
        ZUYEV, Yu.S., red.

    [Mechanical testing of crude and vulcanized rubber] Mekha-
    nicheskie ispytaniia kauchuka i reziny. Moskva, Khimiia,
    1964. 525 p.   (MIRA 18:2)

ZUYEV, Yu.S.; BORSHCHEVSKAYA, A.Z.

Life of rubbers as dependent on the concentration of the chemically
aggressive medium. Vysokom.soed. 6 no.2:323-328 F '64. (MIRA 17:2)

1. Nauchno-issledovatel'skiy institut rezinovoy promyshlennosti.

BOGAYEVSKIY, A.P.; GORELIK, B.M.; ZUYEV, Yu.S.; KUZ'MINSKIY, A.S.; NOVIKOV, A.S.

Some results of the research work conducted by the Scientific Research Institute of the Rubber Industry. Kauch. i rez. 22 no.11; 1-10 N '63.   (MIRA 17:2)

1. Nauchno-issledovatel'skiy institut rezinovoy promyshlennosti.

ZUYEV, Yu.S.

Nature of critical deformation in the corrosion cracking
of rubbers. Vysokom. soed. 5 no.10:1479-1481 O '63.
(MIRA 17:1)

1. Nauchno-issledovatel'skiy institut rezinovoy promysh-
lennosti.

ZUYEV, Yu.S.; POSTOVSKAYA, A.F.; PODCHUFAROVA, G.M.

    Role of light in the light and ozone aging of rubber.
    Kauch. i rez. 22 no.7:14-17 Jl '63.   (MIRA 16:8)

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

ZUYEV, Yu.S.; PRAVEDNIKOVA, S.I.; ZHEREBKOVA, L.S.; ZAYTSEVA, V.D.

Rupture life of rubbers in the presence of physically aggressive media. Vysokom.soed. 5 no.8:1201-1206 Ag '63.   (MIRA 16:9)

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

ZUYEV, Yu.S.; BORSHCHEVSKAYA, A.Z.

Methods for testing stressed rubber in aggressive media. Kauch.
i rez. 22 no.10:23-27 O '63.   (MIRA 16:11)

1. Nauchno-issledovatel'skiy institut rezinovoy promyshlennosti.

ACCESSION NR: AP3004337   S/0028/63/000/007/0027/0028

AUTHOR: Zuyev, Yu. S.

TITLE: Exposure standardization of polymeric material samples under natural conditions

SOURCE: Standartizatsiya, no. 7, 1963, 27-28

TOPIC TAGS: polymeric material, exposure standard , natural condition

ABSTRACT: With the increasing use of polymeric materials in various industries, exposure standards should be developed to test systemati- cally the effects of sun, heat, moisture, ozone, aggressive industrial gases, salt for near the sea), and dust on their properties. In es- tablishing exposure standards the following factors should be consi- dered. ... ... same climatic zones, ... samples should be placed at an angle ... ... equal ... ... geographic latitude of the ... ... samples and thin metal plate samples should be ... ... when exposed to avert premature wear. Rubber should be exposed in a formed state preferably rectilinear in shape. To

Card 1/2

L 16794-63

ACCESSION NR: AP3004337

simplify testing, the reverse side of the sample should not be covered. In testing areas, sample temperature, ozone concentration, aggressive industrial gases, salt content, and dust should be measured in addition to air temperature, humidity, and radiation intensity. Before testing the sample should be normalized kept at a definite temperature and humidity for more reliable results. All standards for polymeric materials, articles, or formulas.

ASSOCIATION: None

SUBMITTED: 00

SUB CODE: MA

DATE ACQ: 20Aug63

NO REF SOV: 000

ENCL: 00

OTHER: 000

Card 2/2

FS-4   RM/WW/JD   S/0138/65/000/007/0014/0017

ACCESSION NR: AP5004255

AUTHOR: Zuyev, Yu. S.; Postovskaya, A. F.; Podchufarova, G. M.

...light on the ozone-light-induced cracking of vulcanizates

... ozone cracking, ozone-light-induced cracking, light-
... light activation, antioxidant, antiozonant, photo-
... butadiene-styrene
... light filter, conditional
... oxidation, ... nickel diethyl dithiocarbamate

... to determine the causes of the activating effect of light
... vulcanizates, a comparative study of light aging, ozone
... ozone simultaneously ... was
... (SKB), chloroprene
...

Card 1/2

L 14418-63
ACCESSION NR: AP3004253

modulus of undeformed vulcanizates. Resistance to ozone cracking and UOC was determined from data or the time elapsed at the onset of cracks and the failure of vulcanizates at 15% elongation. The results of the study, presented in the conclusion, indicate that the activating effect of light on UOC is due both to photooxidation and to an increase in the mobility of degraded rubber molecules. The resistance of vulcanizates could be improved by retarding oxidation with suitable antioxidants and taxes, by suppressing the adverse effect of light by means of light absorbers such substances as nickel diethyldithiocarbamate. Orig. art. has 5 tables.

