MISHUSTIN, I.A.

Amplifier-attenuator. Prib. i tekh. eksp. 7 no.2:95-96 Mr-Ap '62. (MIRA 15:5)

(Amplifiers, Electron tube)

MISHUSTIN, I.A.

Automatic stabilization of amplification of tube cascades.
Prib. i tekh. eksp. 9 no.1:206-207 Ja-F '64. (MIRA 17:4)

L 21665-66 EWT(1)/EWA(h)

ACC NR: AP6001576 (N) SOURCE CODE: UR/0120/65/000/006/0116/0120

AUTHOR: Mishustin, I. A.

ORG: none

TITLE: Using luminescent capacitors in electronic equipment

SOURCE: Pribory i tekhnika eksperimenta, no. 6, 1965, 116-120

TOPIC TAGS: luminescent capacitor, electronic equipment

ABSTRACT: A general discussion is presented of the glow-capacitor characteristics, uses, and possibilities; the ZnS-Cu phosphor with and without activators is considered. Curves of capacitor brilliance, spectra, loss angle, and efficiency vs. applied voltage and frequency are discussed. These applications are examined: (1) Display panel or mimic bus; (2) Resonance indicator (for tuning h-f oscillators); (3) Wavemeter or frequency meter; (4) H-f voltage indicator (with a variable-thickness phosphor layer; (5) Beat indicator; (6) Frequency multiplier (a single stage with a ratio of 2, 4, 6, or 8). Principal circuits and data for the above applications are given. Orig. art. has: 10 figures and 5 formulas.

SUB CODE: 09 / SUBM DATE: 13Nov64 / ORIG REF: 002 / OTH REF: 001

Card 1/1 UDC: 621.3.032.35:621.37

L 20452-66 EWT(d)/EWP(1) IJP(c) BB/GG

ACC NR: AP6007822 SOURCE CODE: UR/0120/66/000/001/0125/0125

AUTHOR: Mishustin, I. A.

ORG: none

TITLE: Stabilizing circuit for inverted tubes

SOURCE: Pribory i tekhnika eksperimenta, no. 1, 1966, 125

TOPIC TAGS: electrometer, inverted electron tube

ABSTRACT: The inverted circuit of an electron tube (triode) used for finding antilogarithms has this serious shortcoming: a considerable effect of the cathode emission on the output voltage. To overcome this drawback, addition of a "stabilizing" circuit is suggested; a (1500-ohm) resistor and a microammeter form a closed circuit between the tube grid and any tube additional electrode. This simple device stabilizes the main measuring circuit to such an extent that the tube amplitude characteristic changes but little when the heater voltage is varied within 5.5--6.5 v. Orig. art. has: 2 figures.

[03]

SUB CODE: 09 / SUBM DATE: 22Apr64 /ORIG REF: 001 /OTH REF: 000/ ATD PRESS: 4222

Card 1/1 UDC: 621.316.721.1:621.385.7

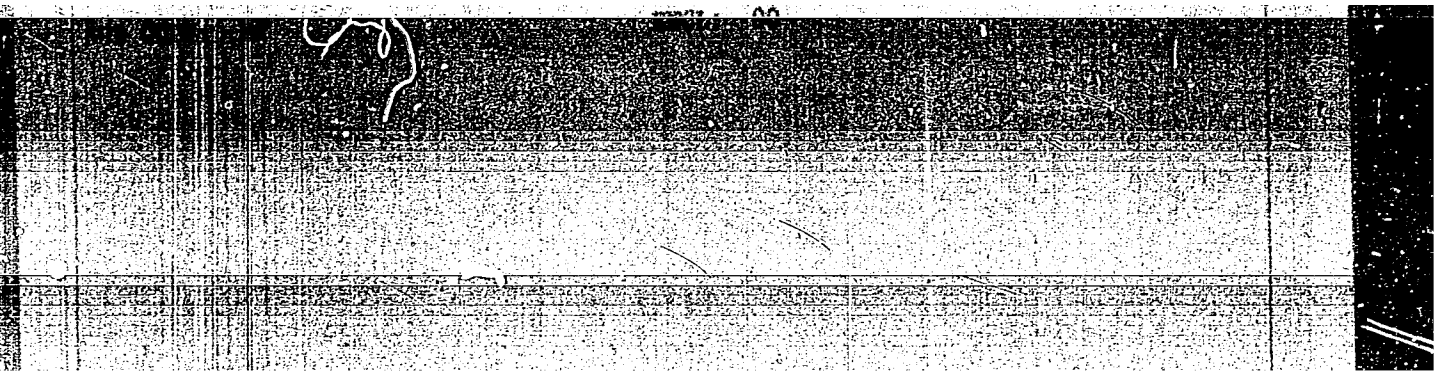
ALEKSEYENKO, V.I.; CHEKRIZOVA, A.P.; MISHUSTIN, I.O.; ZAVEL'GEL'SKIY, L.M.; L'VOVA, L.V.; SHEYDINA, T.Z.; KREKSHINA, G.L.

New quick-setting adhesive for gluing soles. Kozh.-obuv.prom. 4 no.3:18-20 Mr '62. (MIRA 15:5)

(Adhesives)
(Shoe manufacture)

TRANSLATION: A method was developed for preparing an active, light, rubber filler from aluminum silicate having the empirical formula $Al_2(SiO_3(-)\cdot 4.6\ SiO_2)$. The chemical composition and physical properties of the aluminum silicate are given. The activity of this aluminum silicate is equal to that of silica gel BS-50, and is affected by the relative concentrations and type of precipitants and by the temperature of the mixture in the reactor. Aluminum silicate is an active filler for various types of synthetic rubber and can be recommended as a filler in the

Card 1/2



L 34848-65 EPA(s)-2/EWT(m)/EPF(c)/EWG(v)/EPR/EPA(w)-2/EWP(j) Pc-4/Pab-10/Pe-5/Pr-4/
ACCESSION NR: AP5008546 S/0286/65/000/006/0061/0061
Ps-4/Pt-10 WW/RM

AUTHOR: Alekseyenko, V. I.; Pokrovskiy, N. I.; Mishustin, I. N.; Lebedev, Yu. I.; Kudryavtsev, V. Ya.; Levin, B. I.; Abramov, I. A.; Rokitskiy, P. F.; Bernshteyn, L. M.; Kazakova, L. I.; Tryapkina, L. A.; Ishmayeva, A. I.; Lugirina, V. I.

TITLE: A method for producing insulating plastics. Class 39, No. 159246

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 6, 1965, 61

TOPIC TAGS: plastic insulator, polar polymer, nonpolar polymer

ABSTRACT: This Author's Certificate introduces a method for producing insulating plastics based on polyvinylchloride modified with rubber. The electrical insulation properties and heat resistance of the product are improved by using a mixture of polar and nonpolar rubbers as the modifiers with the addition of mineral fillers.

ASSOCIATION: none

SUBMITTED: 31Mar61 ENCL: 00 SUB CODE: MT, GC

NO REF SOV: 000 OTHER: 000

Card 1/1

1ST AND 2ND GROUPS

PROCESSES AND PROPERTIES INDEX

Determination of permanganate in the presence of manganate. A. I. Mackov, I. U. Mikhutin and I. A. Kazarnovskii. *J. Chem. Ind. (Moscow)* 7, 605-20(1931). First det. the oxidizing power against $H_2C_2O_4$. Take 25 cc. of 0.1 *N* $H_2C_2O_4$, add 35 cc. of 2 *N* H_2SO_4, 100 cc. of water and 1 cc. of H_3PO_4. Titrate with the soln. to be analyzed at 80-90°. Then det. the total Mn by reducing to MnO_2 and titrating iodometrically as follows: To 25 cc. of soln. add 30 cc. of 0.1 *N* $NaHCO_3$ (5 g. HCO_2H + 15 g. NaOH per l.) and heat at 60° for 15 min. To the cooled, decolorized soln. add 10 cc. of 20% KI, 60 cc. of water and 40 cc. of 10% H_2SO_4. Titrate with 0.1 *N* $Na_2S_2O_3$. From the results of these 2 titrations compute the MnO_4^-, and MnO_4^{--} contents. V. D. Karpenko

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ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

PROCESS AND PROPERTIES INDEX

10

Viscose cement I. Mishustin. A. Khomenko. Doklady Akad. Nauk S.S.S.R. 13, [illegible]: An adhesive contains [illegible] alkali cellulose and a small amount of NaOH; the excess of the latter is removed during [illegible]. Instead of fatty acid, abietic acid may be used. The material, after having been cemented with viscose, is treated with fatty acids. A. [illegible] Hochtlinek

METALLURGICAL LITERATURE CLASSIFICATION

Activation of fillers for rubber. A. P. Pisarenko and E. U. Mishustin. Russ. 42,000, April 30, 1935. The fillers are activated by treating them with rubber solns., fatty acids, salts of fatty acids or electrolytes, such as $Al_2(SO_4)_3$, Na acetate and K_2PO_4, before their incorporation into rubber.

