MOROZOVA, L.N.; DOKUCHAYEVA, Z.Ye.; ZOLIN, G.A.; KULAKOVA, A.A.; NAVRATKL', Z.A.; POSTNIKOVA, Ye.N.; SHOR, M.S. (Moskva)

Effectiveness of prolonged combined antibacterial therapy of pulmonary tuberculosis. Klin.med. 37 no.12:75-82 D '59.
(MIRA 13:4)

1. Iz IV glavnogo upravleniya pri ministerstve zdravookhraneniya SSSR (nauchnyy rukovoditel' - prof. A.Ye. Rabukhin).
(TUBERCULOSIS)

RABUKHIN, A.Ye.; GOKHBERG, V.P.; DOBROKHOTOVA, M.N.; MOROZOVA, L.N.; NEFEDOV, A.F. (Moskva)

Effectiveness of prolonged drug therapy for patients with fresh forms of pulmonary tuberculosis. Klin.med. no.12:28-33 '61. (MIRA 15:9)

(TUBERCULOSIS)

MOROZOVA, L.N.; DOKUCHAYEVA, Z.Ye.; ZOLIN, G.A.; KULAKOVA, A.A.; NAVRATEL', Z.A.; POSTNIKOVA, Ye.N. (Moskva)

Late results of antibacterial treatment of pulmonary tuberculosis. Klin. med. 40 no.12:32-36 D '62. (MIRA 17:2)

1. Iz 1-y i 2-y poliklinik IV Glavnogo upravleniya pri Ministerstve zdravookhraneniya SSSR (nauchnyy rukovoditel' - prof. A.Ye. Rabukhin).

MOROZOVA, L.N.; MIRONOVA, G.V.; FUFAYEVA, R.A.; KOVALEVA, V.A.

Effect of acupuncture in different points of influence on the mediator function of the nervous system. Sbor. trud. GMI no.9:73-80 '62. (MIRA 17:2)

1. Iz kafedry gospital'noy terapii lechebnogo fakul'teta i terapevticheskogo otdeleniya oblastnoy bol'nitsy (zav. - prof. V.G. Vogralik), Gor'kiy.

MOROZOVA, L. P.

USSR/Medicine - Dysentery

"Clinical aspects of the Kruze-Sonne Type of Dysentery," P. I. Sakharov, Ye. M. Ovsyannikova, L. P. Morozova, Clinic of Infectious Diseases, Second Moscow Med Inst Imeni I. V. Stalin, and Kirov Infection Hosp

"Sov Med" No 4, pp 5-7

Discusses results of comparative study of cases with Zruze-Sonne type of dysentery, and those with Flexner type, and summarizes characteristics of Kruze-Sonne type, Seven Tables of comparative data. Dir, Second Moscow Med Inst imeni I. V. Stalin, Prof F. M. Toporkov; Chief Phys, Kirov Infection Hosp, Ye. F Laneyeva

176T78

MOROZOVA, L.P.

Using tear-away stress and electric characteristics in investigating the adhesion of high-polymers. Nauch.-issl. trudy TSNIKP 28:119-131 '57. (MIRA 11:10)

(Adhesives--Testing)

AUTHOR	Morozova, L.P. and Krotova, N.A. 20-4-32/60
TITLE	The Correlation of Electric and Diffusion Processes in the Phenomena of Adhesion of two Polymers. (Otnositel'naya rol' elektricheskikh i diffuzionnykh protsessov v yavleniyakh adgezii dvukh polimerov.)
PERIODICAL	Doklady Akademii Nauk SSSR, 1957. Vol. 115, Nr 4, pp. 747-750 (USSR)
ABSTRACT	In an earlier paper by the second author conceptions on the electric adhesion theory were developed. On the other hand various authors made statements concerning the part which the diffusion process plays during the formation of an adhesion and an autohesion bond. Since this problem is much disputed, the experimental investigation of the formation of the adhesion bond is of special importance. It is in the binding of two-high-molecular mater als that the relative part played by electric and diffusion processes in the processes of adhesion could be determined. The form of the adhesiogram is very informative for the evaluation of the character of the adhesion bond.
CARD 1/5	The rupture speed manifests itself comparatively

The Correlation of Electric and Diffusion Processes in the Phenomena of Adhesion of two Polymers.

little in that case where the adhesion bond is caused by diffusion phenomena. If it is of an electric nature, however, the adhesiogram usually shows 3 clearly marked sections. The authors recorded adhesiograms of a number of polymers (glue of type BF, polyurethanes, polyamides, polymers of the vinyl series, rubbers and gutta percha, cellulose ethers etc.). The adhesiograms of these polymers with glass, metal and rubber on the basis of Na-butad ene and nitrile-acryl rubber usually yield 3 clearly marked domains. In some cases, however, there are only 3 sections, while the third one is lacking. Perhaps it also exists, but situated in a domain of considerable speeds whose experimental determination is rendered difficult. The speed of electrons emitted by the rupture may give us a conception on the potential gradients of the electric double layer, for the electrons are forced apart by the fields which exist in the free space between the surfaces separating themselves. σ can by calculated from test results, as well as the work function A, which may then be compared with the experimental-mechanically determined value A_o

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The Correlation of Electric and Diffusion Processes in the Phenomena of Adhesion of two Polymers.

(tab. 1). From tab. 1 follows that the adhesion of the system is the greater the higher the speed of the emitted electrons. In an earlier paper the authors showed that emission centers exist in a polymer film after rupture. In this connection individual spots of the film which have the closest contact of all with the basis, are emitting. It is generally known that the mechanical treatment of the surface of the underlayer increases the adhesive power. Therefore it was of certain interest for the authors to investigate whether the emissive intensity of the detached film is really increased in the places where it is in contact w th a mechanically treated surface. For this purpose the metal surface (brass) was first scratched with a file. The photographs (fig. 1,3) show that the electron emission is indeed most intensive on the places of rupture. The systems investigated here are divided into 2 large groups. The first group is

The Correlation of Electric and Diffusion Processes in the Phenomena of Adhesion of two Polymers.

characterized by electric phenomena in the disturbance of the adhesion bond (luminescence in the middle vacuum, electron emission in the high vacuum, presence of residual charge on separated surfaces). In special cases, in an especially high adhesion, the separation of layers passes through the polymer film. In this connection the electron emission and the residual charge are absent. The rubber filling material plays an important part. The systems of the second group, which were formed from non-polar components, show essential deviations (fig. 2b). In a separation of components the electron emission and the residual charge are lacking. It has to be accepted that in the second group the adhesion bond is formed by a diffusion of the polymer chains in the contact zone. The underlayers also play an important part as far as the sign of the residual charge on the polymer and on the rubber is concerned.

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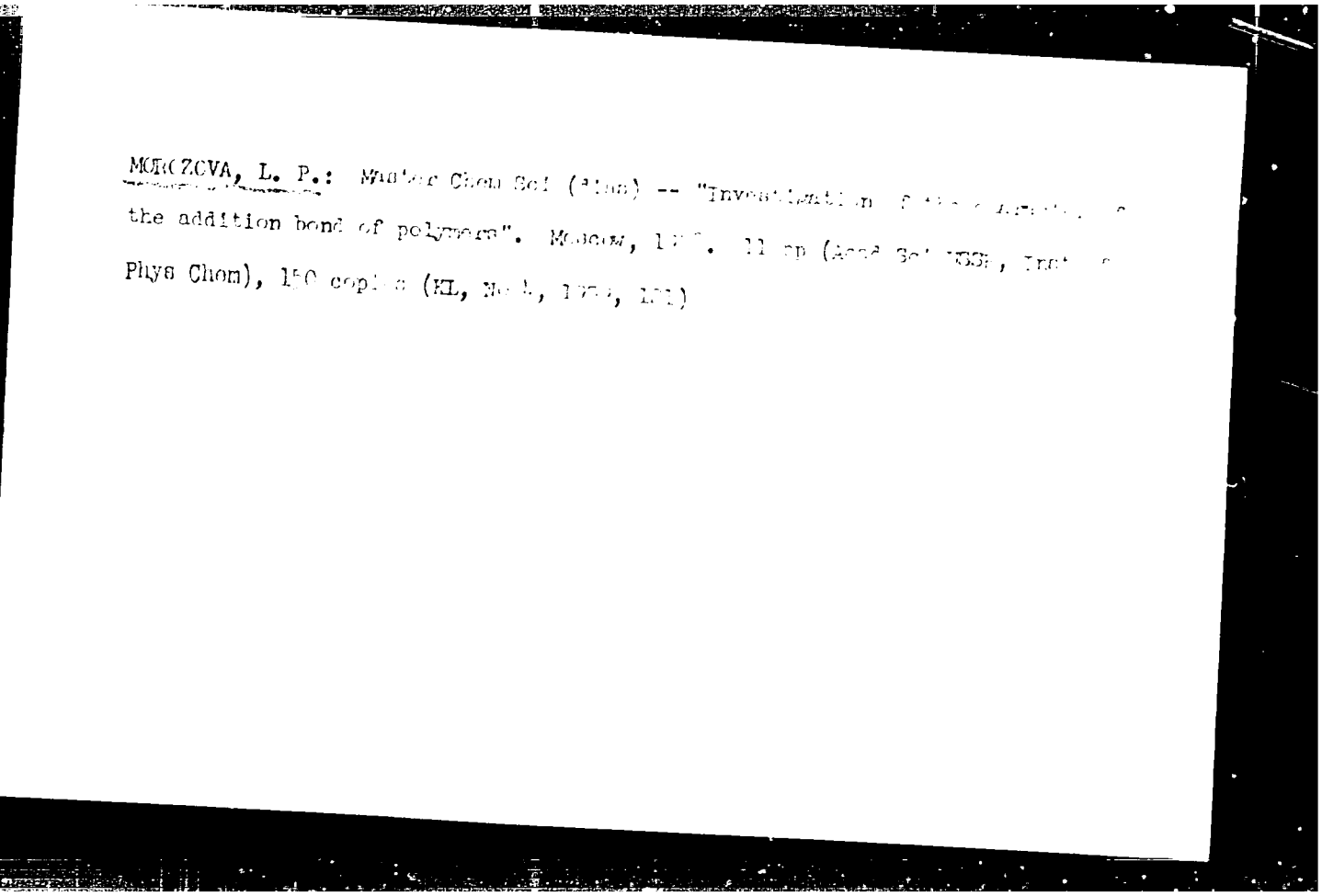

MOROZOVA, L. P.: Master Chem Sci (diss) -- "Investigation [illegible] the addition bond of polymers". Moscow, 19[illegible]. 11 pp (Acad Sci USSR, Inst of Phys Chem), 150 copies (KL, No 1, 19[illegible], 121)

Morozova, L. P.

AUTHORS: Morozova, L.P., Krotova, N.A. 69-20-1-9/20

TITLE: Investigation of the Nature of the Adhesion Bond in the Cementing of two High-Molecular Compounds (Issledovaniye kharaktera adgezionnoy svyazi pri skleivanii dvukh vysokomolekulyarnykh soyedineniy)

PERIODICAL: Kolloidnyy Zhurnal, 1958, Vol XX, # 1, pp 59 - 66 (USSR)

ABSTRACT: Adhesion bonds are caused by electrostatic interaction of the coatings of a double electric layer. This layer is formed as an elastic film from a solution of the polymer. The article deals with an experimental investigation of the formation of an adhesion bond when two high-molecular materials adjoin. The relative role of the electrical and diffusion processes in the adhesion phenomena are also investigated. The systems: polymer - polymer, polymer - metal, and polymer - glass were used. The nature of the adhesion bond could be established by investigating the mechanical characteristics of adhesion, the electrical phenomena at the rupture of the adhesion bond, and by a microscopic investigation of the interface of the various systems. In the case of adhesion polymer - metal or polymer - glass, the adhesion bond has an electric character. This is indicated

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Investigation of the Nature of the Adhesion Bond in the Cementing of two High-Molecular Compounds

by the form of the adhesiogram, by an electron emission at rupture and by a residual charge in the ruptured surfaces. The adhesiograms were obtained by means of an adhesiometer system Krotova. The polymers under investigation were glue type BF, polyurethanes, polyamides, polymers of the vinyl range, rubbers and guttapercha, cellulose ethers, etc. After rupture the polymer film continues emitting electrons and reveals a negative residual charge. The substrata does not emit electrons and reveals a positive charge. The rupture of a strong adhesion bond causes the emission of electrons with a higher velocity than the rupture of a weak bond (table 3). This is in agreement with the electrical theory of adhesion. Adhesion systems formed by non-polar components show different characteristics. An electronic emission and a charge on the ruptured surfaces cannot be observed. The adhesion bond in these systems is formed by diffusion of the polymer chains in the contact zone (table 4). A mechanical processing of the metal surface by a file leads to an increase of the adhesion and to an increase of the electron emission from the processed places.

