

NUDEL'MAN, B.I.

Conditions favoring the formation of crystalline calcium carbonate during the solidification of certain cements in air. Uzb.khim.zhur. no.6:17-27 '59. (MIRA 13:4)

1. Opytnyy zavod Upravleniya proizvodstva stroitel'nykh materialov Tashsovnarkhoza.
(Calcium carbonate) (Cement)

NUDEL'MAN, B.I.

Crystal structure of calcium silicates and aluminates forming at low temperatures. *Uzb. khim. zhur.* no.3:66-72 '60. (MIRA 13:10)

1. Opytnyy zavod Upravleniya proizvodstva stroitel'nykh materialov Tashkentskogo sovnarkhosa.
(Calcium silicate) (Calcium aluminate)

NUDEL'MAN, B. I.

Cand Chem Sci, Diss -- "Low-temperature calcium compounds and the atmospheric stability of binding materials on their base". Tashkent, 1961. 19 pp, 22 cm (Acad of Sci UzSSR. Joint Sci Council on Chem of the Dept of Geol-Chem Sci), 170 copies, Not for sale (KL, No 9, 1961, p 177, No 24280). [61-52368]

NUDEL'MAN, B.I., inzh.; PTASHCHENKO, I.P., inzh.

Combining the processes of vibrating and molding in molding
plastic ceramics. Stroi.mat. 7 no.6:22-24 Je '61.

(MIRA 14:7)

(Ceramic industry)

ROZOV, M.N.; NUDEL'MAN, B.I.; UVAROVA, I.T.

Intensification of the production of clinker in rotary kilns.
TSement 27 no.5:14.15 S-0 '61. (MIRA 14:12)
(Portland cement)

NUDEL'MAN, B.I., inah.

Changes in the mechanical strength of a loess body during the
kilning process. Stek. i ker. 20 no.12:20-22 D '63.

(MIRA 17:1)

1. Konstruktorsko-tekhnologicheskoye byuro po stroitel'nym
materialam i konstruktsiyam Upravleniya promyshlennosti stroitel'-
nykh materialov Soveta narodnogo khozyaystva UzSSR.

LOBANOV, Ye.M.; SOLODOVNIKOV, A.C.; KRYLOV, B.Ye.; NUDEL'MAN, B.I.;
ROZOV, M.N.

Use of radioisotopes in testing the lining of rotary cementation
furnaces. Atom. energ. 19 no.2:204-205 Ag '65. (MIRA 18:9)

NUDEL'MAN, B.I.; TOKHTAKHODZHAYEV, S.T.

Effect of the addition of salts and oxides on the reactions occurring during heating of $3\text{CaCO}_3 + \text{SiO}_2$ and $2\text{CaCO}_3 + \text{SiO}_2$ mixtures in the 800-1400° temperature range. Uzb. khim. zhur. 9 no.4:17-22 '65. (MIRA 18:12)

NUDEL'MAN, B.I.; TOKHTAKHODZHAYEV, S.T.

Effect of the additions of salts and oxides on reactions taking place on heating mixtures of $3\text{CaCO}_3 + \text{Al}_2\text{O}_3$ and $\text{CaCO}_3 + \text{Al}_2\text{O}_3$ within 800 - 1400° temperature range. Uzb. khim. zhur. 9 no.5? 14-17 '65. (MIRA 18:12)

1. Tashkentkiy nauchno-issledovatel'skiy proyektnyy institut stroitel'nykh materialov. Submitted July 7, 1964.

DUSYATSKIY, A.Ya., inzh.; NUDEL'MAN, G.E., inzh.; SEMENYUK, A.I., inzh.

Storage and transportation of bulk flour. Mekh.i avtom.proizv.
16 no.4:22-24 Ap '62. (MIRA 15:4)
(Flour-Transportation)

NUDEL'MAN, G.E.; YEGOROV, V.P.; KATS, I.G.; RYSIN, A.P.; MACHIKHIN,
S.A.; VEL'TSHCHEV, V.N.