ALB-SCA METALLURGICAL LITERATURE CLASSIFICATION

30

Activation of the fillers of rubber mixtures. S. D. [illegible] renko and I. Mishustin. *J. Rubber Ind.* (U.S.S.R.) 12 [illegible] 38(1935).—Carbon black and kaolin were activated with: (1) 0.1, 0.3 and 0.5% natural rubber in CeHe; (2) 0.1, 0.3 and 0.5% Na-butadiene rubber in CeHe; (3) 0.5 and 0.6% stearic acid in CeHe; (4) 0.5 and 2% aq. Na stearate; (5) 1.6% Zn stearate in turpentine; (6) 5% aq. KaHX; and (7) combinations of the above. C black and kaolin were wet with the activator in the proportion of 1:2 for C black and 1:1 for kaolin and dried at 100-20°. Rubber mixes, were prepd. of rubber (natural or synthetic) 100, ZnO 10, S 4, mercaptobenzothiazole 1.5, to which were added different proportions of activated C black (10, 20, 30, 100, 120, 125%) or activated kaolin (40, 60, 80, 100, 140%). The activation of C black with rubber in CeHe increased the tensile strength and elongation of rubber mixes, contg. 40% C black. Activated kaolin increased the mech. properties when used in large proportions (100 and 140%). Lithopone activated with 0.3% rubber in CeHe or with 0.3% rubber in CeHe and 4% Zn stearate in turpentine lowered the mech. properties of rubber mixes. S. Pestoff

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

PROCESSES AND PROPERTIES INDEX

29

Activation of fillers for rubber mixtures. A. N. Ko-
tenko and I. U. Mushustin. *Kauchuk i Rezina* (Chemical Rubber)
14, 510–14(1935); cf. *C. A.* 29, 7065[9].—Expts. show that
when lampblack is treated, before its incorporation into
rubber, with 0.1 or 0.2% solns. of rubber in gasoline, its
activity is improved so that the vulcanizates are 48%
stronger and 65% more elastic. The improvement is still
greater with lampblack treated with a gasoline soln. contg.
0.5% rubber and 1% stearic acid. With higher proportions of treated lampblack in the rubber, slight decreases in the strength and increased elasticity were observed. A 0.2% gasoline soln. of Na divinyl rubber also activates lampblack in synthetic rubbers (40 parts of treated lampblack per 100 parts of butadiene rubber) and increases the tensile strength 80%, and the elasticity 100%. These activators have a similar effect on kaolin. Kaolin treated with 5% K_2HPO_4 also improved the properties of rubber. Substances activating lampblack and kaolin are not effective with lithopone. Lampblack treated with 5% $Al_2(SO_4)_3$ in the presence of up to 100% Rubberax (on the rubber) gave considerably higher tensile strengths and elongations (3–4 times) of rubber. The elasticity of the rubber was increased 2–2.5 times and the strength unchanged, by treatment of lampblack with 5% Na stearate and 5% K_2HPO_4 solns. The results are tabulated and plotted.
A. A. Boehtlingk

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

Sealing composition. I. U. Mishustin and I. I. Glazkov. Russ. 45,701, Jan. 31, 1936. Rubber waste, rubrax and rosin are liquefied and into the mixt. are introduced Zn stearate, kaolin or other fillers, and diethyl phthalate.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

Adsorption and activation of carbon black. I. Mishustin and A. Ivanova. *Caoutchouc and Rubber* (U.S.S.R.) 1937, No. 7-8, 35-7.—The proportion of rubber that was adsorbed by C black from a soln. of rubber in C_6H_6 increased with increased concn. of rubber soln. and prolonged time of shaking the mixt. (4.80% at 0.00% concn. and 21.82% at 0.24%; five min. of shaking). The adsorbing property of kaolin toward rubber did not change with the concn. The C black was activated with 2% soln. of different org. substances and then dried at 100-110°. The adsorption of rubber increased considerably after activation; after treatment with $MeC_6H_4SO_2Cl$ for 2 hrs. the adsorption of rubber was 56.07% compared with 12.67% of unactivated C black. The most active substances are those contg. NH, NH_2, CO and SO$_2$Cl groups. The 2% aq. solns. of different org. substances were adsorbed on C black and kaolin. Amino compds. were adsorbed more readily by C black (0.00%) than by kaolin (1.00%), because they polarized the surface of C black.

A. Pestoff

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

30

CA

Preparation of colored rubber soles from synthetic rubber treated with activated fillers. A. P. Pisarenko and I. U. Mishustin. *Kozhevenno-Obuvnaya Prom. U. S. S. R.* 16, No. 4, 48-52(1937); cf. "*Izbuttennaya Kozha*" 1935, No. 8-9; *C. A.* 30, 3277[1]. Kaolin was activated by mixing with org. dyes and used as a filler in synthetic rubber. Phys.-chem. tests of the filler treated with various dyes prepd. in different ways were carried out. The best formula for shoe soles was: synthetic rubber 100, kaolin (activated) 0.05, ZnO 2, S 3, mercaptobenzothiazole 0.6, tetramethylthiuram disulfide 0.15 and stearic acid 1. The results obtained in the activation of kaolin with 6 org. dyes and treatment with $Ca(OH)_2$, $Fe(OH)_3$ and $FeSO_4$ soln. are discussed. K. K. Petersen

AEB-SLA METALLURGICAL LITERATURE CLASSIFICATION

PROCESSES AND PROPERTIES INDEX

37

Inorganic accelerators of vulcanization. I. Mu[illegible] and V. Alekseenko. *Ryull. Glavkhimpromstel* 1939, No. 1-2, pp. 32; *Khim. Referat. Zhur.* 1940, No. [illegible], 100 (1). The effects of metal sulfides in unfilled mixts., and oxides and stearates of metals on the vulcanization of rubber mixts. were investigated. Oxides and sulfides of nonalkali metals in unfilled mixts. are slight accelerators. Tests of unfilled mixts. showed that stearic acid has no activating effect on metal oxides and on a control mixt. contg. mercaptobenzothiazole. The combination MgO + PbO obtained by heating the nitrates is more active than the same combination from the oxides. The combination of metal stearates is a more active accelerator than the combination of oxides of the same metals (even in the presence of stearic acid). The combination MgO + PbO (2:1 in 4% doses) from nitrates is a more active accelerator than 0.5% of mercaptobenzothiazole. W. R. Henn

ASB SLA METALLURGICAL LITERATURE CLASSIFICATION

30

Aging of rubber-sole materials. I. G. Mishustin. Kozhevnno-Obuvnaya Prom. N. S. S. S. 9, 1939, No. 7, 33-6. The effects of various commonly used ingredients are shown. B. Z. Kamick

METALLURGICAL LITERATURE CLASSIFICATION

Aging of rubber. I. V. Mishustin. Gummi-Ztg. and Kautsch. (U. S. S. R.) 1939, No. 11, 16-21; cf. C. A. 34, 2684.—Calculated and graphical results are given to show the effects of various plys, and chem. antioxidants and of S on the deterioration of rubber by the Geer oven method for 72 hrs. at 70°, natural aging in air for 6 months, aging in darkness at room temp. for 6 months, and in ultraviolet light.