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

SUBMITTED: 00   DATE ACQ: 21Aug63   ENCL: 00

SUB CODE: CH, PH
                                 NO REF SOV: 009   OTHER: 001

Card   2/2

AUTHORS: Zuyev, Yu.S., Zaytseva, V.D.

TITLE: The action of wax-like substances in ozone cracking of rubber

PERIODICAL: Kauchuk i rezina, no. 2, 1963, 22 - 25

TEXT: Certain aspects with regard to the use of waxes and wax-like sub-
stances (mixtures of isomer, or related compounds, regardless of the chemical
structure, having the consistency of wax) for the protection of rubber against
ozone cracking are discussed. A quantitative comparison is made of the objective
characteristics of destruction (the time prior to the appearance of maximum num-
ber of cracks, $\tau_{n\ max}$; time prior to the tear τ_t, rate of force reduction
dP/dt in the sample, and the number n of formed cracks). CKC -30 (SKS-30) rubber,
non-filled and filled with 30 w.p. channel carbon black and containing 0.2 and 5
w.p. ceresin was studied using a hermetically-sealed chamber. Signals were
passed through a three-channel amplifier ДМ-2 (DM-2) to an automatic ЭПП-09 M 1
(EPP-09-M1) electronic potentiometer. The "Zenit" camera was used to film three
samples simultaneously. The number of cracks, both in filled and non-filled

Card 1/2

The action of wax-like substances in S/138/63/000/002/005/007
A051/A126

rubbers is always less in the presence of wax. The less the quantity of the
formed cracks and the later their formation, the faster the force drops in the
sample and the sooner is the rubber destroyed. This is noted in the region of
large deformations of the rubbers, in the presence of wax and that the more, the
more wax is present. The comparison showed that in large deformations the wax,
slowing down the formation of cracks on the rubbers, reduces their service life
the more, the greater its dosage. In small deformations the protective action
of the wax is connected with the formation of a solid film on the rubber surface,
with the formation of single cracks, and with the wax migration on the sample
surface. There are 2 figures and 1 table.

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

Card 2/2

ZUYEV, Yu.S.; PRAVEDNIKOVA, S.I.; LIKHTMAN, T.V.

Stress dependence of rupture time in the cracking of rubbers
in aggressive media. Vysokom.soed. 5 no.2:262-268 F '63.
(MIRA 16:2)

1. Nauchno-issledovatel'skiy institut rezinovoy promyshlennosti.
   (Rubber—Testing)   (Strength of materials)

AUTHORS:

TITLE:

PERIODICAL:

Zuyev, Yu. S., Pravednikova, S. I., Likhtman, T. V.

S/190/63/005/002/018/024
B101/B102

Stress dependence of rupture time in the cracking of rubbers in aggressive media

Vysokomolekulyarnyye soyedineniya, v. 5, no. 2, 1963, 262-268

TEXT: The correlation between static fatigue and corrosion cracking was examined by determining the dependence of the lifetime τ on the stress at 0.001-0.002 ozone concentration in natural and synthetic rubbers with and without filler or plasticizer. The tangent b of the angle of inclination of the straight line log τ_1 = f(log σ), was determined. The deformation was kept so low that its effect on the structure was negligible. Results: In natural rubber and CKB (SKB) rubber without filler b was ~0.35; in polar rubbers, such as CKH-26 (SKN-26) and nitrite b was 0.80 and 0.75, respectively. With higher polarity, p.e., in CKH-40 (SKN-40) rubber, b increased to 1.45. Dilution of the rubber with

Card 1/2

Stress dependence of rupture ...   S/190/63/005/002/018/024
                                         B101/B102

a filler inert to ozone resulted in an increase of b. This is due to changes in the stress distribution, chemical activity and intermolecular interactions. $b = b_0 \exp(-kv_1)$, where b_0 is the b of the non-filled rubber, and $v_1 = (v - v')/v$; v is the volume of the rubber, v' is the volume of the ingredient. A distinct parallelism was observed between ozone cracking and static fatigue. For both $\tau_1 = B\sigma^{-b}$. Thus, the corrosive breakdown of rubbers under stress is only a special case of static fatigue. There are 8 figures.

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

SUBMITTED: September 7, 1961

Card 2/2

S/169/61/000/008/005/053
A006/A101

AUTHORS: Telezhenko, V. P., Zuyev, Z. A.

TITLE: A vibration-measuring capacitor for investigating piezoelectric
              emitters and receivers during seismic simulation

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 8, 1961, 8, abstract 8A65 ("Tr.
              Sibirsk. n.-i. in-ta geol. geofiz. i mineral'n. syr'ya", 1960, no. 9,
              138-142)

TEXT: Information is given on a device to determine the shapes of an emit-
ted pulse and to study frequency properties of piezoelectric receivers and
emitters. The capacitive method is employed to measure the diaphragm oscillations.
The piezo-transmitter diaphragm is used as one of the plane capacitor plates,
the other one is a special massive plate placed in an epoxy resin insulator.
Constant voltage is applied to the capacitor plates through a strong resistance.
Resistance R is determined by the internal resistance of the power supply source;
it prevents short-circuiting of the power supply source which could occur at an
approach of the capacitor plates. The variable component of voltage U, caused
by changes in the capacitance during the diaphragm oscillations, is supplied