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vestigation of the Nature of the Adhesion Bond in the Cementing of two gh-Molecular Compounds

The reaction of the substrata plays an important role. It is highest in a neutral medium (Fig. 3) and is lowered when acid or alkali solutions are applied. This phenomenon is explained by a reduction of the surface density of electrification. There are 3 figures, 4 tables, and 6 references, 5 of which are Soviet, 1 English.

ASSOCIATION: Institut fizicheskoy khimii AN SSSR Moskva (Institute of Physical Chemistry of the AS USSR, Moscow)

SUBMITTED: December 18, 1956

AVAILABLE: Library of Congress

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Investigation of the Nature of the Adhesion Bond in the Cementing of two High-Molecular Compounds

The reaction of the substrata plays an important role. It is highest in a neutral medium (Fig. 3) and is lowered when acid or alkali solutions are applied. This phenomenon is explained by a reduction of the surface density of electrification.

There are 3 figures, 4 tables, and 6 references, 5 of which are Soviet, 1 English.

ASSOCIATION: Institut fizicheskoy khimii AN SSSR Moskva (Institute of Physical Chemistry of the AS USSR, Moscow)

SUBMITTED: December 18, 1956

AVAILABLE: Library of Congress

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KROTOVA, N. A. and MOROZOVA, L. P.

"Adhesional Connection and the Methods of its Investigation."

report presented at the Section on Colloid Chemistry, VIII Mendeleyev Conference on General and Applied Chemistry, Moscow, 16-23 March 1959.
(Koll. Zhur. v. 21, No. 4, pp. 509-511)

Morozova, L. P.

SCATTERING OF SLOW μ-MESONS IN DIFFERENT SUBSTANCES
V. G. Kirilov-Ugryumov, B. A. Dolgoshein, A. M. Moskvichev, L. P. Morozova

In order to verify the data on "abnormal" μ-meson scattering, angular distributions of μ-mesons with a momentum close to 100 Mev/s in thin layers of beryllium, copper and iron were obtained by means of a multiplate cloud chamber.

The measurements were carried out with μ-mesons at sea level.

The experimental distributions agree satisfactorily with the theoretical curves plotted for electro-magnetic interactions between μ-mesons and nuclei.

An analysis was made of possible errors that may result in the spurious effect of the "abnormal" scattering.

Report presented at the International Cosmic Ray Conference, Moscow, 6-11 July 1959

Nek vop. ekspfiz no 2 80-91 '59

24(5)

AUTHORS: Kirillov-Ugryumov, V. G., SOV/56-36-2-11/63
Dolgoshein, B. A., Moskvichev, A. M., Morozova, L. P.

TITLE: Scattering of μ-Mesons With Momenta of About 100 Mev/c in Copper and Iron (Rasseyaniye μ-mezonov s impul'som okolo 100 MeV/c v medi i zheleze)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959, Vol 36, Nr 2, pp 416-423 (USSR)

ABSTRACT: Fowler and Wolfendale (Fauler, Vol'fendal)(Ref 1) published a very complete survey of muon scattering in which they express the opinion that at low (<600 Mev) energies there exists no anomalous scattering and that the few cases in which such a scattering is reported to have been observed must be based on measuring errors. This opinion is confirmed by 3 new papers. Thus, Kirillov-Ugryumov and Moskvichev (Ref 2) investigated muon scattering at (130±16) Mev/c in 1 cm thick beryllium plates and did not find a single case of the scattering angle being $>6^{\circ}$ among a total of 2250 cases of muon scattering investigated. Also Alikhanyan and Arutyunyan (Ref 3), who carried out mass-spectrometric investigations of muon scattering in lead plates, and Chidley (Chidli) et al. (Ref 4)(E_{μ} = 23 Mev) could not find

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Scattering of μ-Mesons With Momenta of About 100 Mev/c in Copper and Iron

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any anomalous scattering. Fukui, Kitamura, and Vataze observed observed no anomalous scattering even at high muon energies ($\sim$1 Bev). In order to solve this problem the authors of the present paper investigated muon scattering in lead plates of 4 mm thickness at $81.2 \leq p_\mu \leq 144$ Mev/c. The experimental arrangement is shown in form of a schematical drawing and is described. It consisted essentially of a large cloud chamber (55.14.40) cm^3 and a telescope with counters which were connected partly in coincidence and partly in anticoincidence. Particle identification was carried out in form of a rough estimate according to the ionization density and the multiple scattering of particles in the chamber plates. An estimate of the number of the protons to be expected resulted in a value of $<2\%$ of the total number of recorded particles; the value found was $(1.5 \pm 0.5)\%$. Muon momentum measurement was carried out according to the remaining range, measuring of the scattering angles was carried out by projecting the track on to the plane of the front glass of the chamber. The standard (mean square) deviation in muon scattering angle measurements was $<30'$. Two series of measurements were carried out separately, one with copper- and the other with iron plates. After a total exposure of 3600 hours

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Scattering of μ-Mesons With Momenta of About 100 Mev/c in Copper and Iron

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475 muon (residual) tracks were found in the inner chamber for the former, to which there corresponded 1460 scattering events in the plates with $p_\mu > 75$ Mev/c; for the iron plates 890 scattering events were found. The differential angular distribution found is shown by 6 diagrams (Fig 2), 3 of which are for copper ($p = 85 \pm 4.5$, 98.7 ± 3.6, 112 ± 3.1) and for Fe ($p = 81.2 \pm 3$, 95 ± 2.4, 105.5 ± 1.5), p in Mev/c. For Cu the total investigated momentum range amounted to $85 \div 144$ and for Fe it was $81.2 \div 135$ Mev/c. In conclusion, the results obtained by the experimentally found angular distribution are compared with the theoretical muon-distribution curves by Mol'yer (Molière ?), which are based upon the assumption of a point nucleus. Good agreement was found. In an appendix to this paper calculation of the geometrical corrections in angular measurements are discussed (Figs 4, 5).

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Scatt ring of μ-Mesons With Momonta of About 100 Mev/c in Copper and Iron

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The authors finally thank Professor A. I. Alikhanyan for his interest and discussions, B. I. Luchkov for his assistance, and F. R. Arutyunyan and M. I. Ter-Mikayelyan for taking part in discussions. There are 6 figures, 1 table, and 7 references, 4 of which are Soviet.

ASSOCIATION: Moskovskiy inzhenerno-fizicheskiy institut (Moscow Engineering and Physics Institute)

SUBMITTED: August 28, 1958

Card 4/4

5(4)

AUTHORS: Krotova, N. A., Morozova, L. P. SOV/20-127-1-38/65

TITLE: Investigation of Diffusion Processes in the Adhesion of Polymers by Means of the Luminescence Method (Issledovaniye diffuzionnykh protsessov v adgezii polimerov lyuminestsentnym metodom)

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 127, Nr 1, pp 141-144 (USSR)

ABSTRACT: In a previous paper (Ref 1) the authors pointed out that the adhesion bond between polymers may take place by two different processes: (1) by the formation of an electric double layer at the boundaries of both polymers, and (2) by diffusion processes, in which case the boundary between the polymers is blurred to an extent as to be aptly designated as contact zone. There occurs not only a diffusion of chain segments and macromolecule chains, but also a passage of whole structural complexes into the other molecule. New experiments showed that also in this case an electric double layer is generated first. This was determined by means of a measuring device (Fig 1). A metal plate was soldered onto the grid of a radio tube. When approaching an electrically charged polymer to this plate,

the changed grid potential caused a neon lamp inserted in the circuit to extinguish. If both polymer surfaces are glued to each other, the electric double layer may be maintained in some systems for an arbitrarily long time, whereas it vanishes gradually in other systems owing to diffusion. The blurring of the contact zone was microscopically investigated at different temperatures in the system gutta-percha - paraffin (Table 1). Moreover, the diffusion process was investigated by marking the one polymer with a luminophore (tropaeolin). The microscopic preparations were photographed in the ultraviolet light. The following was investigated: (1) gelatin - polyvinyl alcohol, (2) perchloro vinyl - gutta-percha, (3) gutta-percha - paraffin, (4) natural rubber - natural rubber (smoked sheets). The photographs taken reveal that in some systems the boundary is maintained (System 1 - Fig 2), whereas in other systems diffusion occurs in the contact zone (System 3 - Fig 3, System 4 - Fig 4). The authors thank T. A. Krotova and

Investigation of Diffusion Processes in the Adhesion of Polymers by Means of the Luminescence Method SOV/20-127-1-38/65

M. Ya. Vol'pert for assistance and B. V. Deryagin, Corresponding Member of AS USSR for valuable advice. There are 4 figures, 1 table, and 7 references, 6 of which are Soviet.

ASSOCIATION: Institut fizicheskoy khimii Akademii nauk SSSR (Institute of Physical Chemistry of the Academy of Sciences, USSR)

PRESENTED: December 12, 1958, by P. A. Rebinder, Academician

SUBMITTED: December 9, 1958

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SOV/20-129-1-41/64

AUTHORS: Krotova, N. A., Morozova, L. F., Deryagin, B. V., Corresponding Member, AS USSR

TITLE: An Investigation of the Adhesion of a Polymer to Modified Glass Surfaces in Connection With the Reversal of Its Charge Sign in Tearing off

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 129, Nr 1, pp 149-152 (USSR)

ABSTRACT: In reference 1 the authors observed that polymers severed from glass surfaces in the course of changes in the reaction surface reverse the sign of their charge. The present paper investigates the relationship between the mechanical and electrical values of adhesion to bases the chemical character of which had been modified. The base employed consisted of glass the surface of which was first cleaned by means of a glow discharge and then treated with organosilicic compounds of the series $(CH_3)_{4-n}SiCl_n$ ($n = 1, 2, 3, 4$). The following polymers were applied to the surface: nitrocellulose, benzyl- and alkyl cellulose, polyvinyl alcohol, gutta-percha, perchlorovinyl- and carboxyl-containing

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An Investigation of the Adhesion of a Polymer to Modified Glass Surfaces in Connection With the Reversal of Its Charge Sign in Tearing off

rubber, copolymerisates of synthetic styrene rubber with methacrylic acid. Adhesion was determined by measuring the tearing off energy at a tearing off rate of 1 cm/sec. The sign of the charge of the torn off film was tested with a tube electrometer. The experimental results shown in table 1 and figures 1-3 led the authors to the following conclusions: The reversal of charge signs depends on the chemical composition of the surface. Minimum adhesion is found near the point of reversal of the charge sign. Thus there is a direct relation between the mechanical and electrical adhesion values. The stated influence of a chemical modification of the surface indicates the importance of the chemical factor in the formation of the electric double layer. Since, according to the electrical theory of adhesion, the charges of the surfaces torn asunder must be considered as residual charges of the electric double layer, the reversal of the charge sign of these separated surfaces must be caused by an equivalent reversal in the charge signs of the double layer. The untreated glass surface, an electron donor, is transformed into an electron acceptor by modification when the ratio between

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methyl and hydroxyl groups on the surface reaches a certain value. The authors thank A. Ya. Korolev in whose laboratory the modification of the glass surfaces was carried out. There are 3 figures, 2 tables, and 4 Soviet references.