B. Z. Kanouse

METALLURGICAL LITERATURE CLASSIFICATION

USE AND FIND CODES

PROCESSES AND PROPERTIES INDEX

29

The influence of the percentages of accelerators on the physical mechanical properties of colored rubber soles. I. U. Mishustin and A. P. Pisarenko. *Kosheynno-Obuvnaya Prom.* 18, No. 9, 31(1939).—Tests of the mech. properties of soles made of Russian synthetic rubber with various percentages of mercaptobenzothiazole and tetramethylthiuram disulfide are reported. A. A. R.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

Production of reclaimed rubber containing fibers

[U. Malinstin. *Gummiwaren und Kaucsuk* (U. S. S. R.) **1940, No. 7, 24** s.] Tires made from 100% synthetic rubber and contg. 20-25% vegetable fibers were reclaimed by the following process: (1) mixing the ground rubber (2-3 mm.) with softener for 1 hr. at 80-90°, (2) heating 4 hrs. in steam at 3 atm. and (3) cold milling 15-20 min. The softeners were pine tar, mazout, coumarone resin, pine tar + 20% resin and mazout + 20% resin. Thermomicrographs showed uniform distribution of the cord threads in the reclaimed rubber. To det. the phys.-chem. properties, the samples were mixed with 3%, 5% and 7% mercaptobenzothiazole, and vulcanized for 30, 45 and 60 min. in sheets 4 mm. thick. Good results were obtained with pine tar, coumarone resin and pine tar + 20% resin. 25% mazout also produced good reclaimed rubber but milled unsatisfactorily. With pine tar and mazout, the $CHCl_3$ ext. of the reclaim was higher than that of the original rubber. The phys.-mech. properties of these "fiber" reclaims were no poorer than those of sole rubber, although they had considerably lower elongations and elasticity than acid and alk. reclaimed rubbers. They also required more milling than acid and alk. reclaimed rubbers. The equipment required is less complicated than for acid and alk. reclaims but more complicated than for sole reclaimed rubber. Soles made from these "fiber" reclaims had good phys.-mech. properties but an unsatisfactory surface. R. A. Kanich

PROCESSES AND PROPERTIES INDEX

30

ca

Light fillers for rubber. I. G. Madbustin. *Caoutchouc and Rubber* (U. S. S. R.) 1940, No. 9, 30-41.—Lignin, ground cellulose, peat and acetylcellulose having sp. gr. of 1.36, 1.31, 1.40 and 1.30, resp., were tested as fillers in colored rubber soles. The rubber mixt. contained 30% of synthetic rubber (9.40 plasticity). The fillers imparted very relatively poor phys.-mech. properties to the vulcanizates. The fillers were then activated as follows: (1) cellulose with 2% HCl or H_2SO_4 at 100° for 3 hrs., (2) lignin with 5% Bismack brown, (3) peat with NaOH, H_2SO_4, Na_2SO_4, and a mixt. of $CaCl_2$ and alc., resp. Activated cellulose gave a higher relative elongation, and activated lignin increased the tensile strength by 80%, but activated peat did not give pos. results. One-hundred parts activated lignin + 10 parts kaolin gave a tensile strength of 39 kg. per sq. cm., relative elongation 156%, residual elongation 5.5%, and d. 1.30. With 75 parts activated lignin + 125 parts MgO, the values were 47 kg. per sq. cm., 210%, 8.0% and 1.35, resp. With 50 parts activated lignin + 100 parts kaolin + 50 parts MgO, the values were 36.0 kg. per sq. cm., 168%, 7.0% and 1.30, resp.

R. Z. Kamich

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

Partial replacement of carbon black by mineral fillers in mixtures for rubber parts of footwear. V. I. Alekseenko and I. U. Mishustin. *Legkaya Prom.* 3, No. 11/12, 31-4 (1943).—The fillers tested were gypsum, "white powder" (a waste product of a Moscow chem. plant consisting of SiO_2 up to 75 and Al_2O_3 up to 25%, d. 2.3-2.4), limestones from various deposits, chalk, building lime (CaO 42%, $CaCO_3$ 32.0, residual 24.5%), unslaked lime, Kudinovo clay and diatomite. These fillers were tested in rubber mixts. 104 (made with gas black) and 215 (made with lampblack), which are used for making screw-fastened soles. Each of the substances has a limiting value up to which it can replace C black and make a product coming up to the present standards. The limiting values are gypsum 50, "white powder" 40, limestone and building lime 30, Kudinovo clay 20, unslaked lime 30. CaO is indicated to be less effective as a rubber filler than $CaCO_3$. The various substances imparted to the rubber different elongations (tabulated). Gypsum and "white powder" when replacing gas black produced a high retention power for the screw, good hardness and a high resistance to abrasion. Limestone replacing gas black produced a high resistance to abrasion but lowered the hardness and the screw-retention power. Building lime increased the strength, the screw-retention power and hardness.

M. Hoch

Review of recent work on rubber regeneration. I. U. Mishustin. *Lateksna Prom.* 1944, No. 9, 23-5.—Review.
G. M. Kosolapoff

SSR-SCA METALLURGICAL LITERATURE CLASSIFICATION

CA

Rubber filler. I. U. Mishustin, A. P. Isaenko, L. I. Glazkov, and M. Kh. Bernshtein. U.S.S.R. 64,207, Feb. 28, 1945. As filler for rubber is used lignin treated with surface-active substances having polar groups, such as dyes or soaps. U.S.S.R. 64,208, Feb. 28, 1945, specifies a filler of peat treated while hot with a dil. soln. of an alkali hydroxide or Na_2SO_3, filtered, washed, dried, and ground. M. Hosch

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

PROCESSES AND PROPERTIES INDEX

Filler for rubber and other elastomers. E. C. Mishustin.

U.S.S.R. 66,246, May 31, 1946. His filler is produced by the reaction of Na silicate with a [illegible] Mg salt solution in the presence of glue, casein, anthranilic acid, or other substances which impede crystn. of the silicates. M. Hirsch

METALLURGICAL LITERATURE CLASSIFICATION

PROCESSES AND PROPERTIES INDEX

30

Pencils for the control of temperature of equipment in rubber factories. I. U. Mishustin and G. I. Kostiatin. *Legkaya Prom.* 7, No. 6, 15-16(1947).—Three sets of formulas are given for pencils for the measurement of temp. of rolls (I), of calenders (II), and of vulcanization presses (III). Typical formulas are (I) paraffin, m. 58°, 19.15%, stearic acid, m. 50°, 57.45%, beeswax, m. 70°, 3.85%, ZnO, 19.15%, and methylene blue, 0.40%—giving a pencil m. at 50°C.; (II) rosin, m. 65°, 67.20%, beeswax, 7.60%, S, m. 119°, 5.20%, ZnO, 19.15%, malachite green, 0.75%—giving a pencil m. 80°C.; (III) mercaptobenzothiazole, 27.80%, S, 46.20%, beeswax, 7.50%, Vulcan orange, 18.50%—giving a pencil m. 150°C. M. S.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

20

Methods of increasing the stability of rubber soles to thermal aging. I. U. Mishustin. *Legkaya Prom.* 7, No. 9, 26 Sept(1947). Selection of the best type of rubber together with: (1) suitable fillers, (2) plasticizers such as liquid polyisobutylene, Bu stearate, paraffin, wool fat, dimethylamide, tetraphenylhydrazine, and (3) accelerators and antioxidants, such as mixts. of mercaptobenzothiazole and ethylenediamine, mixts. of phenyl β-naphthylamine and mercaptobenzoxazole, and mixts. of anthranilic acid and naphthylenediamidoacetic acid are recommended for increasing stability. Marshall Sittig

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

30

Innovations in the manufacture of rubber parts for shoe bottoms. I. U. Mishustin. *Legkaya Prom.* 8, No. 10, 21-3(1948).--A review of Soviet and foreign developments in 1944-1947 with regard to rubber formulations.

Marshall Sittig

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

CA

59

New raw materials for leather substitutes. I. C. Mishu-
in. *Legkaya Prom.* 9, No. 1, 21-3(1949).—Review of de-
velopments outside of the Soviet Union. 21 references.
H. Z. Kanich

MISHUSTIN, I. U.; VOYUTSKIY, S. S. and ALEKSEYENKO, V. I.

"The Compatability of Nitrocellulose with Other High Polymers", Doklady Akademii Nauk SSSR, Novaya Seriya, Vol. 95, No 1, 1954, pp 93-96

Trans

M-110, 21 Jan 55

and Evaluation B-83873, 28 Mar 55

USSR

Compatibility of nitrocellulose with other high polymers. V. I. Alekseenko, I. I. Mishustin, and S. S. Voyutskii. Colloid J. (U.S.S.R.) 17, 1-6(1955)(Engl. translation). See C.A. 49, 7886c. H. L. H.

MISHUSTIN, I. U.