Card 1/2

S/169/61/000/008/005/053
A006/A101

A vibration-measuring capacitor ...

through the separating capacitor to the input of 25H (25I) synchroscope with
100 cycles - 2 Megacycles frequency band. The piezo-converter investigated is
excited from output pulse generator У3С -2/31 (UZ8-2/31). The assembly is
carefully protected against electric induction. At a obtain dependence between
1 and U (where 1 is the distance between the plates and U is the voltage to be
recorded), the amplitude of diaphragm oscillations can be determined. Such
dependences are determined for a pack of battery-type Seignette's salt crystals
of 2 x 2 x 2 cm^3 dimensions at a duration of the excitation pulse equal to the
period of natural oscillations of the pack. Information is also given on
frequency characteristics of piezo-emitters, recorded with the aid of the afore-
mentioned device proposed. By applying to the piezo-element an external excita-
tion, which varies according to the harmonic law, and by studying the character-
istics of changes on the capacitor plates, formed by the diaphragm and the
metal plate, it is possible to establish the dependence on frequency of the ratio
of the harmonic oscillation amplitude at the input and terminal of the piezo-
element. The same method is suggested to obtain phase characteristics.

V. Obukhov

[Abstracter's note: Complete translation]

Card 2/2

9,6000 (also 1013, 1159)

31818
S/194/61/000/010/009/082
D256/D301

AUTHORS:

TITLE:

Telezhenko, V.P. and Zuyev, Z.A.

A capacitive vibration-measuring arrangement for investigating piezoelectric vibrators used in seismic modelling

PERIODICAL:

Referativnyy zhurnal. Avtomatika i radioelektronika, no. 10, 1961, 22, abstract 10 A172 (Tr. Sibirsk. n.-i. in-ta geol., geofiz. i mineral'n. syr'ya, 1960, no. 9, 138-142)

TEXT: The membrane of a piezoelectric vibrator was used as one plate of a flat plate capacitor, the other one being a solid metal plate. The voltage applied to the plates would show an alternating component depending upon the changes in capacitance caused by the vibrations of the membrane. The voltage was investigated by means of a synchroscope type 25 И (25 I). In order to investigate the frequency characteristics, harmonic oscillations were ap-

Card 1/2

A capacitive vibration-measuring...

31818
S/194/61/000/010/009/082
D256/D301

plied to the piezoelectric receiver, and from the voltage changes X
observed across the plates of the capacitor it was possible to det-
ermine the dependence upon frequency of the ratio of the harmonic
amplitude at the input of the receiver to that of the output. 3
figures.. 1 reference. $/$Abstracter's note: Complete translation$/$

Card 2/2

TELEZHENKO, V.P.; ZUYEV, Z.A.

Condensor vibration-measuring apparatus for testing piezoelectric
emitters and receivers in seismic modeling. Trudy SNIIGGIMS no.9:
138-141 '60.   (MIRA 14:7)
        (Seismic prospecting) (Vibration--Measurement)
                (Piezoelectricity)

ZUYEVA, A.

    An oral magazine.' Rabotnitsa no.1:16 Ja '63.   (MIRA 16:3)

    1. Predsedatel' zhenskogo soveta Oktyabr'skogo rayona,
Dnepropetrovsk.

ALEKSEYEV, Aleksandr Yemel'yanovich; ZUYEVA, A.A., red.; SOBOLEVA, Ye.M.,
tekhn.red.

[Design of electric machinery] Konstruktsiia elektricheskikh
mashin. Moskva, Gos. energ. izd-vo, 1958. 426 p.   (MIRA 12:1)
(Electric machinery--Design and construction)

ZUYEVA, A.S.

In the Collegium of the Ministry of Public Health of the R.S.F.S.R.
Zdrav. Ros. Feder. 4 no. 4:42-43 Ap '60.   (MIRA 13:10)
                (LIPETSK PROVINCE—MEDICAL)

ACC NR: AP6007308   UR/0096/66/000/003/0055/0057

AUTHOR: Karpin, Ye.B.(Candidate of technical sciences); Kostyuk, A.G. (Candidate of technical sciences); Zuyeva, G.K. (Engineer); Piruyeva, L.V.. (Engineer); Sokolov, V.S. (Engineer

ORG: MEI-KTZ

TITLE: Calculation of unsteady state temperature fields in plates and shells using a computer

TOPIC TAGS: temperature distribution, computer program, computer calculation, temperature, shell structure, aero space structure

ABSTRACT: The article proposes approximate methods for calculating unsteady state temperature fields which greatly simplify the calculation and which give results which are satisfactory in accuracy for practical purposes. The mathematical development of the method considers a shell of arbitrary shape and variable thickness, with respect to a curvilinear orthogonal coordinate system. The remainder of the article consists of the working out of a detailed computer program for the given problem. The method and the program were used to investigate the effect of different factors on the temperature field and the stresses in turbine vanes and disks. Calculated results are shown in a figure. The solution of

Card 1/2   UDC: 536.1.69:112.35.001.24

ACC NR: AP6007308

the above problem (for heating for a period of 300 seconds) required about 0.75 hours of machine time. In addition, about 0.75 hours are spent in preparing the perforated tape from the starting data. Solution of an analogous problem by hand methods would take about 200 hours. Orig. art. has: 22 formulas and 6 figures.