ASSOCIATION: Institut fizicheskoy khimii Akademii nauk SSSR (Institute of Physical Chemistry of the Academy of Sciences, USSR)

SUBMITTED: July 2, 1959

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15(8)

SOV/20-127-2-19/70

AUTHORS: Krotova, N. A., Morozova, L. P., Sokolina, G. A.

TITLE: The Mechanical Properties of the Adhesion of Polymers

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 127, Nr 2, pp 302-305 (USSR)

ABSTRACT: In the introduction it is stated that the methods used hitherto for investigating polymer adhesion are deficient. A new "adhesiometer" is described which enables the determination of the separating work of two bodies by means of an adjustable velocity, and permits recording of voltage-oscillations during separation. A scheme of this instrument is given in figure 1. An electric resistance tensiometer is used for the determination of voltage fluctuations. After a general discussion of the "adhesiometer" the experimental results are given. First, the oscillograms shown in figure 3 of the systems gutta percha - steel, and ether of cellulose plus benzyl alcohol - steel are discussed. Subsequently, experiments are described which were made in order to investigate the separation of two telescoped cylinders connected by a layer of polymers 200 - 300 μ thick. In these experiments the separation was recorded by means of a

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cinematic camera. The change in voltage and in the distance between the two cylinders is shown in two diagrams (Fig 4). From results obtained in this manner the authors assume that a separating stress may be determined simultaneously with the separating work. Yu. M. Kiriilova, N. Ye. Golynskaya and B. A. Fadeyev assisted in the investigation. The authors thank B. V. Deryagin for his advice. There are 4 figures, 1 table, and 7 references, 6 of which are Soviet.

ASSOCIATION: Institut fizicheskoy khimii Akademii nauk SSSR (Institute of Physical Chemistry of the Academy of Sciences, USSR)

PRESENTED: March 28, 1959, by P. A. Rebinder, Academician

SUBMITTED: March 25, 1959

MOROZOVA, L. I.

PHASE I BOOK EXPLOITATION SOV/5590

Konferentsiya po poverkhnostnym silam. Moscow, 1960.

Issledovaniya v oblasti poverkhnostnykh sil; sbornik dokladov na konferentsii po poverkhnostnym silam, aprel' 1960 g. (Studies in the Field of Surface Forces; Collection of Reports of the Conference on Surface Forces, Held in April 1960) Moscow, Izd-vo AN SSSR, 1961. 231 p. Errata printed on the inside of back cover. 2500 copies printed.

Sponsoring Agency: Institut fizicheskoy khimii Akademii nauk SSSR.

Resp. Ed.: B. V. Deryagin, Corresponding Member, Academy of Sciences USSR; Editorial Board: N. N. Zakhavayeva, N. A. Krotova, M. M. Kusakov, S. V. Nerpin, P. S. Prokhorov, M. V. Talayev and G. I. Fuks; Ed. of Publishing House: A. L. Bankvitser; Tech. Ed.: Yu. V. Rylina.

PURPOSE: This book is intended for physical chemists.

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Studies in the Field of Surface Forces (Cont.) SOV/5590

COVERAGE: This is a collection of 25 articles in physical chemistry on problems of surface phenomena investigated at or in association with the Laboratory of Surface Phenomena of the Institute of Physical Chemistry of the Academy of Sciences USSR. The first article provides a detailed chronological account of the Laboratory's work from the day of its establishment in 1935 to the present time. The remaining articles discuss general surface force problems, polymer adhesion, surface forces in thin liquid layers, surface phenomena in dispersed systems, and surface forces in aerosols. Names of scientists who have been or are now associated with the Laboratory of Surface Phenomena are listed with references to their past and present associations. Each article is accompanied by references.

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Studies in the Field of Surface Forces (Cont.) SOV/5590

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E040/E485

AUTHORS: Krotova, N.A., Morozova, L.P.

TITLE: Investigation of adhesion of polymers by means of luminescent technique

SOURCE: Konferentsiya po poverkhnostnym silam. Moscow, 1960. Issledovaniya v oblasti poverkhnostnykh sil; sbornik dokladov na konferentsii, Moscow, Izd-vo AN SSSR, 1961 At head of title: Akademiya nauk SSSR. Institut fizicheskoy khimii. 48-54 + 1 plate

TEXT: In the present paper the authors give a detailed analysis of previous studies on the bond formed by adhesion between surfaces of various polymers and their critical evaluation is followed by an account of the investigations, carried out at the Institute of Physical Chemistry AS USSR. The study was made by means of luminescence techniques because this method offers a number of advantages in comparison with the more usual X-ray techniques. Preliminary tests involved the introduction of a luminophor (tropolin) into the solvent of one of the polymers in the concentration of 1:20000. A film of the polymer with luminophor was then formed on the surface of another polymer deposited on

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Investigation of adhesion ...

the sub-base of hydrophobic glass. After the removal of the solvent, the double layer of polymers was cut into a number of small specimens for microscopic examination in UV light. The tests showed that gelatine-gutta-percha polymers separation boundary is clearly discernible and little diffusion occurs of one polymer into the other. Data obtained in bond strength tests showed that electric charges of opposite signs are present at the separation boundary in the above system and that gelatine behaves as an electron donor with respect to polyvinyl alcohol. Vinyl perchloride behaves similarly with respect to gutta-percha. Investigation of this production of electric charges on the surface of polymer pairs during their separation showed that an electrical double layer develops in all cases (including self-diffusion) in the initial period of boundary separation. In some polymer systems this double-layer is preserved indefinitely and, in others it disappears in consequence of diffusion. Further studies were made on an extended range of polymers including natural and synthetic rubbers, paraffin and other materials. Full details are also given of tests conducted with self-luminescent polymers. In some cases, the separation boundaries of polymer pairs were heat-

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Investigation of adhesion ...

cured before testing. The diffusion of the luminophor was found to depend on the chemical nature of the polymers. The contact boundary between identical polymers is very diffuse and indicates self-adhesion. Self-adhesion occurs also in heat-cured boundaries in the paraffin - gutta-percha system. Gelatine-vinyl perchloride and other systems with polar groups have a sharp separation boundary. In systems in which paraffin is one of the components, the separation boundary is very sharp (0.06 μ) in comparison with the diffusion range in other systems: 0.119 to 0.165 mm for the heat-cured gutta-percha - paraffin boundary. Natural rubber - gutta-percha and similar systems have a wide separation boundary characteristic of non-polar polymer pairs with similar chemical structure and of other systems involving low molecular weight paraffins. Systems with components with a clear difference in their chemical structure (polar and non-polar), but with characteristic polar groups present in one of the components, gave a very narrow separation zone (micron and below). The vinyl perchloride - СКБ (SKB) system gave a sharp separation boundary irrespective of the method of its preparation and the type of thermal curing. It is suggested that the luminescence technique

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is suitable for investigations of local stresses in microvolumes, e.g. in the process of film formation, shrinkage and tearing. In all these cases, bright luminescence is discernible. The results of the investigation led the author to the conclusion that the diffusion and electrostatic theories of adhesion are compatible.

Acknowledgments are expressed to A.L.Zaydes, T.A.Krotova and G.R.Vol'pert for assistance. B.V.Deryagin, S.K.Zherebkov, A.M.Medvedeva, L.A.Berlin, S.S.Voyutskiy and V.L.Vakula are mentioned in the article for their contributions in this field.

There are 4 figures, 1 table and 9 references: 5 Soviet-bloc, 1 Russian translation from non-Soviet-bloc publication and 3 non-Soviet-bloc. The two references to English language publications read as follows: Ref.2: D.Josfowitz, H.Mark, Ind. Rub. World, 1949, v.33, 106; Ref.4: McLaren, Mod. Plast., v.31, no.11, 1954, 114, 116, 181.

ASSOCIATION: Institut fizicheskoy khimii AN SSSR
(Institute of Physical Chemistry AS USSR)

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5 4400

AUTHORS: Krotova, N.A., Morozova, L.P.

TITLE: Application of infrared spectroscopic techniques in the study of adhesive-base interactions (polymer - glass)

SOURCE: Konferentsiya po poverkhnostnym silam. Moscow, 1960. Issledovaniya v oblasti poverkhnostnykh sil; sbornik dokladov na konferentsii, Moscow, Izd-vo AN SSSR, 1961. At head of title: Akademiya nauk SSSR. Institut fizicheskoy khimii. 83-88

TEXT: Infrared spectroscopy was used for examining the interaction with glass surfaces of two types of polymers: with inter- and intramolecular hydrogen bonds, the investigation being based on an experimentally determined linear relationship between the infrared absorption maxima and the distance between the proton donors and acceptor atoms (Ref.3: K.Nakamoto, M.Margoshes, R.E.Rundell, J. Am. Chem. Soc., 1955, 77, 6430). The glass surfaces were specially prepared in order to improve the adhesive effect (pores varying from 40 to 1000 Å). Preliminary investigations showed that the hydroxyl groups on the glass surface behave as adsorption centres for organic molecules

Card 1/3

31899
S/643/61/000/000/004/007
E040/E485

Application of infrared ...

(metacrylic acid monomer). A comparative study was made of the spectra of glass control specimens, previously dehydrogenated by heating in vacuum, with those obtained for identical glass specimens with a layer of adsorbed monomers which were subsequently polymerized by heating. The polymers studied were para-carboethoxyphenylmetacrylamide and ortho-carboethoxypheny. metacrylamide. Adsorption of the monomers from the gaseous phase gave spectra indicating hydrogen bonding between the hydroxyl groups of the glass and the COOH groups of metacrylic acid. A deeper chemical change occurs after prolonged contact of glass surface with liquid monomer and leads to the disappea' ace of the hydroxyl groups. Adhesive interaction of the para monomer with hydroxyl groups gives a greater displacement of the OH absorption band toward longer wavelengths than that observed in an analogous interaction of the ortho compound. This points to a difference in the distance between the O ... O atoms in the hydrogen bond formed in these compounds. Differences in the width of absorption bands of the ortho and meta polymers indicate a greater increase in the O ... O distance in the ortho polymers with intramolecular hydrogen bonds. There are 6 figures and

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21899
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E040/E485

Application of infrared ...

7 references: 4 Soviet-bloc, 1 Russian translation from non-Soviet-bloc publication and 2 non-Soviet-bloc. The two references to English language publications read as follows:
Ref.2: A.A.Ketelaar. Chem. Constitution. Amsterdam. 1957. p.404.
Ref.3: K.Nakamoto, M.Margoshes, R.E.Rundell. J. Am. Chem. Soc. 1955, 77, 6430.

ASSOCIATION: Institut fizicheskoy khimii AN SSSR
(Institute of Physical Chemistry AS USSR)

Card 3/3

24.2400
15.1100

25687
S/181/61/003/007/009/023
B102/B214

AUTHORS: Krotova, N. A., Morozova, L. P., and Sokolina, G. A.

