"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5

to 1 M. This is attributed to the interaction of HSO_4^- with $\dot{O}H$. At higher H_2SO_4 concentrations the yield of the carbonyl compounds begins to increase, which may be related to the interaction of HSO_4 radicals, formed by the primary action of radiation on HSO_4^-, with molecules of the ether. /Abstracter's note: Complete translation./

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova, khimicheskiy fakul'tet (Moscow State University im. M. V. Lomonosov, Faculty of Chemistry)

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37627
S/076/62/036/005/001/013
B101/B110

5.4600

AUTHORS: Sarayeva, V. V., and Vannikov, A. V.

TITLE: Radiolysis of sulfuric acid solutions of diethyl ether in the presence of oxygen

PERIODICAL: Zhurnal fizicheskoy khimii, v. 36, no. 5, 1962, 933 - 936

TEXT: The effect of the concentration of ether and sulfuric acid on the yield of radiolysis products (carbonyl compounds (aldehydes) and H_2O_2) has been investigated. Water or sulfuric acid, saturated with ether and O_2, were irradiated in an РУП-1М (RUP-1M) x-ray apparatus. The ether concentration was between $1 \cdot 10^{-3}$ and 1 M, the sulfuric acid concentration between $1 \cdot 10^{-3}$ and 4.5 M. Results: (1) In aqueous solution, the H_2O_2 yield is independent of the ether concentration. This shows that H_2O_2 is formed from H_2O only. Values calculated: $G(H_2O_2) = 2.15$ molecules/100 ev, found: $G(H_2O_2) = 2.0 \pm 0.1$ molecules/100 ev. (2) If all OH radicals react with

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B101/B110

Radiolysis of sulfuric acid...

ether, the carbonyl compound yield cannot be higher than G(OH) = 2.15 molecules/100 ev. Values found: G(carb) = 1.67 ± 0.1 molecules/100 ev at 0.01 - 0.1 M ether concentration. G(carb) increases at higher ether concentrations. (3) In the presence of H_2SO_4, the yield of radiolysis products varies with the ether and acid concentration. Two ranges were found: (a) Up to 0.1 M H_2SO_4, G(carb) decreases (1.67 at 0 M H_2SO_4, 0.90 at 0.1 M H_2SO_4, ether concentration 0.01 M), and G(perox) increases (G(perox) = 2.05 at 0 M H_2SO_4, 3.20 at 0.1 M H_2SO_4). The reaction $HSO_4^- + OH \rightleftharpoons HSO_4^{\cdot} + OH^-$ removes OH radicals from the system, whereby G(carb) is reduced. The resulting persulfuric acid raises G(perox). (b) At $c_{H_2SO_4} > 0.1$ M, the G(carb) is increased (1.50 at 1 M H_2SO_4, 2.24 at 4 M H_2SO_4, c_{eth} = 0.1 M). A direct reaction of ether radicals with HSO_4^- is assumed. There are 3 figures and 1 table. The most important English-language references are: P. Phung, M. Burton, Radiation Res., 7, 199, 1957; M. Doniels, J. Lyon, J. Weiss, J. Chem. Soc., 4388, 1957; T. J. Hardwick, J. Chem. Phys., 31, 226, 1959.

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5

S/076/62/036/005/001/013
B101/B110

Radiolysis of sulfuric acid...

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

SUBMITTED: June 30, 1960

X

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5

37520
S/020/62/144/001/019/024
B124/B101

5.4600
15.8540

AUTHORS: Bakh, N. A., Bityukov, V. D., Vannikov, A. V., and Grishina, A. D.

TITLE: Electric and paramagnetic characteristics of products obtained by radiation and heat treatment of polyethylene

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 144, no. 1, 1962, 135-138

TEXT: The conductivity of high-density polyethylene irradiated in vacuo at about 60°C with doses up to 10^{24} ev/g can be increased substantially by successive heat treatments at different temperatures up to 1000°C, thus leading to semiconductor materials. The powdered materials pressed between disk electrodes were investigated in vacuo ($\sim 10^{-5}$ mm Hg) and at temperatures ranging from -180 to +200°C. Conductivity was independent of both the grain size of the powder and the electrode material. In all cases, $\sigma_{20°C}$ monotonically increased as the temperature of heat treatment was increased, i. e., from about 10^{-16} $ohm^{-1}cm^{-1}$ for unpyrolyzed irradiated polyethylene

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up to 10^{-1} $ohm^{-1}cm^{-1}$ for irradiated polyethylene samples preheated to 800°C, with some slowdown at 500 - 600°C and 10^{-9} to 10^{-8} $ohm^{-1}cm^{-1}$. The equation $\sigma = \sigma_o e^{-\Delta E/2KT}$ (E = activation energy) is valid in the range of -25°C to +150°C, with ΔE being constant for each sample. The differential thermo-emf was related to copper. When the temperature of the sample was raised from 620 to 930°C, values of the thermo-emf between 250 and 4 μv/deg were obtained, with the sign of the thermo-emf corresponding to p-type conductivity in each case. The thermo-emf measured in vacuo is independent of the mean temperature of the sample between -50 and +150°C with ΔT=7 to 10°C. The presence of oxygen leads increases σ and the thermo-emf, and decreases ΔE down to a definite temperature which depends on the temperature to which the sample was previously heated. The experimental data obtained indicate that resistivity decreases with increasing frequency, the former having a constant value of $\sim 10^{12}$ ohms·cm at 5 - 12 Mc/sec; it is thus proved that the material under consideration is heterogeneous and contains regions of high conductivity which extend with increasing temperature of heat treatment. Structural changes in the

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polymer due to radiation and heat treatment were estimated from a study of the single-line epr. spectra (Figs.3 and 4). Both the concentration of paramagnetic centers and the line width were independent of the temperature of measurement. There are 4 figures and 1 table.

ASSOCIATION: Institut elektrokhimii Akademii nauk SSSR (Institute of Electrochemistry of the Academy of Sciences USSR)

PRESENTED: December 25, 1961, by A. N. Frumkin, Academician

SUBMITTED: December 20, 1961

Fig. 3. Concentration of paramagnetic centers as a function of the temperature of heat treatment. (1) $4.3 \cdot 10^{23}$; (2) $1.5 \cdot 10^{24}$; (а) air; (б) vacuum.

Fig. 4. Width of the epr spectral line versus the temperature of heat treatment; (а) in the presence of atmospheric oxygen; (б) vacuum $2 \cdot 10^{-5}$ mmHg, 2 hrs; (в) $5 \cdot 10^{-5}$ mm, 2 hrs; (г) $5 \cdot 10^{-6}$ mm, 24 hrs.

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5

[illegible]
B117/B16[illegible]

AUTHORS: Vannikov, A. V., Bakh, N. A.

TITLE: Effect of iodine on the electric properties of products obtained by radiothermal modification of polyethylene

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 149, no. 2, [illegible]

TEXT: The authors studied the effect of iodine on conductivity [illegible], activation energy $\Delta\varepsilon$, and thermo-emf [illegible] of products obtained [illegible]

[illegible] ^{4} ev/g and different heat treatment temperatures [illegible] [illegible] samples of high-pressure polyethylene [illegible] vapors at [illegible], it was always observed that [illegible] increased by [illegible] $\Delta\varepsilon$ decreased and [illegible] comparatively [illegible]

[illegible]

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5

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B117/B186

Effect of iodine on the electric ...

between the properties studied, which is characteristic of the products of RTM of polyethylene. Introduction of iodine at increased temperature (240°C) changes the properties studied of products which [illegible] to different NTT in the following way: [illegible] considerably increased, as well as ΔE. α abruptly increased with temperature, the sign changing from positive (p-type conduction) to negative (n-type conduction). [illegible] of the temperature dependence curve of [illegible] and [illegible] resembles that of [illegible]

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5

Effect of iodine on the electric [illegible]

the way to producing organic substances with given conduction type.

[illegible]

USSR

PRESENTED: October 18, 1962, by A. N. Frumkin, Academician

SUBMITTED: October 18, 1962

Card 3/3

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5

VANNIKOV, A.V.

Rectifying effect in semiconductors. Dokl. AN SSSR 152 no.4: 905-907 O '63. (MIRA 16:11)

1. Institut elektrokhimii AN SSSR. Predstavleno akademikom A.N. Frumkinym.

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5

ACCESSION NR: AP4038530 S/0020/64/156/003/0647/0649

AUTHOR: Grishina, A. D.; Vannikov, A. V.