SUB CODE: 20,09/ SUBM DATE: none/ ORIG REF: 007/ OTH REF: 001

Card   2/2   nst

STAVITSKIY, I.K.; BORISOV, S.N.; PONOMARENKO, V.A.; SVIRIDOVA, N.G.;
ZUYEVA, G.Ya.

Polydimethylgermannsiloxanes. Vysokom.soed. 1 no.10:
1502-1506 O '59.   (MIRA 13:3)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut sinteticheskogo
kauchuka i Institut organicheskoy khimii AN SSSR.
          (Siloxanes) (Germanium compounds)

YEGOROCHKIN, A.N.; KHIDEKEL', M.L.; PONOMARENKO, V.A.; ZUYEVA, G.Ya.;
     SVIREZHEVA, S.S.; RAZUVAYEV, G.A.

     Proton magnetic resonance spectra of some substituted germanium
     hydrides. Izv. AN SSSR Ser.khim. no.10:1865-1868 O '63.
                                                        (MIRA 17:3)

     1. Nauchno-issledovatel'skiy institut khimii pri Gor'kovskom
     gosudarstvennom universitet, Institut khimicheskoy fiziki AN SSSR
     i Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.

PONOMARENKO, V.A.; ZUYEVA, G.Ya.; ANDREYEV, N.S.

Inductive effect and oscillatory frequencies of Ge - H and
Ge - D bonds. Izv.AN SSSR.Otd.khim.nauk. no.10:1758-1762 O '61.
(MIRA 14:10)

1. Fizicheskiy institut im. P.N.Lebedeva AN SSSR.
        (Germanium hydride)   (Electrochemistry)

ZUYEVA, G.Ya. (Rostov-na-Domu)

How to develop a profoud interest in mathematics. Mat. v shkole
no.4:31-33 Jl-Ag '63.   (MIRA 16:9)
                    (Mathematics—Study and teaching)

YEGOROCHKIN, A.N.; KHIDEKEL', M.L.; PONOMARENKO, V.A.; ZUYEVA, G.Ya.;
     RAZUVAYEV, G.A.

     Certain regularities in proton magnetic resonance spectra of a
     number of germanium compounds. Izv.AN SSSR.Ser.khim. no.2:373-
     375 F '64.
                                                    (MIRA 17:3)

     1. Nauchno-issledovatel'skiy institut khimii pri Ger'kovskom
     gosudarstvennom universitete im. Lobachevskogo, Instituta khi-
     micheskoy fiziki AN SSSR i Institut organicheskoy khimii im.
     N.D.Zelinskogo AN SSSR.

VLADIMIRSKIY, K.V.; ZUYEVA, G.Ya.; LABZOV, B.A.

Chemical shift in nuclear magnetic resonance spectra of tetra-
methylgermane and tetramethylsilane. Opt. i spektr. 7 no.4:
522-523 Ap '62.
(MIRA 15:5)
(Nuclear magnetic resonance and relaxation)
(Germane—Spectra)   (Silane—Spectra)

LEYTES, L.A.; YEGOROV, Yu.P.; ZUYEVA, G.Ya.; PONOMARENKO, V.A.

Dependence of the oscillation frequency of the Ge - C bond in
spectra of alkylgermanes on the nature of substituents. Izv. AN
SSSR Otd.khim.nauk no.12:2132-2140 D '61.   (MIRA 14:11)

1. Institut organicheskoy khimii im. N.D.Zelinskogo Akademii nauk
SSSR i Fizicheskiy institut im. P.N.Lebedeva Akademii nauk SSSR.
                  (Germanium organic compounds--Spectra)

ACC NR: AP7013159

AUTHOR: Kadina, M. A.; Zuyeva, G. Ya. Kechina, A. G.

ORG: Institute of Organic Chemistry im. N. D. Zelinskiy, AN SSSR (Institut organicheskoy khimii AN SSSR); Physics Institute im. P. N. Lebedev, AN SSSR (Fizicheskiy institut AN SSSR)

TITLE: Comparative study of the photochemical chlorination of ethyltrichlorogermane and ethyltrichlorosilane

SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 12, 1966, 2215-2216

TOPIC TAGS: chlorination, photochemistry, silane

SUB CODE: 07

ABSTRACT: In the light of earlier studies, indicating that the orienting effect of the Cl$_3$Ge group is substantially greater than that of the Cl$_3$Si group in the chlorination of ethyltrichlorogermane and ethyltrichlorosilane with sulfuryl chloride in the presence of benzoyl peroxide, the authors investigated the photochemical chlorination of ethyltrichlorogermane in comparison with ethyltrichlorosilane, comparing the orienting abilities of the Cl$_3$Ge and Cl$_3$Si groups of these compounds under the conditions of photochemical chlorination. In the photochemical chlorination of ethyltrichlorogermane, α- and β-chloroethyl-

UDC: 541.143+546.13+542.957+546.289+546.287

Card 1/2

trichlorogermanes were obtained in a 1:4 ratio, in contrast to the 1:2.3 ratio of the α- and β-isomers obtained in the chlorination of ethyltrichlorosilane. The stronger β-orienting ability of the trichlorogermane group in comparison with the trichlorosilane group was thus confirmed. It was found that the latent period of chlorination is substantially shorter for ethyltrichlorosilane than for ethyltrichlorogermane. The ratio of the α- and β-isomers for both ethyltrichlorogermane and ethyltrichlorosilane is fixed at the very start of chlorination and remains comparatively constant during the entire reaction.