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USSR

Compatibility of nitrocellulose with other high-polymers. V. I. Alekseenko, I. U. Mishustin, and S. [illegible] Kolloid. Zhur. 17, 3-9(1955); cf. C.A. 48, 1327b.—A soln. of cellulose nitrate (I) (contg. 12% N) was mixed with a soln. of another high polymer, and films 0.2-0.3 mm. thick were cast on glass. The tensile strength P_0 of these films, calcd. for the initial cross section, was smaller the more butadiene-acrylonitrile copolymer (II) added to I and the smaller the nitrile content x of II; e.g., when the ratio of I and II in the film were equal, P_0 was 1.56, 1.67, 2.17, and 2.34 kg./sq. mm. for x = 12, 20, 28, and 37%, respec. while P_0 of I was 6.4. The tensile strength calcd. for the actual cross section at rupture had min. at about 1 pt. II 40% when x was 28 or 37%; apparently, large radius of II help in redistributing stress only if II contains enough polar ingredients; otherwise II does not truly mix with I. The total elongation L was greater the greater the amt. of II and the greater x. Addn. of dibutyl phthalate to I increased L as much as an equal amt. of II with x = 37%, but lowered P_0 to, e.g., 0.1 kg./sq. mm. Also butadiene-styrene copolymer greatly lowered P_0 of I. Only polar polymers can act as plasticizers in other polar polymers. J. J. B.

Central Sci. Res. Inst. Industry of Rubber Substitutes.

APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R001134710003-1"

MISHUSTIN, I.U.

Improving the quality of artificial leather (from "Revue générale du caoutchouc," no. 1 '56, "Kunstatoffe," no.2 '56). Leg.prom. 16 no.9:52-55 S '56. (MLRA 9:11)
(Great Britain--Textile machinery)

MISHUSTIN, I. U.

USSR/Chemistry of High-Molecular Substances, F

Abst Journal: Referat Zhur - Khimiya, No 1, 1957, 1122

Author: Alekseyenko, V. I., and Mishustin, I. U.

Institution: None

Title: On the Compatibility of Polyvinylchloride and Polyvinylacetate with Other High Polymers

Original Periodical: Kolloid. zh., 1956, Vol 18, No 3, 257-261 (English summary)

Abstract: The possibility of combining divinylchlorovinylidene rubber (I) with rigid polymers, e.g., polyvinylchloride (II) and polyvinylacetate, as a plasticizer is established. The dependence of the yield strength and the breaking elongation on the rubber content in the plasticized polymers is given. It is shown that when sheets of II containing I are heated, an increase in the strength of the mixed polymers is noted; this increase is explained by the interaction between the polar groups. The authors hold that the nature of the polar groups is not particularly important for compatibility.

Card 1/1

Nishosyan, T. U.

7 254. Compatibility of rubbers. V. I. Azarenko and T. U. Nishosyan. Khim. Prom., 1957, No. 8, 153-7. Polar rubbers, like non-polar, are compatible with each other, the mixtures being intermediate in physical properties between the individual rubbers. Polar and non-polar rubbers are compatible only when the former is the pre-

3
2 May

intermediate in physical properties between individual rubbers. Polar and non-polar rubbers are compatible only when the former is the predominant component, and then as a result of polarisation of the molecules of the non-polar rubber and the two becoming equal in polarity. Vulcanisation improves the mechanical properties of the mixed rubbers. With compatible rubbers the curve tensile strength/mix composition is concave in relation to the axis of the abscissa (mix composition), with the incompatible rubbers it is convex. The polar properties of a rubber must therefore be considered in connection with its industrial application; mixes of polar rubbers are recommended for rubber articles and artificial leather, and also mixes of polar and non-polar with predominant polar component. There are 7 references. (The polar rubbers include SKN-18, SKN-26, SKN-40, SKN-60, and LVKhR-70 butadiene-vinylidine chloride copolymer; SKN 30, SKI and natural rubber are non-polar). 28[illegible]

MISHUSTIN, I.U.

AIMKSEYENKO, V.I.; BUGOSLAVSKAYA, L.A.; MISHUSTIN, I.U.

Compatibility as a basic factor in adhesion of high molecular substances. Kauch. i rez. 16 no.8:10-15 Ag '57. (MIRA 10:11)

1. Tsentral'nyy nauchno-issledovatel'skiy institut zamenitelay kozhi i obuvnaya fabrika "Skorokhod."
(Adhesion) (Macromolecular compounds)

APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R001134710003-1"

Mishustin, I. U.

ALEKSEYENKO, V.I.; BLAGOVESTOV, B.K.; BUGOSLAVSKAYA, L.A.; ZHUVIKINA, A.I.; ZAKHARCHENKO, P.I.; MISHUSTIN, I.U.; NISNEVICH, Ye.A.

Use of synthetic gutta-percha in the shoe industry. Leg.prom. 17 no.6:18-20 Je '57. (MLRA 10:8)

(Shoe industry) (Gutta-percha)

MISHUSTIN, I. U.

ALIKSEYENKO, V.I.; BUGOSLAVSKAYA, L.A.; ZAKHARCHENKO, P.I.; KARAPETYAN, N.G.; MISHUSTIN, I.U.

Glue made from latexlike NT "nairite." Leg. prom. 18 no.1:23-25 Ja '58. (MIRA 11:2)

(Glue)

ALEKSEYENKO, V.I.; MISHUSTIN, I.U.

Plasticizing polyvinyl chloride, polyvinyl acetate, and nitrocellulose with carboxyl-containing polymers. Leg.prom. 18 no.6: 18-20 Je '58. (MIRA 12:10)
(Leather, Artificial) (Plasticizers)

MISHUSTIN, I.U., kand. tekhn. nauk

Methods for improving the quality of artificial leather. Kozh.-obuv. prom. no.8:33-35 Ag '59. (MIRA 13:1)
(Leather, Artificial)

SOV/76-33-4-2/32

5(4), 15(9)

AUTHORS: Alekseyenko, V. I., Mishustin, I. U.

TITLE: Investigation of the Compatibility of Three-component Polymer Mixtures (Izucheniye sovmestimosti trekhkomponentnykh smesey polimerov)

PERIODICAL: Zhurnal fizicheskoy khimii, 1959, Vol 33, Nr 4, pp 757-763 (USSR)

ABSTRACT: On the basis of the data hitherto published in publications it may be assumed that thermodynamic factors are a determinant factor in the compatibility of polar polymers (P) and that the mechanism of the exchange process is based on the electrostatic interaction of the polar molecule groups of (P). In the present paper it is demonstrated that polar (P) may be mixed with weakly polar (P) in the presence of a third strongly polar (P). Two systems were investigated: 1) polyvinylchloride (PVC) +"nairite"NT (a chloroprene rubber, specific weight = 1.264) + polar rubber (divinyl acryl nitryl rubber SKN-26 with 28% acrylonitryl groups or rubber DVKhB-70 with 70% chlorovinylidene groups produced by latex coagulation). The compatibility of the (P) was determined according to the tensile strength of (P)-films which are obtained after a

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rolling (140-150°C) and pressing (10 min, 150-160°C) of the (P)-mixtures. The experimental results which are tabulated (Table 1) and represented in a triangular diagram (Fig 1) show that the combination SKN-26 or DVKhB-70 with "nairite" NT proves to be a better plastifier for PVC than dibutyl phthalate (or SKN-26 or a single DVKhB-70) and that mixtures with good properties are obtained (if the PVC-content is not higher than 50%). 2) The system polyvinyl acetate (PVA) + "nairite" NT + polar rubber (as mentioned above) was investigated (after rolling at 50-60°C). The results (Table 2) show that in analogy to the above mentioned observations a combination of nairite NT and DVKhB-70 with PVA yields mixtures with high physico-mechanical properties. Theoretical investigations of the mechanism of formation of ternary mixtures led to the observation that the compatibility of three components of different polarity depends on the dipole interaction and thus substances with the same or similar dielectric constants are compatible and that on the other hand, a compatibility may be attained in the case of weakly polar and polar (P) by adding a third strongly polar component. There are 4 figures, 2 tables, and 14 references, 12 of which are Soviet.

SOV/76-33-4-2/32

Investigation of the Compatibility of Three-component Polymer Mixtures

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut plenochnykh materialov i iskusstvennoy kozhi (All-Union Research Institute of Film Materials and Artificial Leather)

SUBMITTED: July 4, 1957

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88316

15.8101

S/191/60/000/002/002/012
B027/B058

AUTHORS: Alekseyenko, V. I., Mishustin, I. U.