TITLE: Relationship between the paramagnetic and electrical properties of certain organic semiconductors

SOURCE: AN SSSR. Doklady*, v. 156, no. 3, 1964, 647-649

TOPIC TAGS: organic semiconductor, semiconducting polymer, pyrolized polyethylene, polyethylene, irradiated and heat treated polyethylene, electrical property, paramagnetic property

ABSTRACT: A study has been made of the relationship between the paramagnetic and the electrical properties of irradiated-and-heat-treated polyethylene(IHTP) subsequently pyrolized at various temperatures (PT). The current carrier concentration calculated from earlier data (N. A. Bakh, V. D. Bityukov,et al., DAN, 144, 135(1962) and A. V. Vannikov, DAN, 152, 905(1963)) and the paramagnetic center concentration were plotted versus PT (see Fig. 1 of the Enclosure).

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5

ACCESSION NR: AP4038530

A comparison of experimental conductivity values with conductivity values calculated from EPR data on the assumption that paramagnetism is due to current carriers at 850C and above revealed that paramagnetism in pyrolized IHTP is apparently due to structural defects of the broken bond type only if PT is less than 800C. When PT is approximately equal to 850C (Fig. 1, curve III), the number of such defects decreases sharply. When PT is higher than 850C, paramagnetism is apparently due to current carriers. The authors express their gratitude to N. A. Bakh for valuable advice. This research was done at the Institute of Electrochemistry, Academy of Sciences SSSR. Orig. art. has: 1 figure and 3 formulas.

ASSOCIATION: Institut elektrokhimii Akademii nauk SSSR (Institute of Electrochemistry, Academy of Sciences SSSR)

SUBMITTED: 06Feb64 DATE ACQ: 09Jun64 ENCL: 01

SUB CODE: SS NO REF SOV: 007 OTHER: 005

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observed which [illegible]

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properties of the films. [illegible] Institute of Electrochemistry.

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ACCESSION NR: AP5005897

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5

Figures.

ASSOCIATION: Institut elektrokimii AN SSSR (Electrochemical Institute, AN SSSR); Institut poluprovodnikov AN SSSR (Semiconductor Institute, AN SSSR)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5

BAKH, N.A.; VANNIKOV, A.V.; [illegible], A.D.; NIZHNIY, S.V.

Organic semiconductors based on polyetylene. Uspekhi. 34 no.10:1733-1752 O '65. (MIRA 18:11)

1. Institut elektrokhimii AN SSSR.

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5

L 29245-66 EWP(j)/EWT(m)/T IJP(c) GG/RM

ACC NR: AP6019308 SOURCE CODE: UR/0074/65/034/010/1733/1752

AUTHOR: Bakh, N. A.; Vannikov, A. V.; Grishina, A. D.; Nizhniy, S. V.

ORG: Institute of Electrochemistry, AN SSSR (Institut elektrokhimii AN SSSR)

TITLE: Polyethylene-based organic semiconductors

SOURCE: Uspekhi khimii, v. 34, no. 10, 1965, 1733-1752

TOPIC TAGS: organic semiconductor, polyethylene plastic, linear accelerator, paramagnetism, photoconductivity

ABSTRACT: The electrophysical and paramagnetic properties of the products of the radiation-thermal modified polyethylene were studied in relation to the absorbed dose and to the conditions of thermal treatment. Conductivity in a constant and variable field, its temperature relationship, differential thermal-e.m.f., structure of the products by EPR and IF-spectroscopic methods, as well as the effect of the contaminating additives and photoconductivity were investigated in a wide range.

The products of the radiation-thermal modified polyethylene were studied as powders and as films. The films were applied to glass or quartz substrates with preliminarily applied gold electrodes. Irradiation of the specimens was conducted in vacuum ampoules ($\sim 10^{-5}$ mm Hg) with fast electrons (5 mev) from the U-12 linear accelerator. Thermal treatment of the irradiated specimens was

Card 1/3 UDC: 541.6: 541.15

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ACC NR: AP6019308

conducted by the standard method according to which the irradiated specimen was subjected to short-term oxidation at 260°C and subsequent pyrolysis in a vacuum. Study of the electrical characteristics of the specimens in a constant field was conducted in a vacuum ($\sim 10^{-5}$ mm Hg). The film specimens were studied as surface or laminated elements which were placed in a special container. Electrophysical properties of powder products were measured in the element with disc plate electrodes at +20- +150° in vacuum and air and at +20--50° in the case of iodine adsorption on the specimens.

Measurements in a constant field were made with the Ye6-3 teraohmmeter or MO-47 bridge in the case of low ohmic specimens. Conductivity in the variable field was measured with the Ye10-2 full conductance bridge.

Most of the results presented in this article were obtained on films of radiation-thermal modified polyethylene. Electrophysical properties were studied on polyethylene specimens irradiated up to the absorption of three different doses: 1.2×10^3, 6.9×10^3, and 2.4×10^4 megarads. Measurements of specimen conducitivity in the range -25- + 150°C indicated excellent satisfaction with the exponential relationship:

$$\sigma = \sigma_0 \exp(-\Delta E/kT)$$

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L 29245-66

ACC NR: AP6019308

Measurements of the differential thermal-e.m.f. indicated that the prepared materials are p-type semiconductors. In the -50- + 150°C region the differential thermal-e.m.f. does not depend on the average temperature of the specimens in the limits of experimental error. The values of σ_{20}, ΔE, and α in relation to the dose absorbed by polyethylene and the thermal treatment temperature for powder and film specimens are presented. Orig. art. has: 14 figures, 15 formulas and 5 tables. [JPRS]

SUB CODE: 20, 11 / SUBM DATE: none / ORIG REF: 020 / OTH REF: 010

Card 3/3

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5

VANNIKOV, L.D.

Structure of the olfactory tract in man. Arkh. anat. gist. i embr. 32 no.4:40-42 O-D '55. (MLRA 9:5)

(NERVES, OLFACTORY, anatomy and histology)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5

VANNIKOV, L. L.

"Development Structure, Functions, and Age Properties of the Ependyma of the Human Brain." Thesis for degree of Cand Medical Sci Sub 19 Dec 50, Acad Med Sci USSR

Summary 71, 4 Sep 52. Dissertations Presented for Degrees in Science and Engineering in Moscow in 1950. From Vechernyaya Moskva, Jan-Dec 1950.

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5

Vannikov, L. L.

Impregnation method of the bone and bone marrow nerve fibers. L. L. Vannikov and Yu. N. Solov'ev. *Byull. Eksptl. Biol. Med.* 40, No. 10, 70-1(1955). The bone tissue is completely decalcified by using in order for definite periods 12% neutral HCHO, 10% HCOOH, 5% Na_2SO_4, and 12% HCHO solns. It is then rinsed for a prolonged period in distd. water, placed in 20% $AgNO_3$, subjected for 2 min. to ultrasonic waves, washed with distd. water, immersed for 20-30 sec. in 1% HCHO, dried on filter paper, placed for 5-10 sec. in 20% ammoniated $AgNO_3$, transferred to 0.5% acidic HCHO fibers examd. under the microscope to note beginning impregnation, removed before the appearance of brown coloration, and placed subsequently in water, phenol-xylene, xylene, and Canadian balsam. The method is 100% effective. A. S. Mirkin

MD

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5

VANNIKOV, L.L.; SOLOV'YEV, Yu.N.; TATARINOV, V.G.

Innervation of the jaws and teeth. Report No.1. Stomatologiia 35 no.6:20-25 N-D '56 (MIRA 10:4)

1. Iz Instituta Ministerstva Izdravookhraneniya SSSR i iz Moskovskogo meditsinskogo stomatologicheskogo instituta (dir.-dotsent G.N. Beletskiy)
(JAWS--INNERVATION) (TEETH--INNERVATION)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5

VANNIKOV, L.L.