Orig. art. has: 1 figure and 1 table. /JPRS: 40,427/

Card 2/2

AUTHOR: Shevchenko, L.A. and Zuyeva, I. A.

TITLE: Analysis of schematic diagrams of a locomotive gas-turbine prime-mover

PERIODICAL: Referativnyy zhurnal, otdel'nyy vypusk. 42. Silovyye ustanovki, no. 2, 1962, 24-25, abstract 42.2.156. "Tr. Vses. n.-i. in-ta zh.-d. transp.", no 214, 1961, 19-28

TEXT: The installation of a regenerator increases the efficiency of a gas-turbine plant more than the installation of an air-cooler having the same surface area. In the first case the efficiency reaches 26.5%, while in the second — only 23%. The use of a second heat inlet increases significantly the efficiency of the gas-turbine plant. In this case also a regenerator is more effective than an air cooler. The installation of a regenerator in a two-shaft gas-turbine plant, between the turbine driving the compressor and the main turbine, decreases the specific work of the gas-turbine plant and higher π_k are needed; however the temperature head increases and the losses in the regenerator decrease. On the whole, this design of the gas-turbine plant does not show appreciable advantages. With gas temperatures of 1000-1100°K it is worthwhile to use a two-compressor gas-turbine plant in order to obtain an optimal value of π_k. The efficiency of the most advanced gas-turbine plant, which has a double heat-inlet, a regenerator and an air-cooler and whose main turbine is an intermediate or low pressure one, is 28-30%. Formulas for the determination of the percentage of regeneration and intercooling are obtained.

[Abstracter's note: Complete translation.]

Card 1/1

SHEVCHENKO, L.A., kand.tekhn.nauk; ZUYEVA, I.A., inzh.

Analyzing the theoretical diagrams of a locomotive gas-turbine
engine. Trudy TSNII MPS no.214:19-28 '61.   (MIRA 14:8)
                    (Gas-turbine locomotives)

FINKEL', V.M.; SAVEL'YEV, A.M.; ZUYEV,L.B.; SEREBRYAKOV, S.V.; KOROBOV, Yu.M.;
ZUYEVA, I.B.

Interaction between a crack and dislocation boundaries. Fiz. tver.
tela 7 no.5:1402-1412 My '65.   (MIRA 18:5)

1. sibirskiy metallurgicheskiy institut imeni Ordzhonikidze, Novo-
kuznetsk.

L 1307-66   EWT(1)/EWT(m)/EWP(w)/EPF(c)/T/EWP(t)/EWP(b)/EWA(c)   IJP(d)   JD/JW/GG
ACCESSION NR: AP5012550   UR/0181/65/007/005/1402/1412

AUTHOR: Finkel', V. M.; Savel'yev, A. M.; Zuyev, L. B.; Serebryakov, B. V.;
Korobov, Yu. M.; Zuyeva, I. B.

TITLE: Interaction of a crack with dislocation boundaries

SOURCE: Fizika tverdogo tela, v. 7, no. 5, 1965, 1402-1412

TOPIC TAGS: crack propagation, crystal lattice energy, lithium fluoride, crystal
imperfection

ABSTRACT: This research was motivated by the lack of published data on the kinetics
of interaction between a fast crack and boundaries or subboundaries having differ-
ent energy levels, or data on the influence of the speed of the crack on the process
of overcoming such barriers. There is likewise no information on the time necessary
for the crack to break through a subboundary. The authors therefore investigated
by polarization-optical and cinematrographic methods the breakthrough of slow and
fast cracks through screw and inclined subboundaries with different orientations.
The investigations were carried out on rock-salt and lithium-fluoride crystals.
Samples measuring 0.3 x 0.6 x 2 cm with initial crack 5--7 mm long were tested with
and without annealing. The time intervals necessary for the crack to overcome the
boundary and the energy involved in this process were determined experimentally and

Card 1/2

L 1307-66
ACCESSION NR: AP5012550

calculated theoretically. The motion of a crack was measured both in air and in an etching solution. Fast crack motion was recorded by two means, photoelectrically and by high speed photography. The methods are briefly described. Crack propagation is stopped by the subboundary for a time ranging from 65×10^{-9} sec to as much as 500×10^{-5} sec, depending on the angle and other factors. In the case of screw boundaries the stopping time did not exceed 16×10^{-6} sec. The relation between the time necessary to break through a subboundary and the energy involved is illustrated in Fig. 1 of the Enclosure, where the continuous curve is the result of the-oretical calculations and the horizontal lines are experimental values. The re-sults confirmed the theoretical deduction that much more effort is necessary to push a crack in the etching solution than in air. Orig. art. has: 9 figures and 7 formulas.