TITLE: Investigation of adhesive binding of solid bodies

PERIODICAL: Fizika tverdogo tela, v. 3, no. 7, 1961, 1999-2009

TEXT: In an earlier paper, the authors investigated the electrical nature of adhesion phenomena which are based on the formation of an electric double layer. The mechanism of formation of this double layer is different for different systems. The authors now investigate the character of adhesive binding for semiconductors, dielectrics, and metals, and determine the adhesion characteristics of these solids by means of mechanical and optical methods. The measurements were made by a universal adhesiometer of the type АЗС-1 (AZS-1), constructed in the authors' laboratory. As usual, adhesion is characterized by the rupture energy. The new instrument permits the determination of the rupture energy, the specific rupture stress, as well as the mechanical properties of the joined materials. The instrument is schematically shown in Fig. 1. On the stand (1) there is an element (2) moving up and down and connected with the lower clamp which is /

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joined to the sample. The rupture with the given rate of 0.5 mm/sec is brought about by a magnetic mechanism. The fluctuations in tension are recorded by electric resistance tensiometers (5). The spectroscopic investigations of the samples were carried out with a spectrograph of the type ИСК-14 (ISK-14) for which a special vacuum chamber was constructed. Luminescence was also investigated. The adhesive binding of the following systems was studied; semiconductor - metal, polymer - semiconductor, polymer - glass, and polymer - polymer. The investigations showed, inter alia, that the adhesion between indium and germanium substantially increases if the surface of the latter has previously been subjected to a glow discharge. The increase of adhesion may be explained as being due to the appearance of a large number of adhesion-active recombination centers, which is indicated by the decrease of the carrier lifetime experimentally observed. These results are in agreement with those of V. P. Smilga and B. V. Deryagin (DAN SSSR, 122, v. 6, 1049, 1958) who have shown that the field at the junction of the semiconductor and the metal increases rapidly with an increase in the number of ionized centers at the surface of the semiconductor (before contact). The adhesive power is given by $F=E^2/8\pi$. The surface recombination which depends essentially on adhesion, is

Investigation of adhesive binding of ...

directly proportional to the number of surface states which, in their turn, are related to the number of ionized centers on the free surface of the semiconductor. In the cases investigated, the establishment of an adhesive binding between polymer and glass is due to the appearance of a hydrogen bond between the hydroxyls of the glass and the functional groups of the polymer. On breaking the contact the glass surface is found to be protonized while the polymer surface emits electrons. From this, it may be concluded that the total statistical effect that accompanies the destruction of the hydrogen bonds acting in the interfacial plane gives rise predominantly to positive charges on the glass, caused by protons of the broken bonds. The establishment of an adhesive binding between two polymers is introduced by electrostatic processes. Thereupon, diffusion processes take place on the interface, as was shown by luminescence studies. The interface is blurred, and on separating the two polymers no further electrical phenomena appear. T. A. Sokolova and L. A. Ovsyannikova are mentioned. There are 5 figures, 4 tables, and 15 references: 12 Soviet-bloc and 3 non-Soviet-bloc.

ASSOCIATION: Institut fizicheskoy khimii AN SSSR Moskva (Institute of Physical Chemistry, AS USSR, Moscow)

S/062/62/000/006/004/008
B117/B101

AUTHORS: Morozova, L. P., Golubtsov, S. A., Andrianov, K. A., Trofimova, I. V., and Morozov, N. G.

TITLE: Formation of alkyl (aryl) chlorosilanes in direct reaction of alkyl (aryl) chlorides with silicon. Communication 1. Selectivity of silicon and copper catalysts, and formation of methyl dichlorosilane

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye khimicheskikh nauk, no. 6, 1962, 1005 - 1011

TEXT: Production conditions, precipitating agents, and promoters affecting the selective activity of silicon and copper hydroxide catalysts in the formation of methyl dichlorosilane and dimethyl dichlorosilane were studied. Sufficiently active catalysts can be obtained by using copper chloride and copper nitrate, but copper sulfate gives completely passive catalysts. Simultaneous precipitation of copper hydroxide and zinc hydroxide (~2% by weight) increases the selectivity of the catalyst. Sodium hydroxide (in the formation of methyl dichlorosilane) and NH_4OH or Na_2CO_3 (in the forma-

tion of dimethyl dichlorosilane) were found to be precipitating agents favoring the selectivity. The greatest effect on the selectivity of the catalyst is that exercised by promoters after the precipitation of hydroxides: Thus after introducing $ZnCl_2$ the yield of dimethyl dichlorosilane reaches 60% and after introducing Na_2SiO_3 that of methyl dichlorosilane reaches 45%. Thermal decomposition of methyl chloride on copper catalysts at 360-380°C (contact time 6-10 sec) was also studied. The hydrogen chloride separated in this reaction considerably affected the formation of methyl dichlorosilane. The following reaction course was suggested for the formation of methyl dichlorosilane:

$$CH_3Cl \xrightarrow{\text{catalyst}} HCl + \text{carbon} + \text{hydrocarbons}$$

$$Si + HCl \longrightarrow [HSiCl_3] \xrightarrow{CH_3Cl} CH_3SiHCl_2$$

$$Si + 2CH_3Cl \longrightarrow CH_3HSiCl_2 + \text{carbon} + \text{hydrocarbons}$$

The optimum temperature for synthesizing methyl dichlorosilane was found to be 350-380°C. At higher and lower temperatures, silicon tetrachloride,

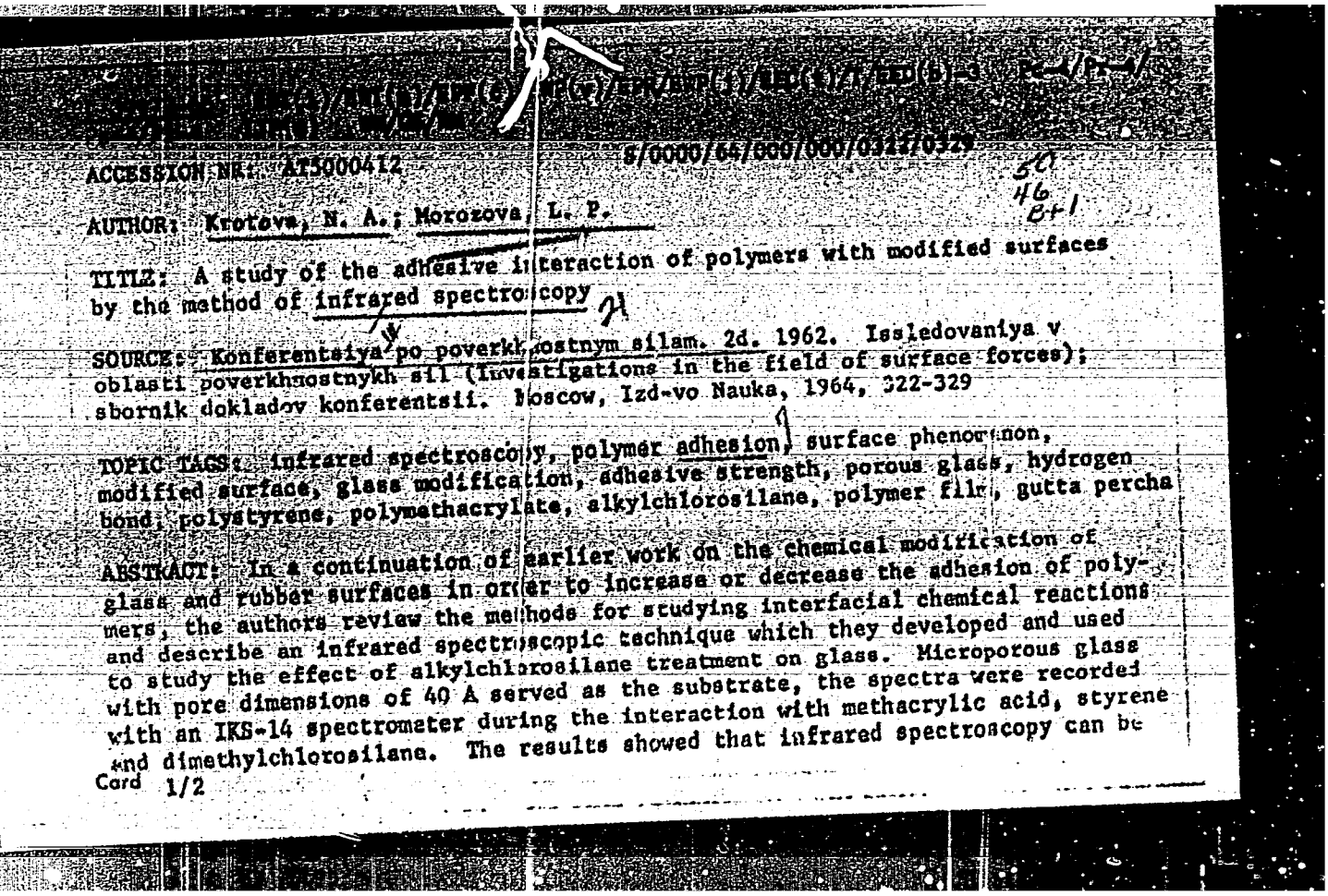
S/062/62/000/006/004/008
B117/B101

Formation of alkyl ...

trichlorosilane, and methyl trichlorosilane were mainly formed. There are 4 tables.

SUBMITTED: December 9, 1961

Card 3/3



ACCESSION NR: AT5000412 S/0000/64/000/000/0321/0329

AUTHOR: Krotova, N. A.; Morozova, L. P.

TITLE: A study of the adhesive interaction of polymers with modified surfaces by the method of infrared spectroscopy

SOURCE: Konferentsiya po poverkhnostnym silam. 2d. 1962. Issledovaniya v oblasti poverkhnostnykh sil (Investigations in the field of surface forces); sbornik dokladov konferentsii. Moscow, Izd-vo Nauka, 1964, 322-329

TOPIC TAGS: infrared spectroscopy, polymer adhesion, surface phenomenon, modified surface, glass modification, adhesive strength, porous glass, hydrogen bond, polystyrene, polymethacrylate, alkylchlorosilane, polymer film, gutta percha

ABSTRACT: In a continuation of earlier work on the chemical modification of glass and rubber surfaces in order to increase or decrease the adhesion of polymers, the authors review the methods for studying interfacial chemical reactions and describe an infrared spectroscopic technique which they developed and used to study the effect of alkylchlorosilane treatment on glass. Microporous glass with pore dimensions of 40 A served as the substrate, the spectra were recorded with an IKS-14 spectrometer during the interaction with methacrylic acid, styrene and dimethylchlorosilane. The results showed that infrared spectroscopy can be

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ACCESSION NR: AT5000412

4

used to study the nature of a chemically modified surface and the nature of the bonds between it and the functional groups of monomers or polymers. Such chemical modification, which does not change the volume of the treated parts, can be controlled to yield any desired adhesive strength. This is because the character of the interaction between the monomer or polymer and the substrate is different after modification; these changes are very rapid, becoming significant after only a few seconds. Treatment of glass with alkylchlorosilanes, for example, decreases the concentration of OH groups and increases that of methyl groups; cross linkage by Si-O-Si bonds is often produced. Treatment with methacrylic acid results in hydrogen bond formation between the carboxyl groups of the acid and the OH groups of the glass. The electrostatic nature of these bonds is indicated by the length of the H bridges. Whereas adhesion of polymers to glass can be reduced by treating the glass with alkylchlorosilanes, increased adhesion can be achieved by treating the glass with oxidizing agents, which cause the rupture of double bonds and the appearance of oxidized carbonyl groups. Some results with guttapercha are given by way of example. "The authors thank A. A. Babushkin for valuable advice." Orig. art. has: 4 figures.

ASSOCIATION: Laboratoriya poverkhnostnykh yavleniy, Institut fizicheskoy khimii AN SSSR (Laboratory of Surface Phenomena, Institute of Physical Chemistry, AN SSSR)

SUBMITTED: 30May64 ENCL: 00 SUB CODE: OC, CP

NO REF SOV: 010 OTHER: 002

Card 2/2 LL

L 31889-66 EWT(m)/EWP(j)/T RM

ACC NR: AP6012529 (A) SOURCE CODE: UR/0062/66/000/003/0475/0478

AUTHOR: Morozova, L. P.; Andrianov, K. A.; Morozov, N. G.; Golubtsov, S. A.

ORG: none

TITLE: Formation of alkyl(aryl)chlorosilanes during direct reaction of alkyl(aryl)chlorides with silicon. Communication 5. Effect of secondary decomposition process of methyldichlorosilane on the synthesis of methylchlorosilanes

SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 3, 1966, 475-478

TOPIC TAGS: catalyst, methyldichlorosilane, silane, organic synthesis

ABSTRACT: It was found that in decomposition reactions of methyldichlorosilane the most active catalysts are those which possess high selectivity in the synthesis of methyldichlorosilane. When the activity of catalysts in the synthesis is increased so that the yield increases from 2.2 to 25.5 g of methyldichlorosilane per kg of mass per hour, the degree of decomposition of methyldichlorosilane under identical conditions also increases from 4.0 to 67.2% respectively. This is explained by the fact that both synthesis and decomposition of methyldichlorosilane occur on the same active centers. It was shown experimentally that the degree of decomposition of methyldichlorosilane in a stream of methyl chloride decreases by about 1 order of magnitude as compared with

UDC: 542.91+546.287+542.97

Card 1/2

L 31889-66
ACC NR: AP6012529

decomposition in the stream of nitrogen, and even for the most active catalyst it does not exceed 10.8%. It is shown that chlorometnane is preferentially absorbed on the active centers of the catalyst. Passage of methyldichlorosilane through the reaction tube following the passage of chloromethane decreases the rate of decomposition by about a factor of 5 as compared with the experiment where methyldichlorosilane was passed first. Under direct synthesis conditions, in the silicon copper contact catalytic mass, when the active centers in the reaction zone are primarily occupied by the adsorbed chloromethane, decomposition of methyldichlorosilane proceeds to an insignificant extent, which explains the possibility of its synthesis as one of the major products of the reaction of silicon with chloromethane. Orig. art. has: 2 figures.