AUTHORS: Domshlak, M.P., Vannikov, L.L., Grigor'yev, Yu.G. 89-7-6/32

TITLE: On the Estimation of Minor Influences Exercised by Radiation Upon the Human Organism (Ob otsenke malykh radiatsionnykh vliyaniy na organizm cheloveka)

PERIODICAL: Atomnaya Energiya, 1957, Vol. 3, Nr 7, pp. 36-40 (USSR)

ABSTRACT: An evaluation of the influence exercised by radiation upon the human organism is reliable only if the totality of data obtained from several clinical and laboratory investigations are taken into account. The present paper deals only with promising indications for latent changes in tissues occurring at a later date, and gives a survey of 28 previous works dealing with the same problem. The determination of the mitotic activity of the epidermis, as well as the investigation of the anomaly on the leukocytes circulating in the blood and the changes taking place in the chromosomes in the cells of bone marrow are technically complicated and insufficiently worked out methods of investigation. Counting the thrombocytes in peripheral blood is a more exact method than counting the leukocytes because the number of thrombocytes diminishes even as a result of minor doses of radiation. In the case of larger radiation doses the following may take place: a) A change

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5

On the Estimation of Minor Influences Exercised by Radiation Upon the Human Organism

89-7-6/32

of the thrombocytes formula with a preponderance of riper forms, b) A change of the dimensions on the thrombocytes, in which case gigantic thrombocytes eventually occur. Also the lymphocytes with two-leaved nuclei can serve as an indication for changes taking place in the organism under the influence of radiation. Also the methods for the evaluation of the functional state of the blood-forming system are pointed out. In order to determine a disturbance of the functional state of the bone marrow it is possible to use a sample with the vitamin B_{12}, and also fluorescence microscopy can be used with success. Also the diminished formation of anti-particles in irradiated organisms is discussed in short. In the USSR clinical-physiological methods are developed for the early discovery of damage caused by radiation; they are partly already being employed in practice. The most important among them are the investigations of the various functions of the nervous system. The authors then discuss in detail the investigation of the functions of smell-, taste-, face-, skin-, and vestibular analyzers. There are 6 references, 1 of which is Slavic.

SUBMITTED: January 4, 1957

AVAILABLE: Library of Congress

Card 2/2 1. Radiation - Physiological effects

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5

VANNIKOV, L.L.

89-10-29/36

AUTHORS Vannikov L.L., Samokhvalov N.V.

TITLE On the Construction of Irradiation Guns and Devices for Radiobiological Investigations.
(O razrabotke ustanovok dlya oblucheniya i priborov dlya radiobiologicheskikh issledovaniy - Russian)

PERIODICAL Atomnaya Energiya, 1957, Vol 3, Nr 1o, pp 37o - 372 (U.S.S.R.)

ABSTRACT A report is given on the following devices:
1) The device GUT - Co - 4oo - 1, the source of which corresponds to 4oo mg-Ra-equivalent, is intended for medical γ-therapy.
2) The preparations in the γ-irradiation devices EGO-2, EGO-2o are arranged in tubes fastened to a cylinder surface. The diameter of the cylinder limits the size of the object to be irradiated. The experimental - γ-irradiation device EGO - 2o is fitted out with a source of 32 kg radium equivalent.
3) The irradiation device OKFO - 1 with a short focal length serves the purpose of investigating the influence exercised by the dose efficiency for local irradiation, especially if used for small biological objects. Dose efficiences of from 0,5 r/sec to 5oo r/sec, at a distance of from 1- 2 mm from the preparation, can be used.
4) An X-ray apparatus with 12 valves (up to 2oo kV) can be used for irradiation of entire living objects.
5) The following devices are at present existing for application in γ-defectoscopy (nondestructive investigation of material): GUT-Co-0,5 - 1, YG 1, GUT - Co - 5 - 1, GUT - Co - 5o - 1.

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On the Construction of Irradiation Guns and Devices for Radiobiological Investigations. 89-10-29/36

These devices not only differ by the efficacy of the preparations but also by their construction, viz. in that they may be adapted to various purposes.

6) Within the physiological sector mention has to be made of the electroencephaloscope by means of which the spatial distribution of the biolectrical potential of 5o places of the cerebrum can be recorded.

There are 3 figures.

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Card 2/2

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5

VANNIKOV, L. L.

25-10-34/41

AUTHOR: None Given

TITLE: Atomic Energy (Atomnaya energiya)

PERIODICAL: Nauka i Zhizn', 1957

ABSTRACT: A brief note about the article "The determination of radiation influence on human organism" published in the journal "Atomnaya energiya" # 7, 1957, by M. P. Domshlak, L. L. Vannikov, and Yu. G. Grigor'yev where they describe a very promising method for determining the influence of radiation on the human organism and above all on haematosis and the various functions of the nerve system. A clinical-physiological method devised in the USSR for diagnosing radiation affection at an early stage proved to be especially effective.

AVAILABLE: Library of Congress

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APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5

VARDIYEV, V.D.; VANNIKOV, N.V.; TAUMIN, I.M.; SMIRNOV, A.P.; LISICHKIN, S.M., doktor ekonom.nauk, red.; RYBAK, B.M., dotsent, kand.tekhn. nauk, red.

[Petroleum industry of capitalist countries] Neftianaia promyshlennost' kapitalisticheskikh stran. Pod obshchei red. S.M.Lisichkina i B.M.Rybak. Moskva, Gos.nauchno-issl.in-t nauchn.i tekhn.informatsii. Vol.1 [Petroleum production in the United States] Neftedobyvaiushchaia promyshlennost' SShA. 1958. 187 p. (MIRA 13:11)

(United States--Oil fields--Production methods)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5

VANNIKOV, N.V.

[Production and prerefining of oil and gas in foreign fields] Sbor i pervichnaia obrabotka nefti i gaza na promyslakh za rubezhom; obzor zarubezhnoi literatury za 1952-1958 g. Moskva, GOSINTI, 1961. 109 p. (MIRA 14:11)

1. Moscow. Gosudarstvennyy nauchno-issledovatel'skiy institut nauchnoy i tekhnicheskoy informatsii.
(Oil fields—Production methods) (Automatic control)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5

VANNIKOVA, Ye.M., aspirant

Action of corrosive media on walls of titanium-magnesium plants. Prom.stroi. 37 no.3:27-32 Mr '59. (MIRA 12:4)

1. Kafedra arkhitektury Moskovskogo inzhenerno-stroitel'nogo instituta im. V.V.Kuyb/sheva.
(Corrosion and anticorrosives) (Magnesium industry)
(Titanium)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5

VANNIKOVA, Ye.M., arkhitekt

Protecting the walls of industrial buildings from the action of chlorine. Prom.stroi. 39 no.8:55-58 '61. (MIRA 14:9)
(Walls) (Corrosion and anticorrosives)
(Chlorine)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5

KRICHEVSKIY, M.Ye., arkhitektor; CHERKASOV, G.N., arkhitektor; VANNIKOVA, Ye.M., arkhitektor

Color in the interior of industrial premises. Prom. stroi. 43 no.10:41-44 '65. (MIRA 18:11)

1. TSentral'nyy nauchno-issledovatel'skiy i proyektno-eksperimental'nyy institut promyshlennykh zdaniy i sooruzheniy (for Krichevskiy, Cherkasov). 2. TSentral'nyy institut nauchnoy informatsii po stroitel'stvu i arkhitekture (for Vannikova).

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5

VANNINA, L.V.

Problem in obstetrics. Fel'd. i akush, 25 no.3:53 Mr '60. (MIRA 13:6)

(PREGNANCY, COMPLICATIONS OF)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5

R

USSR / Diseases of Farm Animals. Diseases Caused by Viruses and Rickettsiae.

Abs Jour : Ref Zhur - Biologiya, No 2, 1959, No. 7453

Author : Vannovskiy, T. Ya.

Inst : Scientific Research Institute of Animal Husbandry and Veterinary Science, Tadzhik SSR

Title : The Aluminum-Hydroxide Formol-Glycerin Vaccine Against Pox in Goats

Orig Pub : Tr. N.-i. in-ta zhivotnovodstva i veterinarii. TadzhSSR, 1957, 1, 90-100

Abstract : No abstract given

Card 1/1

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5

VANO, Frantisek

Apparatus for automatic measurement of the amount of wort, nutrient salts, and ammonia water according to the selected program. Kvasny prum 9 no.4:82-85 Ap '63.

1. Ustredny vyskumny ustav potravinarskeho priemyslu, pobocka Bratislava.

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5

VANO, Frantisek; TOTH, Jan; KARABELLI, Jan

Measurement, signalling, and control in the experimental semiindustrial production of biologically active yeast in the Trencin Plant. Kvasny prum 9 no.10:237-242 O '63.