ASSOCIATION: Sibirskiy metallurgicheskiy institut im. Sergo Orzhonikidze, Novo-kuznetsk (Siberian Metallurgical Institute)

SUBMITTED: 01Dec64   ENCL: 01   SUB CODE: SS

NR REF SOV: 004   OTHER: 007

Card 2/2

KHUDYAKOVA, Yu.A.; ZUYEVA, I.N.

Absorption of activity of gibberellin in soils. Trudy Inst.
mikrobiol. no.11:335-340 '61
(MIRA 16:11)

1. Kafedra biologii pochv Moskovskogo gosudarstvennogo uni-
versiteta imeni Lomonosova.

MOKHNACH, V.O.; ZUYEVA, I.P.

Spectrophotometric investigation of aqueous solutions of iodopoly-
vinyl alcohol. Dokl. AN SSSR 136 no.4:832-835 F '61.

(MIRA 14:1)

1. Botanicheskiy institut im. V.L. Komarova AN SSSR i Institut
obshchey i neorganicheskoy khimii imeni N.S. Kurnakova AN SSSR.
Predstavleno akademikom I.I. Chernyayevym.
(Vinyl alcohol—Spectra)

ACCESSION NR: AP4030783   S/0020/64/155/004/0846/0848

AUTHOR: Mokhnach, V. O.; Zuyeva, I. P.

TITLE: Spectrophotometric investigation of aqueous solutions of iodopolyvinyl-borate

SOURCE: AN SSSR. Doklady*, v. 155, no. 4, 1964, 846-848

TOPIC TAGS: iodopolyvinylborate, absorption spectrum, spectral photometric analysis, reaction mechanism, antiseptic, toxicity, iodopolyvinyl alcohol reaction, iodopolyvinyl alcohol boron complex, boron containing polymer

ABSTRACT: The absorption spectra of the systems (1) I_2-H_3BO_3-PVA-H_2O and (2) I_2-KI-H_3BO_3-PVA-H_2O was investigated in the 220-800 millimicron range to determine the mechanism of reaction and formation of iodopolyvinylborate. Inclusion of boron to form a complex with the high polymer molecule to give increased antiseptic action and reduced toxicity is presumed anulgous to the inclusion of iodine as I^-. The shift in the absorption spectra of the solution of the band at about 610 millimicrons to 660-680 millimicrons is attributed to the exchange of H_3BO_3 for iodides in the iodopolyvinyl alcohol reaction. The

Card 1/2

ACCESSION NR: AP4030783

band λ = 288-290 millimicrons, corresponding to I_3^- in the absorption spectra of systems (1) and (2) disappears with a sufficient concentration of H_3BO_3 and PVA, while the band λ = 350 millimicrons is preserved. Boron enters into the complex with the I_3^- anion. Orig. art. has: 3 figures.

ASSOCIATION: Botanicheskiy institut im. V. L. Komarova Akademii nauk SSSR (Botanical Institute, Academy of Sciences, SSSR)

SUBMITTED: 10Sep63   DATE ACQ: 30Apr64   ENCL: 00

SUB CODE: OC   NO REF SOV: 002   OTHER: 004

Card 2/2

MOKHNACH, V.O.; ZUYEVA, I.P.

Spectrophotometric study of aqueous solutions of iodopolyvinyl borate. Dokl. AN SSSR 155 no. 4:846-848 Ap '64. (MIRA 17:5)

1. Botanicheskiy institut im. V.L.Komarova AN SSSR. Predstavleno akademikom I.I.Chernyayevym.

MOKHNACH, V.O.; ZUYEVA, I.P.

Changes in the absorption spectra of aqueous solutions of iodopolyvinyl-
pyrrolidinone and iodopolyvinyl alcohol in the process of their dialysis.
Zhur.neorg.khim. 8 no.3:668-671 Mr '63.   (MIRA 16:4)
    (Pyrrolidionone—Absorption spectra)
                            (Vinyl alcohol polymers—Absorption spectra)
            (Dialysis)

OFFENGENDEN, S.R., kand.tekhn.nauk; PANADIADI, A.D., kand.sel'skokhoz.nauk;
YARUSHIN, M.I., inzh. Prinimala uchastiye TRUBACHEVA, Ye.G.,
kul'turtekhnik. ZUYEVA, K.A., red.; SMIRNOVA, Ye.A., tekhn.red.;
ZUBRILINA, Z.P., tekhn.red.

[Practical work for a course in the operation of irrigation and
drainage systems] Prakticheskie raboty po kursu ekspluatatsii
gidromeliorativnykh sistem. Moskva, Gos.izd-vo sel'khoz.lit-ry,
1959. 270 p.   (MIRA 14:4)
        (Drainage)   (Irrigation)

BUDZKO, Igor' Aleksandrovich, prof., akademik; STEPANOV, Vladimir Nikolayevich,
prof.; ZUYEVA, K.N., red.; SMIRNOVA, Ye.A., tekhn.red.; BALLOD, A.I.,
tekhn.red.