[Continuous line for the production of halvah] Potochnaia
linia proizvodstva khalvy. Moskva, TSentr. in-t nauchno-
tekh. informatsii pishchevoi promyshl., 1964. 16 p.
(MIRA 18:5)

NUDEL'MAN, Goda Srulevich

Characteristics of distance-type relays based on the comparator principle. Izv. vys. ucheb. zav.; elektromekh. 6 no.12:1380-1386 '63. (MIRA 17:1)

1. Starshiy inzhener Chuvashskogo elektrotekhnicheskogo nauchno-issledovatel'skogo instituta.

L 9703-66 ENT(1)/ENA(h)

ACC NR: AP5076503

SOURCE CODE: UR/0286/65/000/019/0034/0034

AUTHOR: Model'man, G. S.

ORG: none

23
23

TITLE: Resistance relay, Class 21, No. 175109 [announced by Chuvashskiy Electrical Engineering Scientific Research Institute (Chuvashskiy elektrotehnicheskii nauchno-issledovatel'skiy institut)]

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 19, 1965, 34

TOPIC TAGS: electric relay, electric transformer

ABSTRACT: This Author Certificate presents a resistance relay containing a ring modulator, at whose input the compared quantities are supplied from a current and a voltage transformer, and an output device. To increase the sensitivity, to improve the setting adjustment, and to eliminate the interaction of the circuits, an additional current transformer is connected in series with the mentioned current transformer. The secondary of the additional transformer is connected in the diagonal of a full-wave rectifier (see Fig. 1). The second diagonal of the

Card 1/2

L 9703-66

ACC NR: AP5026503

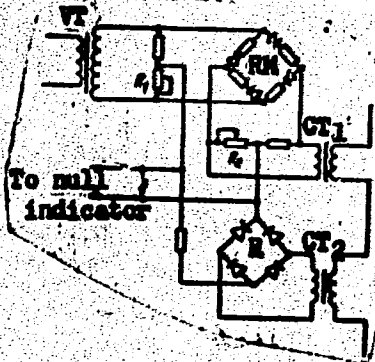


Fig. 1. VT - voltage transformer;
CT₁ - current transformer;
CT₂ - additional current transformer;
R - rectifier; RM - ring modulator.

rectifier is connected in the secondary circuits of the voltage transformer and the main current transformer. Orig. art. has: 1 diagram.

SUB CODE: 09/

SUBM DATE: 25 May 64

OC
Card 2/2

VIT'KO, P.I.; ROYTMAN, V.I.; NUDEL'MAN, I.N.

The EMID-2M defectoscope is helping workers in pipe mills.
Metallurg 10 no.5:26-27 My '65. (MIRA 18:6)

1. Nikipol'skiy yushnotrubnyy savod.

L 06194-67 EWT(1) GH
ACC NR: AP6033491

SOURCE CODE: UR/0413/66/000/018/0111/0112

INVENTOR: Gershteyn, G.M.; Nudel'man, I. Ye.; Promin, V. P.; Shekht-
man, L. A.

ORG: none

$\frac{16}{5}$

TITLE: Method of processing gravimetric survey results . Class 42, No. 186155

SOURCE: Izobret prom obraz tov zn, no. 18, 1966, 111-112

TOPIC TAGS: gravimetric survey, gravity isoanomaly, dielectric sheet, potentiometer, gravity parameter, GRAVIMETRY

ABSTRACT: A method is proposed for processing gravimetric survey data based on analysis of isoanomaly gravity maps. The isoanomaly map is put on a dielectric sheet, the interspaces between isoanomalies are filled with conductors, and a potentiometer adapted for each interspace is attached. A point-shaped charge is moved above the dielectric sheet which measures the current. Parameters of the gravity field are determined from the intensity of the induced current. This method permits a continuous distribution of the gravity field, higher accuracy, and a shortened processing to be obtained. Orig. art. has: 1 figure.

Card 1/2

UDC: 550.831

L 06194-67

ACC NR: AP6033491

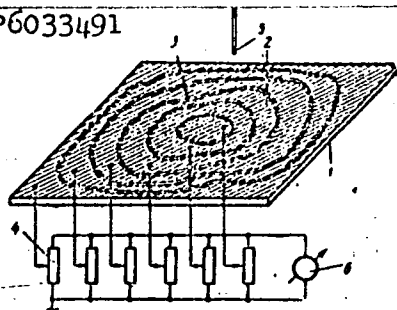


Fig. 1. Set-up for processing gravimetric survey data.
1 - dielectric sheet; 2 - conductor; 3 - gravity isonomaly
4 - potentiometer; 5 - point-shaped charge; 6 - indicator

SUB CODE: 08/ SUBM DATE: 14Jun65/

Card 2/2 afs

NUDEL'MAN, L.A.; YEFREMOV, M.G.; ZHULIN, V.Ya.