1. Ustredny vyskumny ustav potravinarskeho priemyslu, pobocka Bratislava.

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5

VANO, Frantisek; KARABELLI, Jan; TOTH, Jan; SOCHOROVA, Viera

Liquid inflow control by a floating flowmeter with a photoelectric sensing device. Kvasny prum 10 no.5:105-109 My '64.

1. Research Institute of the Distillation and Canning Industry, Bratislava.

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5

VANO, F.

Manufacture of apparatus index plates. Sdel tech 12 no.8:284 Ag '64

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5

VANO, F.; KARABELLI, J.

Miniature selenium rectifier for transistor apparatus. Sdel tech 12 no.9:357 S '64.

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5

VANO, Frantisek, inz.

Device for coil unwinding. Sdeltech 13 no.1:38 Ja '65.

Piece production of panels with printed circuits. Ibid.: 38

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5

VANO, I.

Use of domestic bentonites in the treatment of penicillin fermented soils. p. 471

CHEMICKE ZVESTI. (Journal on applied chemistry issued by the Slovak Academy of Sciences and the Slovak Chemical Society. Monthly).
Bratislava, Czechoslovakia, Vol. 13, No. 7/8, July/Aug., 1959.

Monthly List of East European Accessions, (EEAI), LC, Vol. 8, No. 12, Dec. 1959.
Uncl.

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BLASKOVIC, D.; SOKOL, F.; KOCISKOVA, D.; technical assistance: RAUS, J.; VANGO, K.

Subunits of myxoviruses. III. Antigenic properties of Newcastle disease, para-influenza 1 (Sendai) and mumps viruses of their haemagglutinins and "g-antigens". Acta virol.Engl.Ed.Praha 5 no.5:294-304 S '61.

1. Institute of Virology, Czechoslovak Academy of Sciences, Bratislava.

(NEWCASTLE DISEASE virol)
(INFLUENZA VIRUSES immunol)
(MUMPS virol)
(HEMAGGLUTINATION)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5

VANOT, Zh.

For nationalization and democracy. Vsem. prof. dvizh. no.9:3-5 S '61. (MIRA 14:9)

1. General'nyy sekretar' Mezhdunarodnogo ob"yedineniya profsoyuzov rabochikh khimicheskoy, neftyanoy i rodstvennykh otrasley promyshlennosti.
(Indonesia--Petroleum workers) (Trade unions--Congresses)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5

VANOUS, F.

Experience with the B system in concrete work. P. 225. POZEMNI STAVBY. (Ministerstvo stavebnictvi) Praha. Vol. 3, no. 6, June 1955.

SOURCE: East European Accessions List (EEAL), Library of Congress, Vol. 4, No. 12, December 1955.

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5

Vanous, F.

Vanous, F. All-metal storehouses. p. 70.

Vol. 5, no. 2, Feb. 1957.
POZEMNI STAVBY
TECHNOLOGY
Czechoslovakia

So. East European Accessions, Vol. 6, No. 5, May 1957

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5

VANOUS, J.

New regulations concerning timber conservation in he building industry. p.131 (Pozemni Stavby, Vol.5, no.3, Mar. 1957) Praha

SO: Monthly List of East European Accession (EEAL) LC, Vol.6, no.7, July 1957. Uncl.

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5

VANOUS, Jan

A new method of labor productivity measurement. Geol pruzkum 6 no.11:321-322 N '64.

1. Unit of Technological and Economic Development of the Center of Economics, Brno.

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5

SKOP, Vaclav, As., dr.; VANOUSOVA, Eva, MUDr.

Roentgen-ray aspects of the lungs in advances mitral stenosis.
Cas. lek. cesk. 95 no.25-26:671-673 29 June 56.

1. Ze IV. interni kliniky KU. Pred. prof. MUDr. Boh. Prusik V.S., Praha-Mala Strana, Ricni 10.
(MITRAL STENOSIS, pathol.
lungs, x-ray aspects (Cz))
(LUNGS, in various dis.
mitral stenosis, x-ray aspects (Cz))

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5

SOUKUPOVA, Kveta; VANOUSOVA, Eva

Effect of fat meal on patients with angina pectoris. Cas.lek.cesk. 98 no.47:1457-1461 20 N '59.

1. IV. int. klinika KU v Praze, prednosta prof.dr. B. Prusik.
(ANGINA PECTORIS)
(FATS eff.)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5

SKOR, Vaclav; VANOUSOVA, Eva; SOUCKOVA, Eva

Roentgenographic changes of the thoracic picture in surgical patients with mitral stenosis. Cas.lek.cesk.99 no.38:1218-1220 16 S'60.

1. IV. interni klinika KU v Praze, prednosta prof. dr. M.Fucik.
(MITRAL STENOSIS surg)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5"

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LICHTENBERG, J.; BARTOS, J.; POKORNY, J.; VANGUSOVA, E.

Therapy of arteriosclerotic obliterations of the aortic bifurcation and arteries of the lower extremities by a palliative aorto-femoral prosthesis. Rozhl. chir. 43 no.12:793-797 D '64

1. I chirurgicka klinika fakulty vseobecneho lekarstvi Karlovy University v Praze (prednosta prof. dr. J.Pavrovsky).

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5"

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LICHTENBERG, J.; BARTOS, J.; VANOUSOVA, E.; POKORNY, J.

Prevention of gangrene and amputation in artoriosclerotic obliterative diseases of the lower extremities. Cor Vasa 7 no.1:66-72 '65

1. 1st Surgical Clinic, Faculty of General Medicine, Caroline University, Prague, Czechoslovakia.

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5

BARTOS, J.; LICHTENBERG, J.; POKORNY, J.; VANOUSOVA, M.

Reconstructive surgery of the femoral and popliteal arteries in arteriosclerotic obliterations. Cas. lek. cesk. 104 no.1[illegible]-15 8 Ja '65

1. I. chirurgicka klinika fakulty vseobecneho lekarstvi Karlovy University v Praze (prednosta-prof. dr. J.Pavrovsky) a IV. interni klinika fakulty vseobecneho lekarstvi Karlovy University v Praze (prednosta - prof. dr. M. Fucik).

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5

VANOV, G., inzh.-polkovnik

Antitank guided rocket shells. Voen. znan. 34 no.8:10-11 Ag '58.
(Tank warfare) (Rockets (Ordnance)) (MIRA 11:12)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5

VANOV, Svetislav
SURNAME (in caps); Given Names

Country: Yugoslavia

Academic Degrees: Dr.

Affiliation: Skoplje

Source: Belgrade, Galenika, No 3, July-September 1961, p. 94.

Data: Article Reviews: "Amitriptyline (Elavil), A New Antidepressant," by Barse, J. and Saunders, J. (Am-J., Psychiat.); "Medical Treatment of Peptic Ulcer," by Hadley, G. D. (Practicioner).

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5

VANOVA, Margita

Large Foraminifera of the Central Carpathian Paleogene from the localities Huty pri Zuberci, Nizna Sunava, Tokarna, Sedlice and Miklusovce. Geol prace 63:85-92 '62.

1. Geologicky ustav G.Stura, Bratislava.

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5

VANOVSKAYA, T. V.

French Literature - History and Criticism

Crisis of the bourgeois social novel in France in the 1840's. Uch. zap. Len. un. no. 122, 1949.

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

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VANCVSKAYA, T. V.

Fucik, Julius, 1903-1943

Sketches and tales by Julius Fucik about the first Stalin five-year plans. Vest. Len. un. 7 No. 11, 1953.

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

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VANOVSKAYA, T.V.

Authors, Czech

Sketches and tales by Julius Fucik about the first Stalin five-year plans.
Vest. Len. un. 7 no. 11, 1953

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APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5"

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VANOVSKI, Bojan J.

Mechanism, technics and specificity of lupus erythematosus phenomenon. Med. glasn. 11 no.4:148-152 Apr 57.

1. Klinika za unutrasnje bolesti Medicinskog fakulteta u Zagrebu (Predstojnik: prof. dr A. Hahn)
(LUPUS ERYTHEMATOSUS, DISSEMINATED, blood in
L. E. phenomenon (Ser))

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5

VANOVSKI, Bojan, dr.