SUB CODE: 07/ SUBM DATE: 24Oct63/ ORIG REF: 005/ OTH REF: 001

Card 2/2

DERYAGIN, B.V., otv. red.; [illegible], N.N., red.; [illegible], S.A., red.; MORGUNOV, [illegible], red.; [illegible], N.N., red.; BAKKVITSER, [illegible], red.

[Studies in the field of surface forces] Issledovaniia v oblasti poverkhnostnykh sil; sbornik statei. Moskva, Nauka, 1964. 362 p. (MIRA 17:10)

1. Konferentsiya po poverkhnostnym silam, Institut fizicheskoy khimii Akademii nauk SSSR. 2d, [illegible]. 2. Chlen-korrespondent AN SSSR (for Deryagin).

ACCESSION NR: AP4023500 S/0069/64/026/002/0207/0214

AUTHORS: Krotova, N.A.; Morozova, L.P.; Polyakov, A.M.; Sokolina, G.A.; Stefanovich, N.N.

TITLE: Investigation of various types of adhesion bonds

SOURCE: Kolloidny*y zhurnal, v. 26, no. 2, 1964, 207-214

TOPIC TAGS: adhesion mechanism, adhesion bond, interface erosion, chemosorption, donor acceptor interaction, functional group, electron emission, semiconductor surface conductivity, surface modification, high speed semiconductor, germanium

ABSTRACT: In order to determine the mechanism of adhesion, several phenomena at the polymer-solid substrate interface were investigated. Adhesive bonds resulting from diffusion processes in which the interface is eroded, from the formation of a new phase on the substrate by the polymerization of organometallic compounds, and from chemosorption on the interface leading to the formation of a double electric layer are discussed. By IR spectroscopy it has been established that adhesion of polymers is largely due to chemical

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ACCESSION NR: AP4023500

donor-acceptor interactions. The adhesion can therefore be controlled by rational selection of the function groups of the adhesive and substrate on the basis of their donor-acceptor properties. A number of functional polymer groups were arranged in series according to their ability to impart a positive charge to the surface on tearing the film from the substrate (i.e., decrease in their donor properties). A method was worked out for determining the effect of the functional groups of the polymer by measuring the intensity of electron emission formed by the breakdown of the adhesion bond between the polymer and the glass substrate (figs. 1 and 2). There are changes in the characteristics of a semiconductor upon formation of adhesion bonds between it and the polymer; the part played by the functional groups of the polymer responsible for the degree of charge of the surface was investigated. The surface conductivity in the field effect of germanium crystals modified with alkylchlorosilanes (fig. 3) was determined in an apparatus shown in fig.4. Modification significantly changes (reduces) the high speed properties of the semiconductor surface. Orig. art. has: 7 figures

Card 2/7

ACCESSION NR: AP4023500

ASSOCIATION: Institut fizicheskov khimii AN SSSR, Moscow(Institute of Physical Chemistry, AN SSSR)

SUBMITTED: 03Aug62 DATE ACQ: 15Apr64 ENCL: 04

SUB CODE: OC, EC NO REF SOV: 009 OTHER: 001

ATD PRESS: 3044

Card 3/7

ENCLOSURE: 01

ACCESSION NR: AP4023500

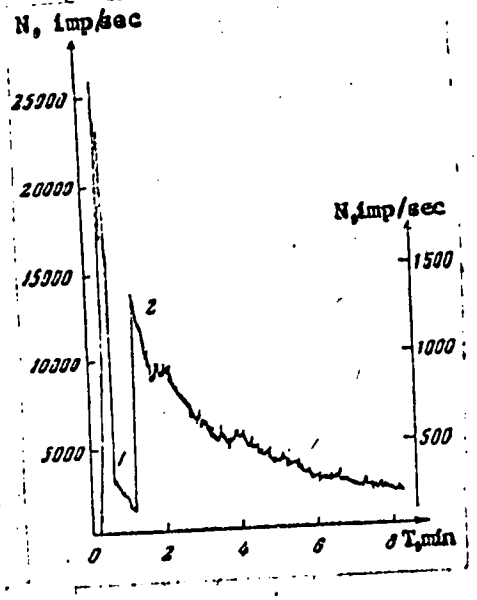

Fig. 1. Diagram of a recording of after-emission of electrons with gutta-percha film torn away from glass

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ENCLOSURE: 02

ACCESSION NR: AP4023500

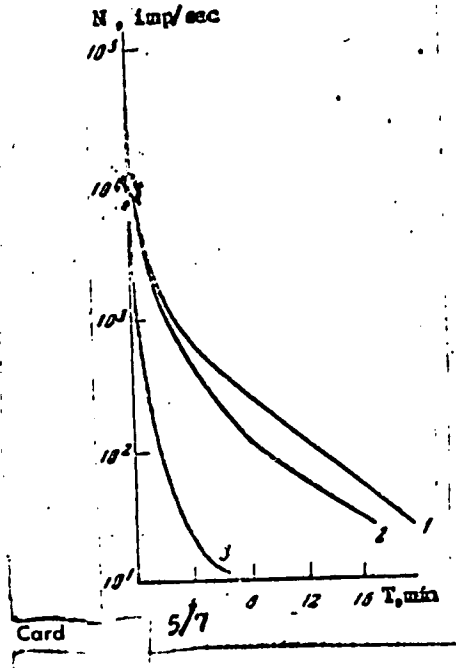

Fig. 2. Curves of the relationship of the intensity of after-emission to time for different polymers after removing from glass

1 - Nitrile rubber, 2 - gutta-percha, 3 - carboxlyate rubber

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ACCESSION NR: AP4023500

ENCLOSURE: 03

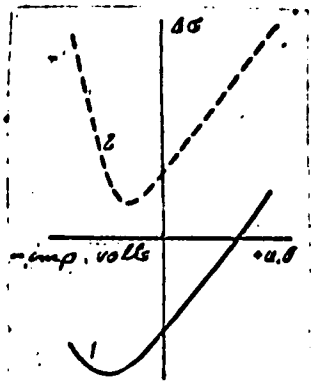

Fig. 3. Surface conductivity in the field effect for sample of germanium, modified with alkylchlorosilane. The dark (1) and light (2) curves were obtained by the method of static photoconductivity. Picture taken from oscillograph screen

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ACCESSION NR: AP4023500

ENCLOSURE: 04

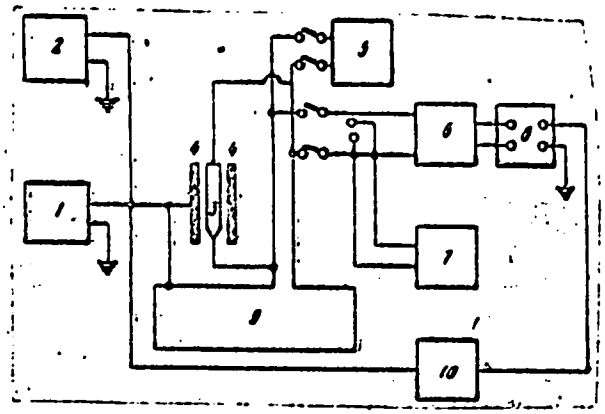


Fig. 4. Block diagram of apparatus for measuring surface conductivity in the field effect by the fixed conductivity method

1 - Generator, 2 - voltmeter, 3 - sample, 4 - electrodes, 5 - potentiometer, 6 - amplifier, 7 - condenser, 8 - oscillator, 9 - radiodiagram, 10 - phase scanner

Card 7/7

MAKSIMOV, V.I.; LUR'I, F.A.; MOROZOVA, L.S.

By-product from the reaction of 17-cyano-$\Delta^{5,16}$-androstadien-3-β-ol with methyl magnesium bromide. Zhur. ob. khim. 33 no.5:1666-1670 My '63. (MIRA 16:6)

1. Vsesoyuznyy nauchno-issledovatel'skiy khimiko-farmatsevticheskiy institut imeni S. Ordzhonikidze.
(Androstadienol) (Magnesium compounds)

MAKSIMOV, V.I.; LUR'I, F.A.; MOROZOVA, L.S.; GATSENKO, L.G.

Pseudomerization of diosgenin in acetic anhydride in the presence of acetic acid. Med. prom. 17 no.6:36-40 Je'63 (MIRA 17:4)

1. Vsesoyuznyy nauchno-issledovatel'skiy khimiko-farmatsevticheskiy institut imeni S. Ordzhonikidze.

SKRYGAN, A.I. [Skryhan, A.I.]; BELEN'KAYA, T.V.; SHISHKO, A.M. [Shyshko, A.M.]; VALOZHIN, A.I. [Valozhyn, A.I.]; GORELIK, B.A. [Harelik, B.A.]; MOROZOVA, L.V. [Marozava, L.V.]

Composition of adubin and its use in the production of furfural. Vestsi AN BSSR. Ser. fiz.-tekh. nav. no.3:56-63 '59. (MIRA 13:3)

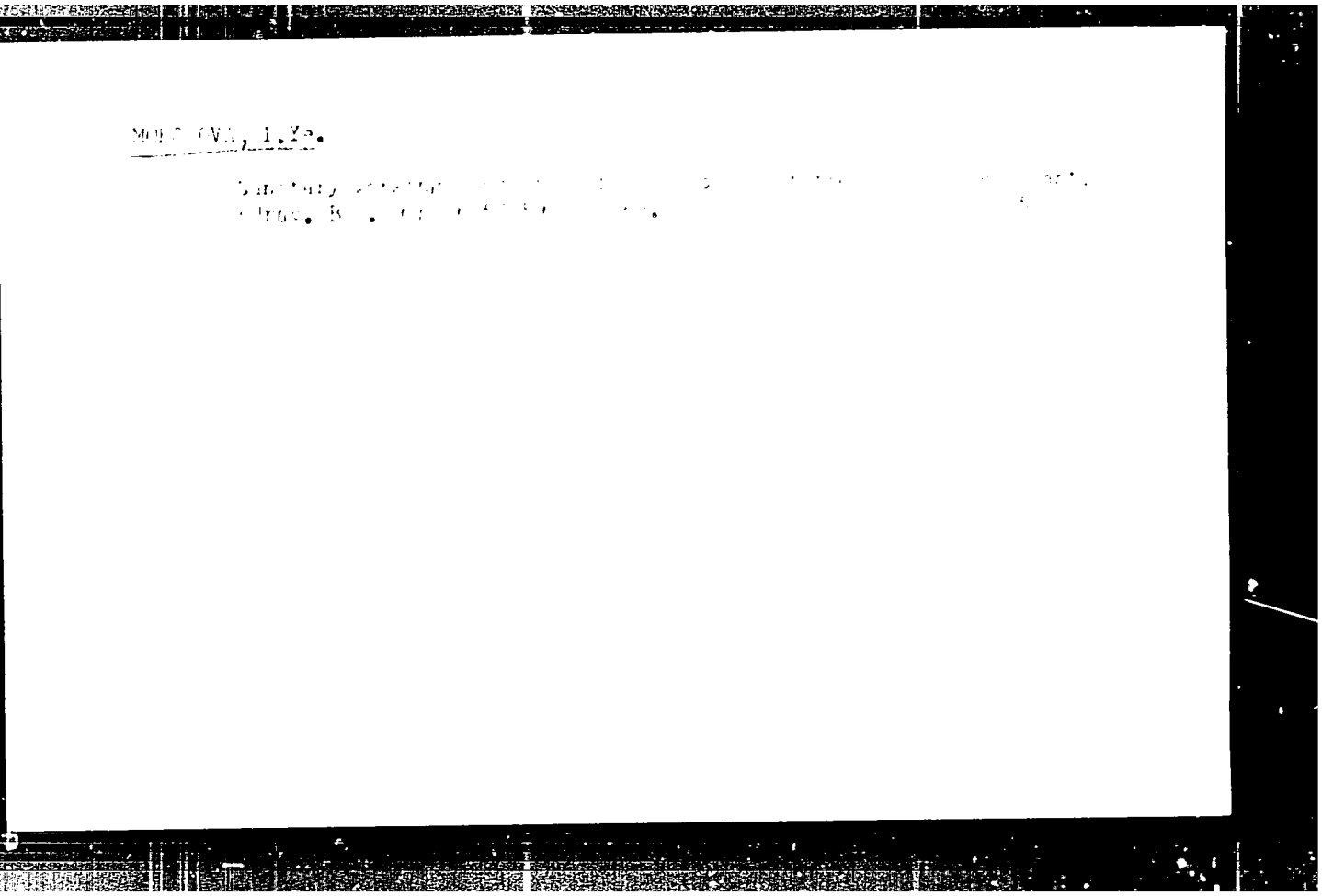
(Furaldehyde) (Oak)