TITLE: Combination of Polyethylene With Other Polymers

PERIODICAL: Plasticheskiye massy, 1960, No. 2, pp. 8-13

TEXT: The authors deal with the improvement of the plastic and elastic properties of polyethylene. The thermal resistivity of pure polyethylene is insufficient, and thus it is necessary to admix other polymers in order to increase the tensile strength of polyethylene without reducing or increasing its durability. Ye. Ye. Rylov and V. L. Karpov (Ref. 6) proved on the basis of electronographic and roentgenographic studies of polyethylene-polyisobutylene mixtures that these polymers yield macrohomogeneous but not microhomogeneous mixtures. N. V. Mikhaylov, Z. V. Ukhanova, V. S. Klimenkov, and Ye. A. Kuril'chikov (Ref. 7) point out that when using polymers as two-, three- or multi-component mixtures for the manufacture of synthetic fibers, the properties of the latter improve. G. L. Slonimskiy and G. V. Struminskiy (Ref. 8) proved that heat is separated when mixing rubber СКБ (SKB) and СКС-30 (SKS-30) with

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Combination of Polyethylene With Other Polymers

polystyrene which indicates the miscibility of these products. A. A. Tager and V. A. Kargin studied the heat of solution of polystyrene in ethyl benzene and proved that the heat separation during solution is due to a previous stratification of the chain molecules from СКС-30 (SKS-30) and polystyrene because of the insufficient flexibility of these molecules. A. A. Tager, A. Smirnova, and N. Sysuyeva pointed out the importance of dense stratification of polymer molecules and the change of the volume of the system during their solution. During the experiments it was found that an admixture of up to 25% polyisobutylene and of the rubber types ДВХБ-70 (DVKhB-70) and СКС-30-1 (SKS-30-1) to polyethylene as well as vulcanizing improves the physico-mechanical properties of the mixture. These mixtures, vulcanized or unvulcanized, are therefore recommended for practical use. When selecting polymers for the purpose of improving the polyethylene properties, the dielectric permeability and density of molecule stratification of these polymers must be taken into account. There are 9 figures, 4 tables, and 11 references: 9 Soviet and 2 US.

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MISHUSTIN, I.U.; KREKSHINA, G.L.; CHEKRIZOVA, A.P.

Manufacture and application of glues in shoe manufacture. Kozh.-obuv.prom. 3 no.7:36-37 Jl '61. (MIRA 14:9)
(Shoe manufacture) (Glues)

ALEKSEYENKO, V.I., doktor tekhn.nauk; MISHUSTIN, I.U., kand.tekhn.nauk

Viscoelastic properties of compatible polymer systems. Kozh.-obuv. prom. 6 no.11:14-18 N '64. (MIRA 18:4)

KAZAKOVA, I.I.; ALEKSEYENKO, V.I., doktor tekhn.nauk; MISHUSTIN, I.U., kand. tekhn.nauk; KUZNETSOVA, T.A.

Processing of polymers into film materials. Zhur. VKHO 10 no.2:160-164 '65. (MIRA 18:6)

ZIBOROV, Nikolay Mikhaylovich; MISHUSTIN, Mikhail Yefimovich; POPOV, German Sergeyevich; KOMAROV, A.P., red.; LARIONOV, G.ye., tekhn. red.

[Low-power industrial boilers] Promyshlennye parovye kotly maloi moshchnosti. Moskva, Gos. energ. izd-vo, 1961. 278 p. (MIRA 14:6)

(Boilers)

MISHUSTIN, N.A., starshiy elektromekhanik

Changes of the transmission level control network of TTT apparatus. Avtom., telem. i sviaz' 5 no.10:43 O '61. (MIRA 14:9)

1. Petropavlovskaya distantsiya signalizatsii i svyazi Yuzhno-Ural'skoy dorogi.
(Telegraph--Equipment and supplies)

MISHUSTIN, S.P.

Diagnosis of residual intrapulmonary cavities following the evaculation of hydatid cysts. Uch. zap. Stavr. gos. med. inst. 12:206-207 '63.

Surgical treatment of evacuated hydatid pulmonary cysts. Ibid.:208-209

Clinical aspects of residual intrapulmonary cavities. Ibid.:229-230

X-ray studies in residual intrapulmonary cavities. Ibid.: 231-232

Indications for surgical intervention in case of residual intrapulmonary cavities. Ibid.:233-234 (MIRA 17:9)

1. Kafedra obshchey khirurgii (zav. prof. Yu.S. Gilevich) Stavropol'skogo gosudarstvennogo meditsinskogo instituta i 2-ye khirurgicheskoye otdeleniye Stavropol'skoy klinicheskoy bol'nitsy (glavnyy vrach Yu.P. Zotov).

MISHUSTIN, S.P.

Surgeon's technique in the case of evacuated pulmonary echinococcal cysts. Uch. zap. Stavr. gos. med. inst. 8:183-204 '63 (MIRA 17:7)

1. Kafedra obshchey khirurgii (zav. - prof. V.P. Bodulin) Stavropol'skogo meditsinskogo instituta (rektor zasluzhennyy deyatel' nauki, Prof. V.G. Budylin) i 2-ye khirurgicheskoye otdeleniye (zav. V.M. Skiba), kraevoy klinicheskoy bol'nitsy (glavnyy vrach Yu.P. Zotov).

MISHUSTIN, Ye. N.

"The Physiological significance of the process of urea decomposition by bacteria." Arch. sci. biol. (USSR) 43, Nos. 2-3, 165-175. 1936

Two strains of urea-decompg. bacilli were studied in regard to their C. and N nutrition.

PROCESSES AND PROPERTIES INDEX

CA

The determination of the osmotic pressure of bacteria. E. N. Mishustin. *Microbiology* (U. S. S. R.) 6, 435-48 (in English 448)(1937)(cf. *Zentr. Bakt. Parasitenk.* Orig. II 93, 371; II 95, 25(1936)).—The plasmolytic technic of osmotic pressure detns. is unreliable when applied to bacteria. Some bacteria (*Bac. mycoides* and *Bac. subtilis*) show no plasmolysis in 0.1-0.8 mol. NaCl, while *Bac. lenus* and *Bac. prodigiosum* plasmolyze only to 50%. This is explained by the presence of a readily collapsing envelope in these bacteria, which prevents the protoplast from sepg. from the envelope in hypertonic solns. A study was made of the volumetric method of osmotic pressure detns. The percentage changes in vol. over controls of yeast cells in wort, H_2O, and 0.4, 0.5, 0.6, 0.7 and 0.8 mol. of NaCl for a 24-hr. yeast culture were 0, 0, −12.7, +2.2, −42.6, −40.2 and −41.7, resp., and 0, 0, +3.4, −12.9, −40.1, −46.5 and −51.6%, resp., for a 6-day yeast culture. The percentages of plasmolyzed cells in 0.4, 0.5, 0.6, 0.7 and 0.8 mol. NaCl were 0.0, 0.0, 0.0, 3.5 and 11% for the 24-hr. and 0.0, 0.0, 7, 34 and 43% for the 6-day culture. The ratios of h_1/h (an indication of the decrease in cell vol.) where h is the height of the sediment in meat-peptone broth and h_1 is the height in NaCl solns. of varying concns. after the 2nd centrifugalization, for *Bac. herbicola*, in the control, H_2O, 0.1, 0.2, 0.3 and 0.4 mol. NaCl were 100, 110, 87.7, 60, 76.1 and 56.8%, resp. For *Bac. mycoides* cultures on common agar h_1/h ratios in the controls 0.1, 0.2, 0.3, 0.4, 0.5 and 0.6 mol. NaCl were 100.2, 80.0, 87.5, 82.0, 77.0, 69.0 and 57.7%, resp. For the same culture on salt agar in the same concns. h_1/h = 91.1, 98.3, 90.4, 91.8, 90.6, 81.8 and 83.3%, resp.