Latrodectism in Yugoslavia. Lijecn. vjesn. 84 no.2:131-137 '62.

1. Iz Internog odjeljenja Kotarske bolnice u Titovom Velesu.
(SPIDERS)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5

ARSOV, Dimitar, dr.; GRUNEVSKI, Mihail, dr.; HRISOHO, Dimitar, dr.; VANOVSKi, Bojan, dr.

Forestier's disease and differentiation from ankylosing spondylo-arthritis. Lijecn. vjesn. 85 no.9:989-994 '63

1. Iz Interne klinike i Radioloskog instituta Medicinskog fakulteta u Skopju.

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APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5

ARSOV, D., prof. dr.; DAVCEV, P., dr.; VANOVSKI, B., dr.

Our experience with the ortholidin method in occult hemorrhage without preliminary diet. Med. glas. 18 no.6:186-189 Je-Jl'64.

1. Interna klinika Medicinskog fakulteta u Skopju (Upravnik: prof. dr. D. Arsov).

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5

ARSOV, Dimitar, dr.; DAVCEV, Penco, dr.; VANOVSKI, Bojan, dr.; GRUNEVSKI, Mihail, dr.; LEBEDIK, Vladimir, dr.

Hyperplasia of Brunner's gland. Lijecn. vjesn. 87 no.2: 159-164 F '65.

1. Iz Interne klinike i Radioloskog instituta Medicinskog fakulteta u Skoplju.

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5

YUGOSLAVIA

DAVCEV, Prof. Dr. Penco, VANOVSKI, Dr. Bojan, and MARKOVIC, Dr. Nenad, Internal Medicine Clinic, Faculty of Medicine, Skopje

"Testing of Gastric Secretion with Nicotinic Acid"

Zagreb, Lijecnicki Vjesnik, Vol 88, No 5, pp 481-488

Abstract: Stimulation of gastric secretion by nicotinic acid was studied on 239 patients with gastric and extragastric disorders. The results obtained with nicotinic acid (100 mg) were similar to those obtained with histamine (0.5 mg). The nicotinic acid test proved particularly useful in the determination of acidity in ulcerative gastric changes, non-ulcerative dyspepsia, and gastritis. It was superior to the caffeine test, showing acidity in cases in which wrong values indicating achylia were obtained by the latter. The maximum test with doses of 150 mg nicotinic acid was applied to 147 patients in cases in which the ordinary test indicated achylia. Side effects in tests with the maximum dose of nicotinic acid were more frequent and pronounced than in tests with the ordinary, lower dose. Graphs and tables, 11 references (1 Yugoslav, 10 Western). English summary. Manuscript received 20 Jun 65.

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5

YUGOSLAVIA

PUJIN, D.; POP-CENIC, S.; VANOVSKI, P.; and CVETKOVIC, P. [no affiliations given].

"Sigmamycin in the Treatment of Hemorrhagic Diarrhea in Hogs."

Belgrade, Veterinarski Glasnik, Vol 17, No 9, 1963, pp 817-820.

Abstract: An outbreak of hemorrhagic diarrhea among young hogs on the farm of the Ratkovo agricultural cooperative in 1962 gave the authors an opportunity to observe the effect of Sigmamycin (product of Chas. Pfizer and Co., New York). The drug was administered in doses of 10 grams to 183 hogs once, 117 hogs twice, and six hogs thrice. All but three of these 306 hogs were cured within 12 to 24 hours after administration. The three which died had all received the drug three times. The rapid recovery in the vast majority of hogs treated meant reduced losses of weight and thus a favorable economic effect. Sigmamycin also proved to be of help in prevention in that a three-day daily dose of two grams per hog protected threatened animals from hemorrhagic diarrhea for a period of two months.

One graph, 10 references (seven Western, two Yugoslav, one Soviet).

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5

VANOVSKIY, Ya.I.

Treating injuries of the spinal cord and the cauda equina at the resort in Lipetsk. Vop.kur.fizioter. i lech. fiz.kul't 23 no.4 324-328 Jl-Ag '58 (MIRA 11:8)

1. Lipetskiy kurort (dir. N.I. Deberdeyev).
(SPINAL CORD--WOUNDS AND INJURIES)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5

23811

S/020/61/138/001/015/023
B104/B201

24,7300(1153,1160,1136)

AUTHORS: Shelyubskiy, V. I. and Vansfel'd, N. M.

TITLE: Electron microscopic study of the structure of sodium-boron silicate glasses

PERIODICAL: Doklady Akademii nauk SSSR, v. 138, no. 1, 1961, 100-101

TEXT: A study has been made of a glass with the following composition (mole%): Na_2O 7, B_2O_3 23, SiO_2 70. The study comprises the changes undergone by the glass structure due to a rise in the time of heat treatment from 6 to 192 hr at a temperature of 645°C, and on a change of temperature between 695 and 755°C with constant time of heat treatment. The results of similar examinations with scattered light and scattered X-rays (N. A. Voyshvillo, Optika i spektroskopiya, 2, No. 3, 371 (1957); Optika i spektroskopiya, 3, No. 3, 281 (1957); Voyshvillo et.al. Fiz. tverd. tela, 2, no. 5, 1011 (1960)) are compared with those obtained here by means of an electron microscope. The investigation was conducted with the replica method at 75 kv and 14,000-fold magnification using an

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B104/B201

Electron microscopic study of the...

ЭМ-100 (EM-100) electron microscope. The specimens were etched in an etching agent with 12 % hydrofluoric acid. The results are collected in Table 1. The mean particle size R_{cp} of the sodium-borate phase was optically determined, and this value was found to be by three to four times smaller than the value R_{ϕ} calculated with scattered light. In the authors' opinion, this is in relation to the usability of the scattering formula in the case concerned here, where the particle distances are comparable with the particle size. N. A. Voyshvillo assumes that the deviation of the particles from spherical form and the spread of particle size are responsible for this. An estimation of the volume of the particles and of the channels connecting them has led to the following conclusions: The channels occupy 20 % of the total particle volume. The relative volume of the sodium borate phase, no matter how long the treatment, remains constant with a given temperature and amounts to about 25 %. The particles grow with the duration of treatment. This occurs by absorption of the smaller particles, which takes place by diffusion and does not involve phase variations. Increased temperatures give rise to a strong growth of the particles already with brief duration of treatment.

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Electron microscopic study of the... S/020/61/138/001/015/023
B104/B201

Opalescence was no more observed on specimens subjected to a one-hour treatment at 755°C. The strong diminution of structural elements to 8 mμ is evidence of the reciprocal solution of phases at temperatures above the opalescence temperature. There are 3 figures, 2 tables, and 16 references: 14 Soviet-bloc and 2 non-Soviet-bloc.

ASSOCIATION: Gosudarstvennyy nauchno-issledovatel'skiy institut elektrotekhnicheskogo stekla i tekhnologicheskogo oborudovaniya (State Scientific Research Institute for Electrotechnical Glass and Technical Equipments)

PRESENTED: December 3, 1960, by P. A. Rebinder, Academician

SUBMITTED: December 3, 1960

Card 3/4

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858530006-5

VANSHCHIKOV, V.M.; PORTNOV, A.A.; KHACHATURYAN, A.A.

Idealistic nature of SHmar'ian's "Brain pathology and psychiatry". Nevropat.psikhiat., Moskva 20 no.2:70-78 Mar-Apr 1951. (CIML 20:9)

1. Docent Vanshchikov; Candidate Medical Sciences A.A. Khachaturyan.
2. Of the Institute of Psychiatry of the Ministry of Public Health USSR (Director--Prof. V.A. Gilyarovskiy).

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BROYDO, N.F.; VANSHENKER, R.Ya.; DOLENIN, A.V.

Automation of operating hydrolysis and sulfite alcohol plants. Gidroliz. i lesokhim.prom.9 no.2:3-6 '56. (MLRA 9:7)

1.Giprogidroliz.
(Wood-using industries) (Automatic control)

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KOLGATIN, N.N.; VANSHENKER, V.R.; TEODOROVICH, V.P.; DERYABINA, V.I.

Device for recording stress-deformation for attachment to the P-5 universal machine. Zav.lab. 27 no.5:616-617 '61. (MIRA 14:5)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut neftekhimicheskikh protessov.

(Testing machines)

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VAN'SHEV, I.F.; KALAKUTSKIY, L.V.