[Electric lines and networks for agricultural purposes] Elektri-
cheskie linii i seti sel'skokhoziaistvennogo naznacheniia. Moskva.
Gos.izd-vo sel'khoz.lit-ry, 1958. 487 p.   (MIRA 12:3)

1. Vsesoyuznaya akademiya sel'skokhozyaystvennykh nauk im. V.I.Lenina.
                    (Rural electrification)

SIDOROV, Aleksandr Nikolayevich, dotsent; IVANOVSKIY, Mikhail Nikolayevich, dotsent; ZUYEVA, K.N., red.; KRZHIZHANOVSKAYA, O.V., red.; GUREVICH, M.M., tekhn.red.

[Hydraulics and hydroelectric power stations] Gidravlika i gidro-silovye ustanovki. Moskva, Gos.izd-vo sel'-khoz.lit-ry, 1959. 487 p.   (MIRA 12:12)
      (Hydraulics)   (Hydraulic power stations)

BUDZKO, Igor' Aleksandrovich, prof., doktor tekhn.nauk; NIKITINA, V.M.,
red.; ZUYEVA, K.M., red.; ZUBRILINA, Z.P., tekhn.red.

[Rural electric networks] Sel'skie elektricheskie seti. Izd.2.,
ispr. i dop. Moskva, Gos.izd-vo sel'khoz.lit-ry, 1959. 399 p.
(MIRA 13:5)

1. Deystvitel'nyy chlen-akademik Vsesoyuznoy akademii sel'sko-
khozyaystvennykh nauk imeni V.I.Lenina (for Budzko).
(Electric networks)

POYARKOV, Mikhail Fedorovich; POYARKOVA, Tat'yana Mikhaylovna; Prinimal
uchastiye BUDZKO, I.A., ZUYEVA, K.N., red.; NIKITINA, V.M., red.;
BACHURINA, A.M., tekhn.red.; PEVZNER, V.I., tekhn.red.

[Rural electric power stations and substations] Sel'skie elektri-
cheskie stantsii i podstantsii. Izd.2. Moskva, Gos.izd-vo sel'khoz.
lit-ry, 1959. 351 p.   (MIRA 13:4)
                    (Electric power plants)

ZUYEVA, K. N.

POPOV, Viktor Ivanovich; GLEBOVICH, A.A., spetsial'nyy red.; ZUYEVA, K.N., red.; SOKOLOVA, N.N., tekhn.red.

[Electric drive and automatic control] Elektricheskii privod i avtomatika. Moskva, Gos. izd-vo sel'khoz. lit-ry, 1957. 442 p.
(Automatic control)   (MIRA 11:4)
(Electric driving)

ZUYEVA, K. N.

EVREINOV, Mikhail Grigor'yevich, doktor.tekhn. nauk, red.; GREBENNIKOV, A.F.;
IVANOV, V.I.; LAVRENT'YEV, A.I.; OSETROV, P.A.; HUBTSOV, P.A.;
VASKHNIL, akademik, red.; SAPAROVA, A.L., spets. red.; ZUYEVA, K.N.,
red.; MAKHOVA, N.N., tekhn. red.; FEDOTOVA, A.F., tekhn. red.

[Use of electric power in agriculture] Primenenie elektricheskoi
energii v sel'skom khoziaistve. Moskva, Gos. izd-vo sel'khoz.
lit-ry, 1958. 499 p.   (MIRA 11:7)

1. Deystvitel'nyy chlen Akademii nauk SSSR. (for Vaskhnil).
                    (Electricity in agriculture)

BURGUCHEV, Stepan Artem'yevich, prof.; ZUYEVA, K.N., red.; FEDOTOVA, A.P., tekhn.red.

[Electric power plants and substations serving agricultural stations] Elektricheskie stantsii i podstantsii sel'skokhoziai-stvennogo naznacheniia. Moskva, Gos. izd-vo sel'khoz. lit-ry, 1958. 670 p.   (MIRA 11:5)

(Electricity in agriculture)
(Electric power plants)

POPOV, I.P.; AFANAS'YEVA, V.L.; SUKHOVA, G.V.; ZUYEVA, K.P.

New method of bleaching laundry. Gor.khoz.Mosk.29 no.1:40 J '55.
(Bleaching powder)

(MIRA 8:3)

ZUYEVA, L.

KRYLOVA, N., kandidat biologicheskikh nauk; ZUYEVA, L.

Use of tracer technique in the meat industry. Mias. Ind. SSSR.
25 no.3:44-47 '54.   (MLRA 7:7)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut myasnoy
promyshlennosti.
        (Sodium--Isotopes) (Meat industry)

ZUYEVA,   L.

- USSR / Cultivated Plants. Grains. Legumes. Tropical   M-1
         Cereals.