S. A. Karlais

METALLURGICAL LITERATURE CLASSIFICATION

PROCESSES AND PROPERTIES INDEX

CA

11C

Cellulose-decomposing myxobacteria. K. N. Mishustin. *Microbiology* (U. S. R. R.) 6, 1275-92(1937); *Chem. Zentr.* 1938, II, 704-5.—The compn. of the cellulose-decomposg. flora in soil is closely connected with the agricultural treatment of the soil. In well-worked soils *Cytophaga* and a green *Vibrio* are well represented; in moderately worked soils myxobacteria and fungi are prominent; while in poorly tilled soils the fungi flora predominate entirely. Most cellulose-decomposg. myxobacteria belong to the genus *Polyangium*. W. A. Moore

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

CH

12

The formation of humus-like compounds during autolysis. K. N. Mishustin and O. P. Podvapolskaya. *Microbiology* (U. S. S. R.) 7, 198-217(1938); *Chem. Zentr.* 1939, I, 1385.—It was shown experimentally that humus-like substances were formed in rye and wheat grains which had been kept in moist condition for a long time in a 30-40° thermostat. Aeration considerably accelerated the process. Temps. up to 70° had a similar effect, while higher temps. had an opposite effect, which is explained as due to the destruction of the activity of the enzymes which are responsible for the autolysis. The humic acid isolated from the grains contained about 2-3% N.

M. G. Moore

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

CA

The soil acidity as a factor which determines the appearance of the inactive azotobacter in the soil. E. N. Mishustin and M. I. Semenovich. *Microbiology* (U. S. S. R.) 8, No. 1, 19-30(1939); *Khim. Referat. Zhur.* 1939, No. 11, 51. The cultivated podzol soils are very rich in azotobacter. Chernozems (fertilized as well as unfertilized) also contain azotobacter, but none was found in the virgin Kursk chernozem soils. Azotobacter colonies did not grow on silicous earth plates if the pH of the soil was below 5.0. Inactive azotobacters were detd. by the method of soil plates. The increased exchange acidity of the soil is one of the factors causing the inactivation of azotobacter. The appearance of the inactive azotobacters is not related to the content of the nutritive substances in the soils. The more acid the soil is the greater is the pos. effect on the growth of the azotobacters of the addn. to the soil of $CaCO_3$ and of phosphates in the prepn. of soil plates. W. R. Hom

METALLURGICAL LITERATURE CLASSIFICATION

CA

Soil acidity as a factor determining the occurrence of inactive Azotobacter in the soil. II. Experimental production of inactive forms of Azotobacter. E. N. Mishustin and Z. I. Bakhareva. *Microbiology* (U. S. S. R.) 8, 1939 (in English, 10(71 2)(1940). cf. C. A. 34, 7054[illegible]. Azotobacter (I) is inactivated at pH 4-5. After a few days in acid soil I does not develop on gel media but colonies appear on soil plates contg N compds. Prolonged culturing on a mannitol medium partially restores the N-fixing capacity of I.

T. Lazarev

ASB-SEA METALLURGICAL LITERATURE CLASSIFICATION

MISHUSTIN, YE. N.

"The Fungus of the Genus Monilia Responsible for the Bluing of Macaroni during Drying," Mikrobiol., 9, No. 1, 1940.

PROCESSES AND PROPERTIES INDEX

GA

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Distribution of Bacterium mycoides Flügge in soils of various types. B. N. Mishustin and O. I. Pushkinskaya. *Microbiology* (U. S. S. R.) 10, 439–54 (in English, 455) (1941).—Tests of soils for *B. mycoides* content in various parts of the U. S. S. R. led to the conclusion that the main factor for its development is easily decompd. org. compds. in the soil. Podzols contained mostly *R* forms, while the gray soils of steppes contained *S* forms. The *S* forms cultivated on meat-peptone agar are transformed into *R* forms when raised on potato agar. This fact can be used for diagnostic purposes, since reculturing on meat-peptone agar will cause a return to the initial form. For analysis of gray soil potato agar proved best, and favorable results were obtained by placing small clods of soil directly on the agar plate instead of using the dilu. method. T. L.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

6,4

Role of the microbiological factor in the formation of soil structure. E. N. Mishustin and O. I. Pushkinskaya. *Microbiology* (U. S. S. R.) 11, 92-94(1942)(English summary); cf. *Ibid.* 10, 342(1941) and C. A. 36, 7207*.

The study of pure cultures of microorganisms for their capacity to aggregate soil has shown that this process is most readily accomplished by fungi and actinomycetes, i. e., by microorganisms possessing mycellary growth. Bacteria forming mucus will not aggregate the soil unless in the presence of considerable amts. of easily available carbohydrates. Thus it is concluded that bacteria normally have a lesser significance in forming soil structure than fungi and actinomycetes. Some fungi produce a considerable aggregation of the soil even in the presence of very small amts. of available org. matter. In mixed cultures the bacteria sharply decrease the structure-forming action of fungi and actinomycetes. This can be explained both by growth depression of the latter organisms as well as by destruction of the cementing action of the latter organisms by the bacteria. In soils richer in finely dispersed parts (colloids and silt) there is observed a much better structural formation of the soil from the first stages of disintegration of the org. matter. The "biological" soil structure set up by macroorganisms differs from the structure created by humus substances, and is considered the first stage in the structural formation of soil under natural conditions. The more mobile part of soil structure is held by keeping it in a thermostat at 25° for a month. H. Laverne Williams

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS

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3RD AND 4TH ORDERS

CA

11C

Chondrococcus coralloides (Thaxter) and factors influencing the cycle of its development. E. N. Mishustin. *Microbiology* (U. S. S. R.) 11, 178-94(1942)(English summary).—The isolated and investigated species *Chondrococcus coralloides* does not show the same rate of development on different media. On media deficient in org. matter the *Myxococcus* soon forms fruiting bodies. The addn. to this medium of C-contg. org. materials (carbohydrates) inhibits the development cycle of the *Myxococcus*. In this case the addn. of 0.02-0.5 mg. of heteroauxin per l. of medium increases the rate of fruiting body formation. This latter action is specific so that it would seem possible to use this *Myxococcus* culture in a simple test to det. the presence of growth substances of the heteroauxin type. H. Severne Williams

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

MISHUSTIN, YE. N.

"Energy of Reproduction in Geographical Strains Bac. Mycoides (Fluegge), Mikrobiol., Vol. 13, No. 1, 1944, (Inst. Micro., Acad. Sci., -1944-)

"Succession of Microflora Accompanying the Process of Decomposition of Organic Remains as Connected with the Development of Bacillus Mycoides Flugge in Soils," Mikrobiol., Vol. 13, No. 6, 1944.

MISHUSTIN, YE. N.
(Coauthor, BUKANOVA, V. I.) "Orientation of bacterial filaments in Bacillus mycoides colonies."

pp 86-92

[illegible] producing the [illegible] of [illegible] filaments in a colony of [illegible] are discussed in this study. A number of interest proofs [illegible] suggest that this phenomenon must depend on the peculiarities of the growth [illegible] mycoides cells on the surface of solid media. Taking into consider- [illegible] the bacterial filament, its bending becomes [illegible] filament grows

[illegible] the regular growth of the bacterial cells forming the [illegible] possibly if one end of the bacterial cells forming the [illegible] somewhat faster than the other end.

At the same time, it is possible to conclude that an essential influence is exerted on the head of bacterial filaments in a Bac. mycoides colony by the composition of the solid medium on which it is grown. The bacterial filaments in Bac. mycoides colonies either stop tending and begin to grow radially or begin to form inverted colonies, as in a mirror, depending on the composition of the medium and on the concentration of agar in it. Thus, by introducing certain components into the medium, one may transform left forms of Bac. mycoides into right forms.

over

CA

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PROCESSES AND PROPERTIES INDEX

Inhibition of alcoholic fermentation by fat decomposition products. V. L. Kretovich, E. N. Mishustin, and A. A. Bundel (Bach Biochem. Inst., Moscow). *Biokhimiya* 11, 149-54(1946); cf. *C.A.* 39, 5344.—Alc. fermentation is inhibited by the oil extd. from "toxic" millet, wheat, and rye (grain which had lain in the field all winter and which causes "septic angina"). Fat decompn. products are responsible for this powerful physiol. effect. The oil from grain affected by molds did not inhibit alcoholic fermentation. H. Priestley

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ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

PROCESSES AND PROPERTIES INDEX

12

C 4

Fermentation test as a diagnostic method for toxic hibernated grain. B. M. Vishnutin, V. L. Kretovich, and A. A. Bundel. *Gigiena i Sanit.* 11, No. 11, 33-5 (1946).—The toxic principle which is present in grain which had spent the winter in the field sharply reduces the process of yeast growth and thus inhibits alc. fermentation. This permits the use of a fermentation test for such grain, which is capable of producing alimentary alcohol. Tests (in lab. only) confirmed this method on wheat, rye, and millet. The EtOH cont. of the grain (0.1-0.2% by wt.) is introduced into the yeast culture (0.5 million cells per ml.) in physiol. soln., the nutrient medium being most conveniently sugar; the tubes are incubated 2 days at 26° and the vol. of evolved gas is measured.