Simple method of controlling vibration in microphotography. Lab.delo 6 no.1:52-53 Ja-Fe '60. (MIRA 13:4)

1. Iz instituta mikrobiologii AN SSSR, Moskva.
(MICROPHOTOGRAPHY)

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A-3

Determination of lower alcohols in dilute aqueous solutions. A. VANSCHEIDT and O. EREMENVA (J. Gen. Chem. Ross., 1932, 2, 800—805).—1 c.c. of saturated aq. $NaNO_2$ and 2 c.c. of H_3PO_4 are added to 5—10 c.c. of solution, containing 10—60 mg. of EtOH or MeOH, and a stream of CO_2-free air is passed through the solution at 35°. The mixture of air, alkyl nitrite, and oxides of N is passed through a heated Cu spiral, and successively through absorption tubes containing a solution of $Ag_2Cr_2O_7$ and $K_2Cr_2O_7$ in conc. H_2SO_4 at 135—140°, and 50% KOH. The gain in wt. of the KOH tube represents CO_2 originating from oxidation of alkyl nitrite, and the alcohol content is hence calc. The presence of small quantities of MeCHO does not interfere; Et_2O, if present, should first be removed by aëration.

R. T

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A-1

BC

Hydrolysis of ethyl ether. A. VANSCHEIDT and M. LOZOVSKI (J. Gen. Chem. Russ., 1933, 3, 329—336).—Activated C at 300° and SiO_2 gel at 400° do not catalyse hydrolysis of Et_2O at atm. pressure. ThO_2 has a feeble action at 300°, and Al_2O_3 catalyses the reactions $Et_2O+H_2O \longrightarrow 2EtOH$ and $Et_2O \longrightarrow C_2H_4+EtOH$; the reactions commence at 215°, and max. yields of EtOH (15%) are obtained at 280°. 5—10% hydrolysis is obtained by passing moist Et_2O through 70% H_2SO_4 at 170°, whilst with 5—25% H_2SO_4 at 200° 70% hydrolysis is attained after 2—4 hr. The yield of EtOH is considerably reduced if more conc. H_2SO_4 is used, or if the temp. is > 230°. H_3PO_4 has no hydrolytic action under similar conditions.

R. T.

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CA

The structure of phenol-aldehyde resins. II. A. A. Vanabeldt. *Plasticheskie Massy* 1934, No. 2, 1-10; cf. *Ibid.* 1933, No. 1, 11-19.—Theories of the mechanism of formation of such resins are discussed. H. M. L.

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VANSHEYDT, A.

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The structure of phenol-aldehyde resins. IV. The nature of novolak. A. Vansheidt, A. Irenberg, P. Erlikova and G. Simonov. *Plasticheskie Massui* 1934, No. 6, 17-25; cf. *C. A.* 28, 6320[9].—Novolak was prepd. from a mixt. of 7 parts of PhOH and 6 of CH_2O with 1% of HCl as a catalyst. Analytical data indicate that the compd. has the structure $H[C_6H_3(OH)CH_2]_5C_6H_4OH$. As a check, the acetyl, benzoyl and benzyl derivs. were prepd. from the corresponding chlorides. The OH groups are easily acetylated completely. Unless a large excess of BzCl is used, only 4 of the 6 OH groups are benzoylated. In any case, only 2/3 of the OH groups can be benzylated, because of the insoly. of the resulting deriv. After all the PhOH possible has been washed out of the novolak, 6% more can be obtained by steam distn. This is not bound to the novolak through the OH group, but may be present as a mol. compd. H. M. Leicester

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Fluorene and triphenylmethane hydrocarbons. XIII. Alcoholic alkali as a reagent for fluorene hydrocarbons with a mobile hydrogen. A. A. Vanshidt. *J. Gen. Chem.* (U. S. S. R.) 4, 875-84(1934); cf. *C. A.* 24, 4287; V. and Moldavskii, *C. A.* 25, 3083.—As was shown before (*C. A.* 21, 581, 3016) the hydrocarbons contg. the group $(C{:}C)_2CH_2$ such as cyclopentadiene, indene and fluorene and their derivs., are capable of giving in Me_2CO, C_5H_5N and C_6H_6 with alc. KOH colored solns., which on shaking absorb atm. O_2 and are oxidized with a complete decolorizing or color change of the soln. Other closely related compds., such as Ph_3CH, Ph_2CH and α-$C_6H_5CHPh_2$ and their p-dimethylamino and methoxy derivs., and the derivs. of anthracene, phenanthrene, acenaphthene, xanthene and phenylxanthene do not give colored C_5H_5N and Me_2CO solns. with alc. KOH and are not oxidized in these solns. by atm. O_2. Hence the possibility of using these reactions for the detection of fluorenes in hydrocarbons suggests itself. The procedure consists of adding 1 drop of 4 N KOH in MeOH to a boiling soln. of a few mg. of the hydrocarbon in 2-3 cc. of pure, anhyd. Me_2CO or C_5H_5N and then shaking the still hot soln. to a complete color change or decolorizing. Some of these solns. when neutralized with an acid after shaking become differently colored. Such color effects are specific for each compd. Fluorene hydrocarbons of the 3 types $\overline{Ar.Ar.CH_2}$, $\overline{Ar.Ar.CHR}$ and $\overline{Ar.Ar.CH.HC.Ar.Ar}$, were tested, and the results are tabulated. The work is being continued. C. B.

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B-II-8

BC

Constitution of phenol-aldehyde resins. V. Condensation of p-benzylphenol with formaldehyde. A. Vanscheidt, A. Itenberg, and V. Balandina (Plast. Massui, 1936, No. 6, 11—17; cf. B., 1886, 1108). —1 mol. of p-CH_2Ph-C_6H_4-OH (I) (prep. described) with 2·5 mols. of CH_2O in alkaline solution give the ee'-Me_2 derivative (II), m.p. 88—9°. Solutions of (II) in H_2O or EtOH give a blue colour with $FeCl_3$. With $PhSO_2Cl$, (II) forms a benzenesulphonate, m.p. 82°, which is oxidised by $K_2Cr_2O_7$ to the dialdehyde, m.p. 136—137°. In presence of HCl (II) condenses with (I) to form 76% of 4-benzyl-2:6-bis-(3'-hydroxy-2'-benzylbenzyl)phenol (III), m.p. 178°. (III) is also formed when 7 mols. of (I) and 6 mols. of CH_2O are heated in presence of HCl. Ch. Abs. (p)

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CA

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PROCESSES AND PROPERTIES INDEX

Preparing alcohol from ethylene by catalytic hydration. A. A. Vansheidt and E. M. Kaganova. *J. Applied Chem.* (U. S. S. R.) 7, 1461-74(in French 1474-5)(1934). —The hydration of C_2H_4 to EtOH may be effected under atm. pressure at 150-300° and in the presence of a no. of catalysts, the most active being $Cd_3(PO_4)_2$ and substances which are able to effect a dehydration of alc., such as Al_2O_3 and some of the clays, but the utilization of C_2H_4 in these cases does not exceed 0.5%. An increase of the temp. lowers slightly the percentage of the utilized C_2H_4, although the EtOH yield may be considerably improved by raising the pressure. The latter raises the EtOH yield at 225° as well as at 275°, increasing its yield to 3-6% when operating under 60 atm. An increase in the content of H_2O favors the formation of EtOH, the max. being obtained when working with Glukhov kaolin at 3-4 mols. of H_2O per mol. of C_2H_4. The activity of clays is increased after treatment with acids and that of Al_2O_3 in the presence of ZnO admixts. The Glukhov kaolin loses some of its activity when heated over 380°. The process and app. used are described. Twenty references. A. A. B.