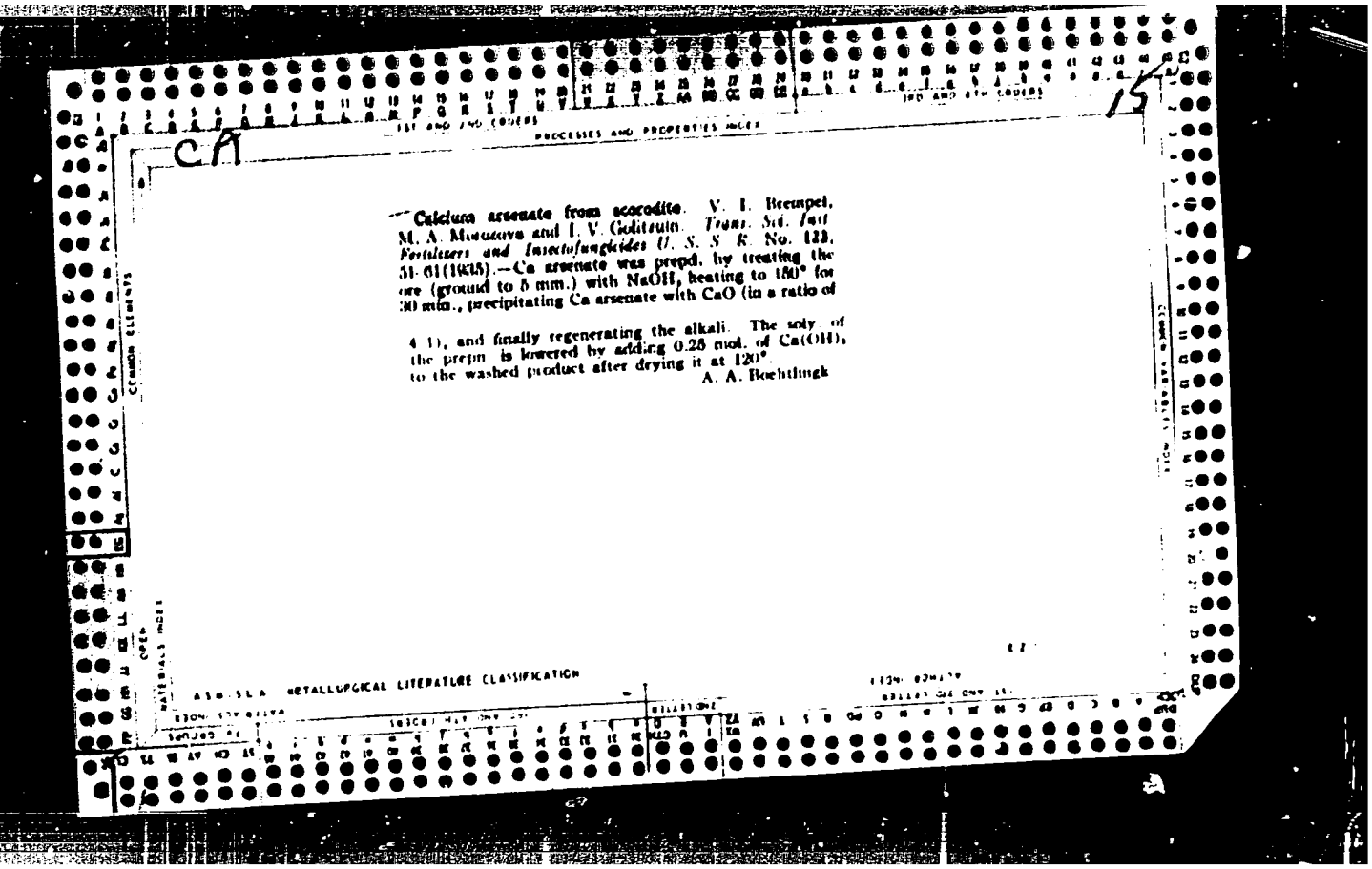
KUSKOVA, V.F.; MOROZOVA, L.V.

Microbiological investigations following treatment of teeth with ultrasound. Stomatologiia 40 no.1:27-29 Ja-F '61. (MIRA 14:5)

1. Iz kafedry mikrobiologii (zav. - prof. P.F.Belikov) i ortopedicheskoy stomatologii (zav. - prof. V.Yu.Kurlyandskiy) Moskovskogo meditsinskogo stomatologicheskogo instituta (dir. - dotsent G.N. Beletskiy).

(TEETH--MICROBIOLOGY)
(ULTRASONIC WAVES--PHYSIOLOGICAL EFFECT)





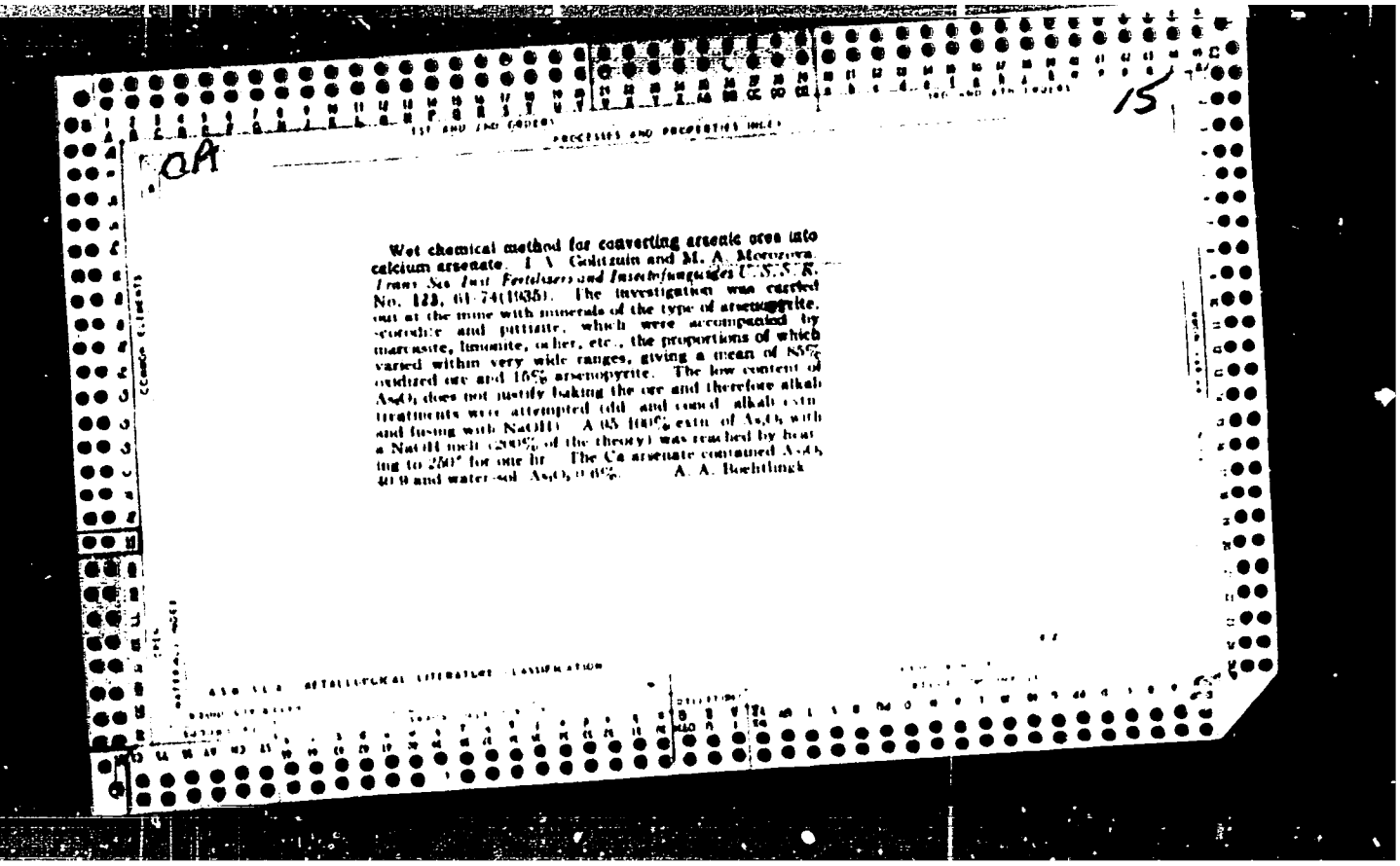
CA

15

Calcium arsenate from scorodite. V. I. Brempel, M. A. Mineeva and I. V. Goldstein. *Trans. Sci. Inst. Fertilizers and Insectofungicides U. S. S. R.* No. 123, 31-61(1935).—Ca arsenate was prepd. by treating the ore (ground to 5 mm.) with NaOH, heating to 180° for 30 min., precipitating Ca arsenate with CaO (in a ratio of 4:1), and finally regenerating the alkali. The solv. of the prepn is lowered by adding 0.25 mol. of $Ca(OH)_2$ to the washed product after drying it at 120°.