G. M. Kosolapoff

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

MISHUSTIN, YE. N.
(Conuthor, MIRZOYEVA, V. A.,) "Size of cells of natural variants of Bac. Mycoides flueggie" Mikrobiol, Vol. XV#1,1946 pp 3-12

In the course of the present study, cell measurements were carried out on a considerable scale of Bac. mycoides strains isolated from soils from various parts of the USSR. The results obtained permit the following conclusions:

1. Staining changes the width of the cell considerably. Consequently, only living cells were measured in the course of this study. The measurements were taken by means of an ocular micrometer.

2. In the course of the ageing process, the cells of every variety of Bac. mycoides become considerably thicker.

3. Notwithstanding the changes experienced by the cell during ontogenesis, it can nevertheless be maintained that the different variants of Bac. mycoides differ in regard to the width of their cells. The variants encountered in the north (both the common and the annular-rugose ones) are the thinnest; the southern forms (severely rugose and elliptical) follow next. The thickest are the cells of the smooth forms of Bac. mycoides. The numerical relation between the transversal diameters of the chief forms of Bac. mycoides approaches 1.10 - 1.15.

4. The authors are inclined to explain the increase on the cell surface of the southern forms of Bac. mycoides as an adaptation that helps them to assimilate oxygen, which is relatively less soluble in water at higher temperatures.

MISHUSTIN, YE. N.
(Coauthor MIRZOYEVA, V. A.) "Relation of natural variants of bacillus mycoides to sources of their carbon nutrition"

Oc 115-118

The evaluation of a collection of Bac. mycoides strains, isolated from various soils of the Soviet Union, to the sources of their carbon nutrition was studied. Many of the strains of this collection differed so greatly in the size of their cells, in colony structure, in their development according to the various temperatures, and in their osmotic pressure that they could be taken for different species. However, all the variants (rugose, intermediate, smooth) proved almost identical in their attitude towards the mycoides variants with strictly oriented bands

[illegible] identical in their [illegible]
mediate, smooth) [illegible]
sources of carbon. Only the rugose variants with strictly oriented bands were unable to ferment sucrose, or fermented it, but to a slight extent more often than the rest.

This study permits the conclusion that the complex of fermentative properties in the natural variants of Bac. mycoides varies under the influence of the medium less than the other properties of the microbial cell.

(From Mikrobiologiya, Vol XV, No 2, 1946)

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Stability of soil macroaggregates formed by microorganisms. E. N. Mishustin and E. P. Gromyko (Inst. Microbiol., Moscow). *Mikrobiologiya* 15, 166-76(1946); cf. C.A. 38, 3065[1]. Bacterial slimes and mycelliums of fungi take part in aggregating soil particles; but microorganisms also act to break down the aggregates. Cultures of *Stachybotridis*, *Fusarium*, *Trichoderma lignorum*, *Aspergillus flavus*, *Penicillium glaucum*, *Haetomium* and *Mucor* in sterilized soils (contg. 1% sugar) were tested with soil aggregates. *Haetomium* and a few nonsporogenic fungi in which autolysis is feeble have only slight effects. The disaggregating action varies widely according to conditions; in general, 30-90% of the aggregates are broken down in 30 days. *Actinomyces griseus* broke down 71.4% of aggregates in 16 days in soil contg. 0.1% sugar (48.6% with 1% sugar), whereas *A. coelicolor* broke down only 36 and 3.5%, resp. Sometimes mycelial connective substance stabilizes aggregates by aiding their conversion to difficultly mineralized humus compds. Soil compn. is decisive in these cases. Aggregates formed with bacterial slimes are readily susceptible to bacterial breakdown (e.g. by *Radiobacter*, *Azotobacter chroococcum*, *B. mucerans*, and *Cytophaga*), but are greatly stabilized by a little toluene. Stabilization by toluene is much weaker in aggregates formed with mycelial substance. Julian F. Smith

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ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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11C

Activity of catalase of Bacillus mycoides according to geographic source. E. N. Mishustin and V. K. Mishustina (Inst. Microbiol., Moscow). *Mikrobiologiya* 15, 285-9(1946).—Strains of *B. mycoides* from Igarka, Savtykvar, Solikamsk, Moscow, Ryazan, Sum, Rostov, Krasnodar, Golodnaya Steppe, Samarkand, and Tbilisi were grown on meat-peptone-agar mediums (2% peptone) for tests of catalase activity (I). Effects of growth rate, cell count, temp., and source were studied. As growth proceeds I decreases, dropping sharply at the spore-forming stage. From 20 to 35° I is nearly const.; at 42° it is very low. Cell count variations have only slight influence. Geographical source is influential; I decreases steadily from north to south. The test for I was liberation of O from H_2O_2. Julian F. Smith

No. 4

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

MISHUSTIN, YE. N. "Distribution of variants of bacillus mycoides in soild of the Soviet Union."

The study of a considerable number of soil samples has shown that in the Northern zone (in tundra soils and podzols) the usual Bac. mycoides variants with folds are the most frequently encountered. In the steppe zone (Southern chernozems and brown soils) the variants in folds with strictly oriented bands prevail.

In Northern chernozems and chernozem-like mountain soils Bac. mycoides forms with colonies in the shape of elliptically curved bands prevail. Mountain-tundra and mountain-meadow soils contain the form of Bac. mycoides typical of the Northern zone.

In the soils of the desert zone (sierozems) various forms of Bac. mycoides are encountered, among which the smooth variants are frequent.

Thus, with the transition from one climatic zone to another, the ecological types of Bac. mycoides characteristic of the first zone are substituted by others.

The diagnosis of the forms of Bac. mycoides was performed on a special medium proposed by the author.

(From Mikrobiologiya, Vol XV, No 5, 1946)

MISHUSTIN, E. N.

"Geographical variation of soil micro organisms." (p. 387) by Mishustin, E. N.

SO: Advances in Modern Biology (Uspekhi Sovremennoi Biologii) Vol. XXII, No. 3, 1946.

MISHUSTIN, E. N.

MISHUSTIN, E. N. KRETOVICH, V. L. , and BUNDEL', A. A. "Fermentative Test as a Method of Diagnosing Toxicity of Grain," in Reports of the Scientific-Research Work for 1945, Department of Biological Science, Publishing House of the Academy of Science USSR, Moscow, 1947, p. 150. 511 Ak144

Sira-Si-90-53, 15 Dec. 1953

MISHUSTIN, YE. N.

Science

Ecological and geographical variability of soil bacteria. Moskva, izd-vo Akademii nauk SSSR, 1947.

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MISHUSTIN, E. N.

PA 16T17

USSR/Medicine - Bacteria - Culture
Medicine - Urine - Bacteria

Mar 1947

"Carbon Nutrition of Urobaccillus," E. N. Mishustin, Institute of Microbiology of the Academy of Sciences, 4 pp

"Mikrobiologiya" Vol XVI, No 3

Description of Urobaccillus, and its cultivation in various media, notably in the presence of peptone.

16T17

MISHUSTIN, Yevgeniy N.

"Ecologico-Geographic Changes of Soil Bacteria," Sov. Knigs., Moscow, 1948

"Zonality and Its Manifestation in the Microbiological Processes of the Soil," Priroda, No. 1, 1948.

"Review of V. O. Kalinenko's article, 'Heterotropic Bacteria as Nitrifiers'", Mikrobiol., 17, No. 6, 1948.

"Effect of Plowing on the Activity of Soil Microflora," Sov. Agronimya, No. 3, 1948, pp. 65-72.

"Fat Decomposition Products Inhibit Alcoholic Fermentation," with V. L. Kretovich and A. A. Bundel (SO: W-194, 5 Feb 48)

MISHUSTIN, YE. N.

42176. MISHUSTIN, YE. N., TEPPER, YE. Z. - Opisanke novogo vida bakterii Vas. longissimus. Mikrobiologiya, 1948, VYP. 6, c 413-14.

SO: Letopis' Zhurnal'nykh Statey Vol. 47, 1948

MISHUSTIN, E. N.