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CA

The mechanism of the condensation of phenol with formaldehyde. A. Vansheidt, T. Erivikova, A. Itenberg, M. Raines and A. Eigel. *Narodnuiĭ Komissariat Tyazkeloĭ Prom. S. S. S. R., Leningrad, Plastmassui* 1, 181-209 (1935); cf. *C. A.* 29, 4478[6].—PhOH and CH_2O can be steam-distd. from the polymerized residue of their condensation, even in the presence of 1% H_3PO_4, and detd. by standard methods, each in the presence of the other. The reaction rate of their condensation shows that at 60° in the presence of H_3PO_4 equimol. amts. react. At higher temps. or in more acid media, a larger amt. of PhOH reacts, an indication of a secondary reaction. In alk. media PhOH and CH_2O react in the proportions 2:3. These facts agree with the mechanism of Raschig (*C. A.* 7, 887), but do not agree with that of Baekeland and Bender (*C. A.* 19, 1352). H. M. Leicester

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7

Application of the semimicromethod to elementary analysis. A. Vanshelds and M. Shupinskaya. *Trans. VI Mendeleev Congr. Theoret. Applied Chem.* 1932, 2, Pt. 2, 316(1935). E. E. Stefanowsky

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10

Catalyst for the preparation of alcohol by hydration of ethylene. A. A. Vanshcidt and E. M. Kaganova. Russ 50,409, Feb. 28, 1937. A catalyst for hydrating C_2H_4 is prepd. by treating malachite or basic Cu carbonate with H_3PO_4 in amts. required for the production of $CuHPO_4$

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Ca

13

The structure of phenol-aldehyde resins. VII. The nature of resol. A. Vansheldt, A. Itenberg and G. Shtrakhman. *Narodnyi Komissariat Tyazhelol Prom. S. S. S. R., Nauch.-Issledovatel. Inst. Plasticheskikh Mass., Plasticheskie Massy, Sbornik* 2, 145-50(1937), cf. *C. A.* 30, 6720[9].—Resol, formed from 5 mols. of CH_2O, 6 mols. of PhOH and 1% NaOH, is shown by analysis and the mol. wt. of its acetate to have the structure $H[C_6H_3(OH)CH_2]_n[C_6H_3(OH)CH_2]_nC_6H_4OH$. In the presence of 1% HCl, this material condenses with PhOH to form a novolac type of compd. $H[C_6H_3(OH)CH_2]_n[C_6H_3(OH)CH_2]_nC_6H_4OH$. By detg. the amt. of unreacted PhOH after this reaction, this method can be used for the detn. of CH_2OH groups in resol. The condensation of resol to resite consists in the reaction of the C_6H_4OH parts of the mol. with the CH_2OH groups. H. M. L.

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CA

The chemical nature of phenol-aldehyde resins. A Yanshejdt. *Org. Chem. Ind.* (*U. S. S. R.*) 3, 385 (1937); *Chem. Zentr.* 1938, II, 189-90; cf. *C. A.* 31, 4010[9].—The phenolaldehyde resins are products of heteropolycondensation of the general type: $nx.A.y + ny.B.y \rightarrow x(AB)_{ny} + (2n - 1)xy$. The following observations are repeated regarding the mol. wt. of *novolac*: In an acid medium in the presence of an excess of phenol and even with equimol. amts. of phenol and HCHO, more than 1 mol. of phenol combines with 1 mol. HCHO and indeed the amt. of phenol reacting increases with the phenol excess. This suggests a heteropolymerization according to the equation: $nHCHO + (n + 1)PhOH = H[C_6H_4(OH)CH_2]_nC_6H_4OH + nH_2O$. In the condensation of phenol and HCHO with a phenol:HCHO ratio of 1.25 10 it was shown that the mol. wt. of the resin detd. according to Rast (cf. *C. A.* 16, 519) practically agreed with that calcd. from the yield according to the relation $M = 94A/A - 100$. This indicates that in the formation of novolac n mol. of HCHO actually reacts with $(n + 1)$ mol. of phenol. An analogous result was obtained in the condensation of *p*-cresol with HCHO, so that the following should be the general reaction for the formation of novolac: $nRCHO + (n + 1)Ar'OH \rightarrow H[Ar'(OH)CH_2]_nAr'OH + nH_2O$. On the other hand, there exists a close relation between the mol. wt. of the condensate and the ratio of the reagents. For any phenol HCHO ratio between 1.25 and 10 there corresponds a definite mol. wt.; the curve is a hyperbola from the mol. wt. of the corresponding dihydroxydiarylmethane up to over 1000. The products of lowest mol. wt., the dihydroxydiarylmethanes, could be obtained in quant. yields only with the use of an exceptionally large excess of phenol. An analogous influence of the ratio of the reagents on the mol. wt. of the polymerization products can be observed in other cases. Thus in the esterification of succinic acid with glycol it was found that the simplest reaction product, the neutral ester $(HOCH_2CH_2OCOCH_2)_2$, could be obtained in good yield only with a large excess of glycol. As the ratio of glycol to acid approached 1, the mol. wt. of the reaction product likewise increased in accordance with the hyperbolic relation. According to earlier work (cf. *C. A.* 30, 6720[9]) the phenol-aldehyde resin mixt. consists of products of varying mol. wt. It remains to be demonstrated that the compn. of novolac and its content in OH groups correspond to the general formula $H[Ar'''(OH)CHR]_nAr'OH$. From expts. with HCHO or AcH and various phenols (phenol, cresol, *p*-*tert*-amylphenol and *p*-benzylphenol) it was shown that the OH content of novolac must

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vary with the magnitude of n. By use of the relations that the percentage of OH = 16.04 + (192.48/M), percentage C = 79.21 + (249.6/M), and percentage of H = 5.71 + (68.46/M), the percentages C, H, and OH in novolacs of known mol. wt. were calcd. Within the limits of exptl. error the calcd. values agreed with the exptl. ones for cryst. and resinous condensation products. The OH content of the resin is almost always equal to n is of the O content as calcd. from the elementary analysis and it increases with decreasing mol. wt. of the resin. All the O in novolac, therefore, is present as OH and the assumption of an ether O linkage appears to be unfounded. However, in the condensation of phenol with HCHO in the presence of H_3PO_4 the formation of phenol alcs. could be observed in the first stages of the reaction and saligenin was isolated. The phenol alcs., however, decreased in proportion to the amt. of heating and the final product was free from hydroxymethyl compds. The novolacs represent multivalent phenols which can be designated as mesomethylenepolyphenols. In the same series the m. p. of the resin increases with the mol. wt. The sp. viscosity of the resins increases in direct proportion to the mol. wt. within the concn. range of 1-50%. The detn. of the OH groups in *saliretins* (produced by resinifying saligenin and *p*-hydroxybenzyl alc. in the presence of acid) indicated that these resins are to be regarded as derivs. of mesomethylenepolyphenols. The OH content of saliretins is higher than that of novolacs, which is to be explained only by the presence of $HOCH_2$ groups. The saliretins can be converted into novolacs by heating with phenol in accordance with the reaction: $H[C_6H_3(OH)CH_2]_nOH + PhOH \rightarrow H[C_6H_3(OH)CH_2]_nC_6H_4OH + H_2O$. Chemistry of the *resols*: In the presence of alkali even with an equimol. ratio of phenol to HCHO it was found that up to 1.5 mols. HCHO combined with 1 mol. phenol. This is evidence against the resol formula of Baekeland and Hender, which is $CH_2C(C_6H_4OH)_2(OPh)$. Impurities must be removed from resol before the OH and CH_2OH groups can be detd. This was accomplished by repptn. from the cold, alc. soln. with water. The purified resol contained no phenol, aldehyde, or water, was sol. in acetone, and was converted into the insol. resite without melting. The product contained 26.6% O, which is about 1.7 times more than novolac. The resols have the structure $H[C_6H_3(OH)CH_2]_nOH.mCH_2O$; the CH_2O is combined with the phenol nucleus in the form of a hydroxymethyl group. A resol of mol. wt. 850 was heated a long time with excess phenol in the presence of HCl. After the phenol was distil. off, the resin showed an increase in wt., from which the no. of OH groups substituted by HOC_6H_4 groups could be calcd.: $RCH_2OH + PhOH \rightarrow RCH_2C_6H_4OH$. In this way 9.2% of alc. OH groups were found in the purified resol. The resols, therefore, are a mixt. of hydroxymethyl derivs. of mesomethylenepolyphenols. The chem. nature of bakelization was investigated by detg. the products liberated during the conversion of resol into resite by heating. This process gave about 5% of water which probably was formed by the reaction of the hydroxymethyl groups with the phenol nucleus. *Bakelite C* is formed, therefore, by condensation and not by polymerization of resol mols.

W. A. Moore

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CA

Molding powders. A. A. Vansheidt and Z. K. Naumova. Russ. 53,816, Sept. 30, 1938. Urea is dissolved in CH_2O in the presence of hexamethylenetetramine and oxalic acid, cellulose is added, the mixt. is left at room temp until 80% of CH_2O has reacted, then heated at 70-90° until the H_2O content is decreased to 2-5%, then ground to powder.