A. A. Boehtlingk

METALLURGICAL LITERATURE CLASSIFICATION

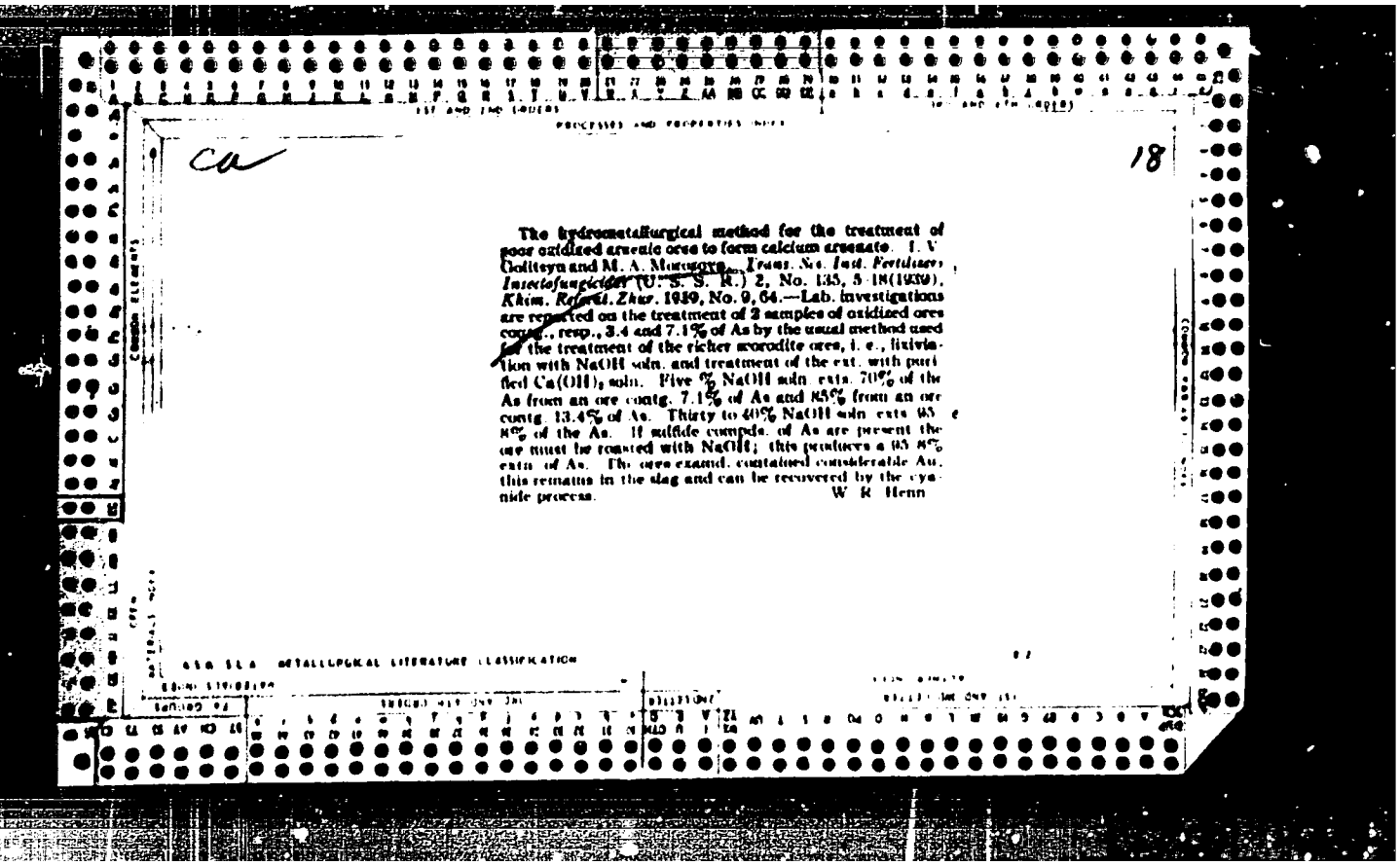


Wet chemical method for converting arsenic ores into calcium arsenate. I. V. Golitzuin and M. A. Morozova. *Trans. Sci. Inst. Fertilizers and Insectofungicides U.S.S.R.* No. 123, 61-74(1935). The investigation was carried out at the mine with minerals of the type of arsenopyrite, cobaltite and pyrrhotite, which were accompanied by marcasite, limonite, calcite, etc., the proportions of which varied within very wide ranges, giving a mean of 85% oxidized ore and 15% arsenopyrite. The low content of As_2O_3 does not justify baking the ore and therefore alkali treatments were attempted (dil. and concd. alkali extn. and fusing with NaOH). A 95 [100]% extn. of As_2O_3 with a NaOH melt (200% of the theory) was reached by heating to 250° for one hr. The Ca arsenate contained As_2O_5 40.9 and water-sol. As_2O_5 0.6%. A. A. Boehtlingk

PROCESSES AND PROPERTIES INDEX

Investigation of the molecular surface properties of the
sl medium of printing inks and their physicochemical
characteristics I. A. Kozarovitskii and M. A. Morde-
rova. *J. Applied Chem. U.S.S.R.* 11, 142-55(in
French 455) 1948. The surface tensions and the surface
activities of the drying oils and their solns. in paraffin
oil, resp., were measured at the interface with water or
aq. alk. soln. The chem. compn. of drying oils has no
regular relation to surface tension. The assumption
that a thermal condensation of drying oil or polymeriza-
tion or oxidation, which proceeded with a sharp increase
of the acids of free aliphatic acids in one case and hydroxy
acids in the other, would increase its surface tension
polarity, was not confirmed. Exptl. data showed that
the polarity of drying oils was lowered with the thermal
condensation of these oils. This is explained by the as-
sumption that the asymmetry of the polymerized or oxi-
dized particles of drying oil was decreased. Therefore in
spite of high polarity of the ... mols. the total polarity
of the mol. complexes and total polarity of the condensed
drying oil was also decreased. Diln. of natural drying
oil with mineral oil increased the surface activity of the
mixt., owing to peptization of polar colloidal complexes.
A small addn. of the surface active substances to the
slightly polar substances increased the polarity of these
substances; further addn. after a min. surface tension
was reached decreased the surface activity. This is ex-
plained by the assumption that these admixts. are present
in the drying oil in the colloidal form, and increase of the
concn. of the surface active substances in oil caused a
max. drop in the interfacial tension between drying oil and
water. Further increase of the concn. of admixts. caused
an agglomeration of their mols. into solvated colloidal
particles, which, in turn, always lowered the surface
activity. A. A. Podgorny

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



Ca

18

The hydrometallurgical method for the treatment of poor oxidized arsenic ores to form calcium arsenate. I. V. Golitsyn and M. A. Matveeva. *Trans. Sci. Inst. Fertilizers, Insectofungicides* (U. S. S. R.) 2, No. 135, 5-18(1939). *Khim. Referat. Zhur.* 1939, No. 9, 64.—Lab. investigations are reported on the treatment of 2 samples of oxidized ores contg., resp., 3.4 and 7.1% of As by the usual method used for the treatment of the richer arsodite ores, i. e., lixiviation with NaOH soln. and treatment of the ext. with purified $Ca(OH)_2$ soln. Five % NaOH soln. exts. 70% of the As from an ore contg. 7.1% of As and 85% from an ore contg. 13.4% of As. Thirty to 40% NaOH soln. exts. 85-87% of the As. If sulfide compds. of As are present the ore must be roasted with NaOH; this produces a 85-87% ext. of As. The ores exaind. contained considerable Au; this remains in the slag and can be recovered by the cyanide process.

W. R. Henn

Some physical properties of Paris green, a mixture of Paris green with gypsum, and Moscow green. M. A. Morozova, A. I. Strel'tsova and N. I. Lebedeva. *Trans. Sci. Inst. Fertilizers Insectofungicides* (U. S. S. R.), No. 153, 19-23(1939); *Khim. Referat. Zhur.* 1939, No. 9, 74-5.—Moscow green is the formic acid deriv. corresponding to Paris green. A mixt. of Paris green with gypsum is cheaper and is more readily filtered than is Paris green. In Moscow green particles are 3.3-3.8 μ in diam.; in a mixt. of Paris green with gypsum they are 4.7 μ, in Paris green 8.0 μ. The power of adhesion to leaves is in the same order as the degree of dispersion. W. R. H.

METALLURGICAL LITERATURE CLASSIFICATION

MOROZOVA, M.A.

GABRIYELOVA, M.G.; MOROZOVA, M.A.

[Manufacture of poisonous chemicals] Proizvodstvo iadokhimikatov. Moskva, Gos. nauchno-tekh. izd-vo khim. lit-ry, 1953. 215 p. (MLRA 7:4)
(Poisons)

MOROZOVA, M.A.; KOL'TSOV, N.S.; TRUSHKINA, N.I.; ZUBOV, M.F.; GOLYSHIN, N.M.

Copper-containing fungicides for green plants. [Trudy] NIUIF no.164:38-40 '59. (MIRA 15:5)
(Fungicides) (Copper compounds)

KOROZOVA, M. A.

Developing the technology of powdered and flaky sodium arsenite.
[Trudy] NIUIF no.167:110-117 '60. (MIRA 13:8)
(Sodium arsenites)

KOROZOVA, M.A., KOL'TSOV, N.S.

Chemistry and technology of copper oxychloride. [Trudy] NIUIF no.167:133-145 '60. (MIRA 13:8)
(Copper chlorides)
(Fungicides)

KORDZOVA, M.A., KOL'TSOV, N.S., TRUSHKINA, N.I., LAZAREVA, Ye.Ya.

Method of producing a copper subsulfate preparation. [Trudy] NIUIF no.167:151-155 '60. (MIRA 13:8)
(Copper sulfate) (Fungicides)

KOROZOVA, M.A., KOL'TSOV, N.S.

Ways of improving the quality of colloidal sulfur. [Trudy] NIUIF no.167:193-200 '60. (MIRA 13:8)
(Sulfur)

ORLOV, V.I., kand.tekhn.nauk; MOROZOVA, M.A.; KRUTITSKAYA, [illegible].

Inorganic insecticides and fungicides. Zhur. VKHO 5 no. 3:268-274 '60. (MIRA 14:3)
(Insecticides) (Fungicides)

GAR.IYELOVA, [illegible] Ianna Grigor'yevna; MOROZOVA, Mariya Aleksandrovna; PAIMANSKIY, N.S., red.; [illegible], N.S., red.

[Production of inorganic [illegible] chemicals] Proizvodstvo neorganicheskikh [illegible]khimikatov. Izd. 2., perer. i dop. Moskva, Khimiia, 19[illegible]. 3[illegible] p. [illegible]

BUROVOY, I.A., BRYUKVIN, V.A., SLEPOV, V.I., MOROZOVA, M.A.

Dynamic properties of a furnace for roasting zinc concentrates in a fluidized bed. Sbor. nauch. trud. Gintsvetmeta no.21: 207-218 '64. (MIRA 18:8)

MOROZOVA, M.A.; KOROL'KOVA, M.I.

Experience in using selection in the preparation of smallpox vaccine. Nauch. osn. proizv. bakt. prep. 10:16-19 '61. (MIRA 18:7)

1. Institut epidemiologii i mikrobiologii im. Gamalei AMN SSSR.

MOROZOVA, M.G.; TROFIMOV, K.A.; MAKSIMOVA, T.K.; TURONOK, L.F.; ABAKUMOVA, A.I.; GLADKIKH, V.G.; YAKOVENKO, Z.L.; KUZNETSOVA, V.I.; DUSHKINA, M.N.; LEYBIN, L.S.; DEKHTYAR', S.M.

Viacheslav Vasil'evich Aliakritskii. Arkh. pat., Moskva 15 no.2: 95-96 Mar-Apr 1953. (CIML 24:3)

1. Professor Vyacheslav Vasil'yevich Alyakritskiy is a Doctor Medical Sciences and Head of the Department of Pathological Anatomy at Voronezh Medical Institute.

MOROZOVA, M.G.

Morphology of the sensory innervation of the mammary gland in women. Arkh.anat.gist.i embr. 31 no.1:50-55 Ja-Mr '54. (MLRA 7:4)

1. Iz kafedry patologicheskoy anatomii (zaveduyushchiy - professor V.V.Alyakritskiy) Voronezhskogo gosudarstvennogo meditsinskogo instituta.

(Mammary glands)

GEFTER, L.I., professor; KOROZOVA, M.G., dotsent

Obliterating phlebitis of the hepatic veins and its diagnosis in the living organism. Terap.arkh.28 no.4:73-77 '56. (MLRA 9:9)

1. Iz fakul'tetskoy terapevticheskoy kliniki i prozektury Voronezhskoy oblastnoy klinicheskoy bol'nitsy.

(THROMBOPHLEBITIS
hepatic veins, early diag. & prev. of fatality)
(VEINS, HEPATIC, dis.
thrombophlebitis, early diag. & prev. of fatality)

BELIKOV, I.F.; MOROZOVA, M.G.

Chemical composition of imported soybeans at the Ussuriysk Oil and Fat Combine. Soob.DVFAN SSSR no.9:142-143 '58. (MIRA 12:4)

(Soybean)

MOROZOVA, M.G. (Voronezh)

Morphogenesis of fibroadenoma of the female mammary gland. Arkh.pat. 20 no.11:26-34 '58. (MIRA 12:8)

1. Iz kafedry patologicheskoy anatomii (zav. - prof.V.V. Alyakritskiy) Voronezhskogo gosudarstvennogo meditsinskogo instituta.