PA 34/49T42

USSR/Medicine - Bacteria, Bac. Longissimus
Medicine - Soil, Bacteriology

Nov/Dec 48

"Description of a New Species, Bac. Longissimus," E. N. Mishustin, E. Z. Tenner, Inst of Microbiol, Acad Sci USSR, Chair of Plant Physiol and Microbiol, Moscow Agr Acad imeni Timiryazev, 2 pp

"Mikrobiologiya" Vol XVII, No 6

Organism was isolated from seed-bed soil. It forms long threads, hence the name. Describes microbe in detail, with sketch.

34/49T42

USSR/Medicine - Soil, Bacteriology May/Jun 48
Medicine - Bacteria

"The Role of Sporiferous Bacteria in Soil Processes," Ye. N. Mishustin, Inst Microbiol, Acad Sci USSR, Moscow, 7 pp

"Mikrobiol" Vol XVII, No 3, p.p. 201-07

Role of these bacteria is undecided. Mishustin quotes series of observations showing that they are connected with the transformation of relatively inactive forms of organic soil residue which can be regarded as compounds peculiar to the particular soil. Therefore, type and numbers of spore-forming bacteria

2/49T70

USSR/Medicine - Soil, Bacteriology May/Jun 48
(Contd)

in soil serve as indication of trend of transformation process. Submitted 15 Dec 47.

2/49T70

MISHUSTIN, YE. N.

"Laws of Zonality and Composition of the Bacteria Population in Soils," Trudy Yubileynoy Sessii, posvyashch stoletiyu so dnya pozhdeniya Dokuchayeva M-L., 1949, pp. 102-09.

"Academician Boris Lavrent'yevich Isachenko," (Microbiologist, 1871-1948, Necrology), Pochvovedeniye, No. 3, 1949, pp. 183-84, and in Botan. Zhur., Vol. 34, No. 5, 1949.

"Variations in the Composition of Soil Microflora as a result of Prolonged use of Fertilizers," with V. N. Prokoshev, in Mikrobiologiya No. 1, 1949, pp 30-41.

FA 50/4979

MISHUSTIN, YE. A.

May 49

USSR/Academy of Sciences
Biological Sciences

"Proceedings in the Department of Biological Sciences" 2 pp

"Vest Ak Nauk SSSR" No 5

Describes development of irrigation in central black soil belt, and summarizes work of Ye. A. Mishustin, Dr Biol Sci, on microbiological analysis of fertile soils, showing that microorganisms, like plants, vary with different zones.

50/4979

MISHUSTIN, Ye. N.

33074

1871

Pamyati Akademika Borisa Lavrent, evicha Isacherko. (Mikrobiolog. ~~xx~~-1948) Botan. Zhurnal, 1949, No. 5, c547-51 c Portr.

SO: Letopis'Zhurnal'nykh Statey, Vol. 45, Moskva, 1949

FA 59/49T42

USSR/Medicine - Literature Jan/Feb 49
Medicine - Microbiology

"Review of M. V. Fedorov's 'Biological Fixation of Atmospheric Nitrogen,'" Ye. N. Mishustin, 4 pp

"Mikrobiol" Vol XVIII, No 1

Published by OGIZ-Sel'khozgiz in 1948. Valuable because it presents original Soviet research in this field. Actual value of publication is limited in that it presents only the chemical processes which occurred in the fixation process. Section which refers to practical experiments is very concise. Recommends that future data include

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USSR/Medicine - Literature (Contd) Jan/Feb 49

a wider treatment of this subject with more practical examples.

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MISHUSTIN, YE. N.

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CA

No. 1

Changes in soil microflora resulting from prolonged use of fertilizers. E. N. Mishustin and V. N. Prokishev. *Mikrobiologiya* 18, [illegible] (1949).—Prolonged use of inorg. fertilizers in crop rotation (without grassland intervals) greatly increases concn. of reactive alumina, lowers pH, lowers concn. of bases and lessens crop yields. Soil cell counts decrease as to actinomycetes and nonspore-formers, but increase as to bacilli and fungi. Lime alleviates these drawbacks somewhat. Spore formers may increase, though some (e.g. *Bacillus mycoides*) are likely to decrease. Nitrifiers decrease and soil nitrification drops; cellulosolytic fungi and myxobacteria increase. The large increase in microbiol. activity caused by manure is a major factor in the crop increase which follows. Nitrifiers, fungi, bacteria, actinomycetes, thermophils, *Bacillus mesentericus*, and (with heavy applications of manure) *Cytophaga* are conspicuous sharers in the activity rise. Even with optimum use of manure, lime, and inorg. fertilizers, crop-rotation cycles should include grassland.

Julian F. Smith

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

CA

11C

Mycorrhiza on woody plants and its significance in protective reforestation. E. N. Mishustin and O. I. Pushkinskaya (Acad. Sci., Moscow). *Mikrobiologiya* 18, 447-67(1949).—A study of organisms forming useful symbiotic growths on tree roots, their relations to carbohydrate absorption and other aspects of tree nutrition, and their utility in promoting growth of forest seedlings. 75 references. Julian F. Smith

No. 5

25

BTR

1857 Termofil'nye Mikroorganizmy v Prirode i Praktike. (Thermophilic Micro-Organisms in Nature and Practice.) E. V. Mishustin. 311 pages. 1950. Academy of Sciences of the USSR, Moscow and Leningrad. U.S.S.R. (Q183) M656

Discusses the nature and possible utilization of thermophilic bacteria, i.e., microorganisms which are able to grow even at very high temperatures. Applications in the fermenting industry, in purifying spring waters, in disposal of city sewage, in treatment of organic manures, in food processing, etc., are described in detail. Lengthy bibliography is presented first in Russian, then in English.

ZHUSHUSTIN, Ye.N.

Environment and variability of microorganisms. Gig. sanit., Moskva No.5:5-12 May 50. (CLML 19:4)

APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R001134710003-1"

15

C4

The Dokuchaev-Kostychev-Vil'yams soil doctrines and problems of microbiological participation in plant growth. E. N. Mishustin (Acad. Sci., Moscow). *Mikrobiologiya* 19, 11-23(1950). 25 references. Julian F. Smith

No. 1

AIII-25

B.A.

Vegetable zone of mountainous regions and its relation to the bacterial composition of the soil. E. N. Mishustin and V. A. Mirzoeva (*Mikrobiologia*, 1950, 19, 299—307).—An investigation was made of the relative numbers of spore-bearing organisms in the soil in different mountainous regions in both virgin and cultivated land. The results are discussed in relation to similar previous work of the authors on lowland soils. Study of soil flora may give valuable information about other properties of the soil. D. H. SMYTH.

USSR/Biology (Agriculture) - Microbiology Oct 51

"Soil Microbiology and Its Current Tasks," Ye. N. Mishustin

"Trudy Inst Mikrobiol" No 1, pp 155-175

Discusses soil microbiology in connection with the planting of forest shelter belts, microbiol aspects of V. R. Vil'yams's system of agriculture, the tasks of microbiology in connection with the regulation of nutrition and fertilization of agricultural plants (mentioning the use of azotogen which contains azobacter, nitrogen, phosphobacterin, a bacterial prepn than decomposes silicates, the prepn AMB which activates soil biodynamics),

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USSR/Biology (Agriculture) - Microbiology Oct 51
(Contd)

analysis of the activity of microorganisms in connection with tilling and irrigation of the soil, microbiol methods of diagnosing the condition of the soil. Says that it is impossible to use the same bacterial nitrogen fertilizer throughout the USSR: Azobacter does not survive in steppe regions during dry weather.

209T5

MISHUSTIN, Ye. N.

MISHUSTIN, YE. N.

Microorganisms

Dokuchayev, Kostychev, Vil'iams and soil microbiology., Vest. AN SSSR, 21, no. 12, 1951.

Monthly List of Russian Accessions, Library of Congress, May 1952. UNCLASSIFIED.

MISHUSTIN, YE. N.

Agriculture

Joint scientific session of the Academy of Sciences of U.S.S.R. and of the Academies of Sciences of the Estonian, Latvian and Lithuanian S.S. Republics on problems of biology and agriculture. Mikrobiologiia 21 no. 1, 1952.

Monthly List of Russian Accessions, Library of Congress, July 1952. UNCLASSIFIED.

MISHUSTIN, YE. N

USSR 600

Soils

Scientific principles governing soil processes (Results of the conference on problems of soil microbiology) Priroda 41 no. 3, 1952

9. Monthly List of Russian Accessions, Library of Congress, July 1953. Unclassified.

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