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C1

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Xanthene. A. A. Vansheidt and T. N. Eriykov. Russ. 85,968, Oct. 31, 1939. A mixt. of phenol and formaldehyde in the ratio of 10:1 is heated above 175° under pressure in the presence of HCl as catalyst; unchanged phenol is distd. off in *vacuo*, while the xanthene is distd. off with steam.

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Production of colorless resins from phenol and formaldehyde. A. A. Vansheidt and O. N. Simonova. *Plasticheskie Massy, Sovnik Statei* 1939, 120-40; *Khim. Referat. Zhur.* 1940, No. 3, 105.—Colorless transparent resols can be obtained from HCHO and PhOH in the approx. ratio 2:1. As catalyst KOH, NaOH and Na_2CO_3 were superior to Na phosphate and AcONa. At 95° 2-3% of these catalysts bound 97.8% of phenol after 75 min. Na_2CO_3 produces resins of lighter color than do KOH and NaOH. Decreasing the temp. from 95 to 60° decreases considerably the velocity of the reaction, and gives more highly colored resins. The sp. gr. of the mixt. increases nearly linearly until 90% of the phenol is bound. The rate of the increase of n_D is rapid after approx. 70% of phenol has reacted. Toward the end of the reaction the impact strength increases rapidly, owing to the reaction of phenolic alcs. with each other and to the elongation of the chains. For a rapid detn. of the η of the reaction mixt. toward the end of the reaction, when the fluidity of the resin at normal temps. is very small, a special app. was constructed. The sp. gr. of the resin can be detd. in the same app. To obtain colorless resin the alk. catalyst was neutralized with an org. acid (0.2-0.5% excess over the wt. of the phenol). Best results were obtained with citric and lactic acids. Formic acid, AcOH and phthalic acid produce transparent, but darker-colored resins. Oxalic and tartaric acids produce a turbidity. To obtain transparent resins the aq. layer (contg. salts formed by neutralizing the catalyst) must be sepd. The effect of the remaining small amts. of water in the resin is overcome by the addn. of 5-10% of glycerol. The hardening of resites requires 100-20 hrs. at 80-5°. The resins obtained are nearly colorless or have a yellowish tint which can be overcome by the addn. of a little violet dye which is sol. in the resin.

W. R. Henn

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Resins and molding powders from urea and formaldehyde. A. A. Vansheidt and Z. K. Naumova. *Plasticheskie Massy, Sbornik Stateĭ* 1939, 216-48; *Khim. Referat. Zhur.* 1940, No. 3, 108; cf. C. A. 35, 1545[1].—In the condensation of HCHO with $CO(NH_2)_2$ and with $CS(NH_2)_2$ the effects of the ratio of the reagents, pH, temp. and duration of heating were studied. Increasing the temp. and the concn. of formalin produces more viscous solns. The consumption of HCHO is decreased from 2 to 1.5 mols. per mol. of $CO(NH_2)_2$ by an addnl. introduction of urea during the condensation; this produces also a considerable increase of the η of the soln. To obtain transparent resinous products the condensation must be carried out at pH 5.0-5.5 or in 2 stages: first at pH 7.0, later at pH 5.0-5.5. The content of methylol groups decreases gradually and the content of methylene groups increases in the reaction products during resin formation. Solid org. acids (such as benzoic acid) were added to accelerate the hardening, and toluenesulfonamide and Al stearate as plasticizers. The objects can be made more resistant to water by replacing a part of the urea by thiourea. This decreases the time required for the condensation process. Good heat stability, water resistance and mech. and elec. properties were obtained in molding powders prepd. from urea, formalin and hexamethylenetetramine in the presence of H_2CO_3.

W. R. Henn

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Synthesis and use of styrene and its polymers. A. A. Vansheidt, O. L. Katstov and A. M. Itenberg. *Org. Chem. Ind.* (U. S. S. R.) 7, 503-9(1940). A review of the literature with 32 references. B. Z. Kanich

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Synthesis of methylenediurea and its polymer homologs. A. A. Vansheldt, Z. K. Naumova and E. P. Mel'nikova. *J. Gen. Chem.* (U. S. S. R.) 10, 1968-72(1940).—Methylenediurea may be obtained by condensation of HCHO with urea in the presence of traces of HCl in the cold or at 100° along with an admixt. of less-sol. products of polycondensation. Dimethylenetriurea is prepd. by condensing dimethylolmethylenediurea with urea in an acid medium. Trimethylenetetraurea is prepd. by condensing the dimethylol deriv. of methylenediurea with urea in an acid medium. In order to prep. good yields of mesomethylenepolyurea it is necessary to use excess urea in the above method. B. Z. Kamich

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1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

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Preparing styrene by dehydrating methylphenylcarbinol in the presence of acids. A. A. Vanshridt and A. V. Kon. *J. Applied Chem.* (U. S. S. R.) 13, 1872-7 (in French, 1877) (1940).—PhCH(OH)Me gives satisfactory yields of styrene in the presence of at least 5% of tetrachlorophthalic acid or 2% of sulfanilic acid or at most 0.025% of *p*-Me-$C_6H_4SO_3H$. The reaction occurs at lower temps. with the last than with the first 2 catalysts. H_3PO_4 in amts. of 0.25-4.0% gives low yields. The dehydration of the carbinol in the presence of H_2SO_4 proceeds at relatively low temps. with an 80% yield of styrene in the presence of 0.015-0.03% of the catalyst introduced as a dil. aq. soln. An increase of the amt. of acid above 0.05% or a decrease below 0.0075% lowers the yield. In semicom. expts. on dehydrating large amts. of carbinol this method can be used, provided the bases present in the carbinol are neutralized first. The H_2SO_4 method of dehydration requires 200-300% less catalyst than the bisulfate method, and it also permits carrying out the process at a lower temp.

A. A. Boehtlingk

COMMON ELEMENTS

OPEN

MATERIALS INDEX

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1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

Preparation of styrene by dehydration of methylphenylcarbinol in the vapor phase. A. A. Vansheidt and V. M. Zel'tser. *J. Applied Chem.* (U. S. S. R.) 14, 521-3 (1941).—The authors set out to investigate details of the prepn. of styrene by dehydration of PhMeCHOH in the vapor phase. The reaction was carried out in a U-shaped Pyrex tube, the wider leg of which was filled with the catalyst and the narrow leg with glass wool; the tube was placed in an air-heated thermostat, with the catalyst temp. being measured by a thermometer in direct contact with the former. The carbinol was slowly dropped into the narrow leg of the tube, vaporized there and passed over the catalyst; the vapors of the carbinol and of its dehydration products were forced into a cooler by CO_2. The condensate was sepd. into aq. and org. layers, the latter being then analyzed for styrene. The PhMeCHOH used was a pilot-plant product with 90% pure carbinol content. The catalysts tried were: Al_2O_3 pptd. by CO_2 from a soln. of Na aluminate and washed with H_2O until free of CO_3^{--}, and Glukhov clay activated by boiling 1 hr. with 5% HCl and washing with H_2O until free of Cl^-. The catalyst was shaped into "worms" by squeezing through a coarse sieve, followed by drying at 100–20°, then at 350–400°. In a series of expts. where the carbinol was passed in at a rate of 637 g./l. of catalyst/hr. into a catalyst vol. of 78.5 cc. the expts. with clay catalyst gave a 57.79% yield at 350°, 69.66% at 380° and 65.4% at 400°, while Al_2O_3 gave from 71.33% at 300° to 80.33% at 400°. Because of its higher activity the latter catalyst was used in subsequent expts. In a series of runs at 400°, with a catalyst vol. of 78.5 cc. the rate of carbinol flow was varied from 424.5 to 3821.2 g./l. of catalyst/hr.; the yield of styrene varied from 82.8% to an apparent max. of approx. 89% (in the flow range of 545.0-731.9), dropping to 72.45% at the highest flow rate. In studying the catalyst life, the carbinol was passed into a porcelain tube at 400° at the rate of 1040 g./l. of catalyst/hr., with an 80.5 cc. vol. of Al_2O_3; the styrene yield, after the 1st hr., remained fairly const. (94–86%) during a 12-hr. expt. G. M. K.

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