(BREAST--TUMORS)

MOROZOVA, M. G., Doc Med Sci -- (diss) "Materials on the problem of the morphogenesis of mastopathy and fibro-adenoma of the mammary gland. (Interstitial structure in normalcy and in pathology)." Voronezh, 1960. 20 pp; (Voronezh State Medical Inst); 200 copies; price not given; (KL, 28-60, 164)

MOROZOVA, M.G.

Morphology of focal edema of the Vel'iaminov type in the tissue and in fibroadenoma of the female mammary gland. Arkh. pat. 23 no.3:38-43 '61. (MIRA 14:3)
(BREAST) (EDEMA)

MOROZOVA, M.G., dotsent; DUSHKINA, M.M., assistent; MAKSIMOVA, T.K., assistent; TURONOK, L.F., assistent; YAKOVENKO, Z.L., assistent

Viacheslav Vasil'evich Aliakritskii (1885-1960); obituary. Arkh. pat. 22 no.5:92-93 '60. (MIRA 13:9)
(ALIAKRITSKII, VIACHESLAV VASIL'EVICH, 1885-1960)

MOROZOVA, M.G.

Significance of underdevelopment of the tissue of the breast for the development of so-called primary hypolactation. Akush. i gin. 37 no.1:43-50 '61. (MIRA 14:6)

1. Iz kafedry patologicheskoy anatomii (zav. - prof. V.V Alyakritskiy [deceased]) Voronezhskogo meditsinskogo instituta.
(BREAST) (LACTATION)

SIRAZHDINOV, S. Kh.; MOROZOVA, M.I.; SARYMSAKOV, T.A., deystvitel'nyy chlen.

Results of statistical analysis of the rotation of weather types over Central Asia. Dokl.AN Uz.SSR no.12:12-14 '49. (MLRA 6:5)

1. Institut matematiki i mekhaniki AN Uz.SSR (for Sirazhdinov, Morozova).

2. Akademiya Nauk Uzbekskoy SSR (for Sarymsakov).
(Soviet central Asia--Climate) (Mathematical statistics)

MOROZOVA, M.I.

Results of a statistical-stochastic analysis of rainfall anomalies in Tashkent. Trudy Inst.mat.i mekh. AN Uz.SSR no.12:37-49 '53. (MLRA 8:1)
(Tashkent--Rain and rainfall)

Morozova, M. I.

USSR/Physics of the Atmosphere - Dynamic Meteorology, M-2

Abst Journal: Referat Zhur - Fizika, No 12, 1956, 36100

Author: Morozova, M. I.

Institution: None

Title: Role of the Foehn Effect of the Mountain-Valley Circulation in the Formation of the Temperature Conditions of the Angren Valley

Original Periodical: In book: Meteor. i gidrol. v Uzbekistane, Tashkent, AN UzSSR, 1955, 43-49

Abstract: Totals are given for the repeatability of the wind direction in various hours of the day (01, 07, 13) in the Ablyk station, indicating the substantial role of the mountain-valley circulation in the climate of the Angren valley. In the summer the valley (south-west) and the mountain (north-east) winds repeat approximately the same number of times (35-40%), and in the winter the repeatability of the mountain wind is 63%, and that of the valley wind is 20%, with the latter being noticed only in the daytime.

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USSR/Physics of the Atmosphere - Dynamic Meteorology, M-2

Abst Journal: Referat Zhur - Fizika, No 12, 1956, 36100

Abstract: The long duration of the mountain wind is due to the fact that the number of hours with positive radiation balance is small in the winter time. Therefore even at 1300 hours the thermobaric field corresponding to the usual night-time situation frequently prevails, i.e., the air near the mountains is cooled more than in the free atmosphere over the plateau at the same levels. The mountain wind is warm at the stations in the middle and lower parts of the valley, this being due to the adiabatic heating when it descends. During the first instance of the formation of the mountain wind, when only the air cooled over the snow peaks is involved in the circulation, the temperature still drops in the upper portion of the valley, i.e., the adiabatic heating is so far insignificant. Further on, the mountain wind starts including air masses from the free atmosphere, which have already been adiabatically heated, and the temperature rises in the upper stream portions of the valley. This effect is seen even on the charts of the average monthly temperatures, for example, in the January chart appended to the article. Temperatures for the 4 winter months are given for 8 stations, confirming the above statement. The effect of the

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USSR/Physics of the Atmosphere - Dynamic Meteorology, M-2

Abst Journal: Referat Zhur - Fizika, No 12, 1956, 36100

Abstract: descent of the mountain air manifests itself also in the humidity conditions. The chart for the monthly average relative humidity for January shows that the relative humidity is highest at the plateau, and above it, along the slopes of the valley in the descending air, it decreases (to 60% and below). In the summer (July chart) to the contrary, the relative increases upward along the valley, this being due to the valley wind. The described climatic picture becomes particularly clear in individual days, when the "suction" foehn is observed during the approaching cyclone. The examples cited for 24-26 December 1953 are also interesting because the development of a mighty foehn has led to a complete evaporation of snow from the mountain slopes and in the flood lands of the valley.

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3 (7)

AUTHORS: Morozova, M. I., Petrosyants, M. A., Chernysheva, O. N. SOV/50-59-9-1/16

TITLE: Characteristics of Air Flows Over the Pamir and West Tyan'-Shan'

PERIODICAL: Meteorologiya i gidrologiya, 1959, Nr 9, pp 3 - 12 (USSR)

ABSTRACT: Some conclusions on the circulation of the atmosphere in summer and autumn according to the data of the expeditions in 1956 and 1957 are put forward here. These expeditions were carried out by the following authorities: Institut matematiki i mekhaniki AN UzSSR (Institute of Mathematics and Mechanics of the AS Uzbekskaya SSR), Sredneaziatskiy nauchno-issledovatel'skiy gidrometeorologicheskiy institut (Soviet Central Asia Scientific Research Institute of Hydrometeorology), and Sredneaziatskiy gosudarstvennyy universitet (Soviet Central Asia State University). These expeditions had the task to investigate the structure of the jet current and the course of synoptic processes over the mountain district. The expedition of 1956 lasted from July 27 to August 22. Radio soundings were carried out once in 24 hours at the following places: Dzhambul,

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Characteristics of Air Flows Over the Pamir and West Tyan'-Shan'

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Arkit, Osh, Lake Kara-Kul', Kzyl-Rabat. At the same places and in Namangan and Sary-Tash, pilot balloon observations were made three times in 24 hours. In 1957, the work was carried out from September 1 to 27 in Dzhambul, Aflatun, Osh, Sary Tash Lake Kara-Kul'. Radio soundings were made in the morning and evening, pilot balloon observations were made 3 times in 24 hours. At the same time, the expedition of the Moskovskiy gosudarstvennyy universitet (Moscow State University) under the direction of B. S. Chuchkalov was in Tokhtamysh (about 100 km north of Kzyl-Rabat). This expedition made the aerological observations according to the same program. A detailed aerosynoptic analysis of the whole period, during which the expedition was working, is a matter of the future. Only some mean characteristics of the jet current over the mountain district are put forward here. 4 vertical sections are shown. The first on figure 1 along the meridian of 64° eastern longitude over the plains, the second along the meridian of 73° eastern longitude across the mountain systems of Soviet Central Asia in figure 2. Figures 3 and 4 show sections along the same meri

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dians for 1957. An analysis of these 4 sections is given here. The first two show that in summer the velocity of the west wind at the jet-current axis increases from the plain towards the mountains, attains its maximum over the massif of Soviet Central Asia, and then decreases. The very interesting characteristics of the tropopause over the mountain district will be dealt with in a particular paper. A comparison of the median sections over the plains and mountains in September 1957 (Figs 3 and 4) with those in summer (Figs 1 and 2) shows that the amount of displacement to the south is different over the plains and over the mountains. The cause of this may be found in the analysis of the mean temperature field. Figures 3 and 4 show that the real wind over the mountains is stronger than the geostrophic wind in front of them. The sections shown permit the conclusion that the influence exercized by the huge mountain systems of Soviet Central Asia on the formation of the wind field acts up to a height of at least 16 km, i.e. it exceeds the height of the mountains by 3-4 times. There are 4 figures, 1 table, and 13 references, 11 of which are Soviet.

KOROZOVA, M. I.

Characteirstics of the wind regime in the valley of the Arkit Forestry. Trudy Sred.-Az. nauch.-issl. gidrometeor. inst. no.1:95-104 '59.
(MIRA 13:8)
(Arkit region (Fergana)--Winds)

MOROZOVA, M.I.; PETROSYANTS, M.A.

Frequency of cyclones and anticyclones in the troposphere over the Northern Hemisphere. Trudy TSIP no.106:148-167 '60. (MIRA 13:12)
(Cyclones)

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3,5000

AUTHORS: Dzhurayev, A.D., Morozova, M.I.

TITLE: On the problem of determining the wind at a medium level

SOURCE: Tashkent. Sredneaziatskiy nauchno-issledovatel'skiy gidrometeorologicheskiy institut. Trudy, no. 4 (19), Moscow, 1961, Voprosy regional'noy sinoptiki, 92 - 98

TEXT: The authors investigate the possibility of using the wind at an altitude of 5 km instead of the mean wind calculated graphically. They present a formula for calculating the local changes of the relative velocity vortex at the mean level in the three-dimensional baroclinic model of the atmosphere and point out that G.A. Arnason [Ref. 3: Baroclinic model of the atmosphere applicable to the problem of numerical forecasting in three dimensions, p.I. Tellus, v. 4, no. 4, 1952] and U.G. Charnev [Ref. 4: The dynamical of long waves in a baroclinity westerly current. J. of. Met., v. 4, no. 5, 1947] have shown that the mean level can be identified with a surface level of 500 mbar. If there are no ballooning data available, the mean wind can be calculated by the method described by K.A. Vasyukov [Ref. 1: Analiz lokal'nykh izmeneniy davleniya i usloviy

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tsiklogeneza v troposfere (Analysis of local changes of the pressure and cyclogenesis conditions in the troposphere) Trudy TsIP, no. 45 (72), 1956]. The authors present a formula to determine the mean wind velocity for a layer limited by the isobaric surface of 1,000 and 300 mbar. A table shows the good coincidence of the mean wind calculated by the Vasyukov method and obtained by ballooning. Although the results of this comparison are positive, the calculation of the mean wind from the pressure topography map takes much time and, therefore, the authors have carried out tests to confirm the assertion of Arnason that instead of the mean wind, the wind from the AT_{500} surface, i.e. at a 5 km level, can be used. With a number of comparative tables from measurements carried out at the Aral Sea Station and the Tashkent Station, the authors present data on the deviation of the mean wind from that at a 5 km level both as regards the wind direction and velocity. The test data reveal that, as to velocity, the mean wind coincides best with that at a 5 km level. As regards direction, the mean wind comes nearest to that at a level of 5-6 km according to the data of the Aral Sea Station and of 6 - 8 km according to the Tashkent station. The test results make the conclusion apparent that the more to the south the weather station is located and the higher its temperature background, the higher is the mean level. Such an increase in the mean level towards the south approximately corresponds to

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a surface slope of 500 mbar. An analogous conclusion was obtained by Arnason who calculated that the mean wind level in latitude 30° North will be by 1 km higher than the mean wind level in latitude 70° North. Proceeding from the above-said, the authors point out that in the first formula for the local measurement of the velocity vortex it is possible to use with great certainty the AT_{500} wind while the calculation of the mean wind can be dispensed with. Thus the cumbersome calculation of the vortex changes in different points of the field can be considerably reduced by taking v (mean wind) direct from the AT_{500} map and v_T (thermal wind) from the ΔT_{1000}^{300} map. There are 11 tables and 5 references: 2 Soviet-bloc and 3 non-Soviet-bloc. The references to three English-language publications read as follows: G.A. Arnason. Baroclinic model of the atmosphere applicable to the problems of numerical forecasting in three dimensions, p.I. Tellus, v. 4, no. 4, 1952; J.G. Charnev. The dynamical of long waves in a baroclinity westerly current. J.of.Met., v. 4, no. 5, 1947; Eliassen, A. Simplified dynamic models of the atmosphere designed for the purpose of numerical weather prediction. Tellus, v. 4, no. 3, 1952.

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