Introduce greater economy and industrialization in the laying
of foundations in rural construction. Osn., fund. i mekh. grun.
7 no. 6:1-2 '65. (MIRA 18:12)

22(1)

SOV/3-59-4-13'42

AUTHOR: Nudel'man, L.G., Candidate of Technical Sciences, docent

TITLE: The Reserve of Shortened Time

PERIODICAL: Vestnik vysshey shkoly, 1959, Nr 4, p 37 (US 8)

ABSTRACT: An attempt to reduce the number of students' required exercises, and, above all, the number of lecture hours, is a generally known fact. There are many ways to do it, but it is difficult to choose the most acceptable one, as it is simultaneously necessary to safeguard the integrity of the course, its understanding and a high scientific level. The most reliable way to reduce the number of lecture hours is, in the author's opinion, to expound the material of the course in a generalized manner. He proves this by an example. He regards I.V. Kharizomenov's suggestion to organize a systematic printing of lecture summaries and manuals in every year as a valuable one.

ASSOCIATION: Orenburgskiy sel'skokhozyaystvennyy institut (Orenbur Agricultural Institute).

Card 1/1

NUDEL'MAN, L.G.

Investigating the rigidity of P415A hydraulic press frames.
Kuz.-shtan.proisv. 1 no.12:28-33 D '59.

(MIRA 13:4)

(Hydraulic presses--Testing)

NUDEL'MAN, L.G.

Investigating the rigidity and strength of the P474 hydraulic press housing. Kuz.-shtam.proizv. 3 no.7:20-25 JI '61. (MIRA 14:6)
(Hydraulic presses—Testing)

NUDEL'MAN, L.G.; Primalni uchastiye: VERESHCHAGIN, Yu.F.; L'VOV, V.A.;
STBLETSKIY, V.S.; KOVALENKO, A.D.; SIMATOV, V.M.

Study of the strength and rigidity of a P313 sheet stamping
press bed. Kuz.-shtam, proizv. 7 no.2:27-33 F '65.

(MIRA 18:4)

~~NUDEL'MAN, M.~~

Let's pass from words to action. Grazhd.av. 1/4 no.1:12-13 Ja '57.
(MIRA 10:4)

1. Prepodavatel' uchebno-trenirovochnogo podrasdleniya Ukrainского territorial'nogo upravleniya.
(Aeronautics--Study and teaching)

25(5)

PHASE I BOOK EXPLOITATION

SOV/2425

Nudel'man, Moyshey Grigor'yevich, and Semen Pavlovich Sayenko

Povysheniye proizvoditel'nosti truda pri mekhanicheskoy obrabotke detaley mashin (Increasing Labor Productivity in Machining Machine Parts)
Kiyev, Mashgiz, 1959. 155 p. 5,000 copies printed.

Reviewer: V. P. Zavertaylo, Candidate of Technical Sciences; Eds.: V. E. Dumpe, Candidate of Technical Sciences, Docent, and M. S. Soroka; Chief Ed. (Yuzhniy Division, Mashgiz): V. K. Serdyuk, Engineer.

PURPOSE: This book is intended for engineering and technical personnel and production innovators in machinery-manufacturing plants.

COVERAGE: The book discusses measures for improving production processes and reducing the time required for machining and support operations in the production of parts on a custom or lot basis. Problems related to parts inspection and the proper layout of equipment are dealt with. A method of calculating the efficiency of production processes is described. No personalities are mentioned. There are 15 references, all Soviet.