Abs Jour   : Ref Zhur - Biologiya, No 2, 1959, No. 6215

Author   : Musiyko, Z.; Zueva, L.
Inst   : Odessa Hydrometeorological Institute
Title   : The Effect of Agrometeorological Conditions on
             the Yield of Wheat Sowed During Various Periods

Orig Pub   : Tr. Odessk. gidrometeorol. in-ta, 1958, vyp 16,
             3-8

Abstract   : Experiments were started in the fields of the
             All-Union Selection-Genetic Institute in the
             fall of 1955 to study the effect of the periods
             of sowing of winter rye on the yield of the
             green mass in the south of the Odessa oblast'.
             The seeds of winter rye of the Odesskaya 1 variety
             were, at intervals of 10 days, sown over the

Card 1/2

8

MUSIYKO, A.; ZUYEVA, L.

Effect of agrometeorological conditions on yields of rye sown at
different times. Trudy OGMI no.16:3-8 '58.   (MIRA 12:9)
    (Odessa Province--Rye) (Sowing)

USSR / Cultivated Plants. Grains. Legumes. Tropical   M-1
          Cereals.

Abs Jour   : Ref Zhur - Biologiya, No 2, 1959, No. 6215

black-fallows in seven different periods between
August 20th and October 20th. The depth of sow-
ing was 6 - 7 cm. The green mass was harvested
twice; the first time was on May 15th for all
periods of sowing. The second time, the plants
were harvested during the phase of ear forma-
tion; the harvesting was carried out separately
for plants belonging to different periods of
sowing. The best period for winter rye sowing
was between September 10th and 20th. The rea-
sons for the lowering of the yield corresponding
to other periods of sowing are analyzed. --
B. I. Kazachek

Card 2/2

BARMASH, A.I., kand.tekhn.nauk; DERGUNOVA, A.A., starshiy nauchnyy sotrudnik;
DYKLOP, V.K., kand.bilogicheskikh nauk; DUBROVINA, L.I., mladshiy
nauchnyy sotrudnik; TRUDOLYUBOVA, G.B.; POLETAYEV, T.N.; V rabote
prinimali uchastiye; LAVROVA, L.P.; POZHARISKAYA, L.S.; ZUYEVA, L.D.;
KALITA, L.A.; NESLYUZOV, A.F.; GOL'DMAN, Ye.I.; MAKEYEVA, M.N.;
STEFANOV, A.F.

Use of blood in sausage manufacturing and canning. Trudy VNI IMP
no.9:63-74 '59.   (MIRA 13:8)

1. Vsesoyuznyy nauchnoy-issledovatel'skiy institut myasnoy promy-
shlennosti (for Lavrova, Pozharisknya, Zuyeva, Kalita, Neslyuzov).
2. Spetsialisty Moskovskogo myasokombinata (for Gol'dman, Makeyeva,
Stefanov).
        (Blood as food or medicine)   (Sausages)
                (Canning and preserving)

ZUIEVA, L.D.

BELEN'KIY, N.G., akademik; KRYLOVA, N.N., kandidat biologicheskikh nauk;
CHERTKOV, I.L., kandidat meditsinskikh nauk; BAZAROVA, K.I.; ZUYEVA,
L.D.; SEVOST'YANOV, B.A.; KEL'MAN, L.F.

Influence of heat on the protein content of meat. Dokl. Akad. sel'khoz.
22 no.4:23-29 '57.   (MIRA 10:6)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut myasnoy promyshlen-
nosti.

                      (Meat)   (Proteins)

BELEN'KIY, N.G., akademik; POLONSKAYA, L.B., starshiy nauchnyy sotrudnik, kand.tekhn.nauk; ZUYEVA, L.D., mladshiy nauchnyy sotrudnik

Technology of the manufacture of chymotrypsin preparations from cattle pancreas inactive according to the insulin content. Trudy VNIIMP no.14:99-102 '62.
(MIRA 16:8)

1. Rukovoditel' laboratorii Vsesoyuznogo nauchno-issledovatel'skogo instituta myasnoy promyshlennosti (for Belen'kiy).
(Chymotrypsin)

KRYLOVA, N.N., kandidat biologicheskikh nauck; ZUYEVA, L.D., mladshiy nauchnyy sotrudnik.

Using the labeled atom method in studying the rate of salt penetration in the process of curing meat. Trudy VNIIMP no.7:23-29 '55.
(MLRA 9:8)

(Meat--Preservation)
(Radioactive tracers)

KRYLOVA, N.N., kandidat biologicheskikh nauk; ZUYEVA, L.D.; POLETAYEV, T.N.

Making and testing new salting mixtures. Trudy VNIIMP no.6:65-83 '54.
(Sausages)   (Sodium nitrite)   (MLRA 10:8)

A study of the circulation of the proteins of curative serum by means of radioactive iodine (iodine 131). B. G. Butenko, N. N. Krylova, I. I. Chernikov, and L. D. Zueva. *Doklady Vsesoyuz. Akad. S'khozyain. Nauk im. V. I. Lenina* **20**, No. 4, 34–40 (1955). The curative Brem'KR serum (?) treated with radioactive I was tested on rabbits and dogs. After 48 hrs. the blood of dogs contained 30% of the original radioactivity. In rabbits only 13% was found.

S. Joffe