TABLE OF CONTENTS:

Card 1/4

Increasing Labor Productivity in Machining Machine Parts (Cont.)	SOV/2425
Foreword	3
Ch. I. Improvement of Process Engineering in Machinery-manufacturing Plants Specializing in Custom and Lot Production	5
Design requirements for processing	6
Measures for improving process engineering	7
Technological documentation	10
Setting up production processes and production lines	11
Ch. II. Basic Steps Being Taken to Reduce Machining Time	13
Measures for facilitating the reduction of support time	21
Ch. III. Housings	34
Design characteristics and requirements for housings	34
Materials and blanks for housings	35
Production methods, tools, and devices used in machining surfaces	37
Machining of basic holes in housings	39
Production methods, tools, and devices used in machining basic holes	43
Machining of fastening and auxiliary holes	54
Precision control in machining housings	55
Layout of equipment for machining housings	57

Card 2/4

Increasing Labor Productivity in Machining Machine Parts (Cont.)	SOV/2425
Ch. IV. Spur and Bevel Gears	59
Design variations and special requirements for gears	59
Materials and blanks for gears	63
Machining blanks for gears	66
Engineering processes for cutting spur and bevel gears	92
Roughing and semifinishing gear teeth	98
Finishing gear-teeth surfaces	107
Machining shaft bores in hardened gears	109
Controlling the precision of gears	113
Layout of equipment for machining gears	118
Ch. V. Shafts	124
Design characteristics and requirements for shafts	124
Materials and blanks for shafts	125
Engineering processes in machining shafts	126
Production methods, tools, and devices used in machining shafts	129
Layout of equipment for machining shafts	138
Ch. VI. Appraisal of the Technical and Economic Efficiency of the Engineering Processes of Machining	140
 Card 3/4	

Nudel'man, O. E.

Subject : USSR/Engineering AID P - 5143
Card 1/1 Pub. 103 - 2/18
Author : Nudel'man, O. E.
Title : Automatic loading mechanism in centerless grinding machines for grinding tap-borers.
Periodical : Stan. 1 instr., 5, 7-10, My 1956
Abstract : The Institute for Organization of the Machine-Tool and Instrument Industry (ORGSTANKINPROM) designed an automatic feeding and control device for manually operated centerless grinding machines, thus transforming them into fully automatic units. The author describes the details of construction and operation of the device at the "Frezer" plant (Moscow). Seven drawings and 2 photos.
Institution : As above
Submitted : No date

YAKOVLEV, Dmitriy Georgiyevich; NUDEL'MAN, Ol'ga Emmanuilovna;
KOMAROV, V.F., kand. tekhn. nauk, retsenzent; BALANDIN,
A.F., red.izd-va; SOKOLOVA, T.F., tekhn. red.

[Readjusted automatic lines of modernized multiple-purpose
machine tools for the manufacture of taps] Perenalazhi-
vaemye avtomaticheskie linii iz modernizirovannykh univer-
sal'nykh stankov dlia izgotovleniia metchikov. Moskva,
Mashgiz, 1962. 226 p. (MIRA 15:3)
(Assembly line methods) (Automation)

20570

S/109/61/006/002/002/023
E140/E435

9.2550

AUTHOR: Nudel'man, P.Ya.

TITLE: On the Linear Correction of Transient Processes in
Finite-Bandwidth Systems

PERIODICAL: Radiotekhnika i elektronika, 1961, Vol.6, No.2,
pp.193-196

TEXT: The article considers an idealized linear system with infinite attenuation in the stop band. An energy criterion is adopted to estimate the intensity of the transient process occurring in such a system. The ideal frequency characteristics of the system are assumed to be unity transmission in a band of frequencies $\pm \Omega$ and zero delay over the band, with zero transmission outside of the band. The response of the filter to an arbitrary waveform $\varphi(t)$ is given by the Duhamel integral. The problem is to calculate the waveform $\varphi(t)$ of duration T resulting in minimum energy of the filter response outside of the time interval in which the waveform is actually present. The problem is solved in functionals, leading to the Fredholm integral equation with positive-definite kernel. Not surprisingly, the solution obtained for the present problem corresponds to that obtained
Card 1/2 X

20570

S/109/61/006/002/002/023
E140/E435

On the Linear Correction of ...

previously by M.S.Gurevich (Ref.2) for a pulse giving maximum energy concentration in a prescribed frequency band. The result is then extended to a system with arbitrary frequency characteristics within the same passband $\pm \Omega$. It is found that the input waveform must be "matched" to the system to give the maximum energy concentration in time. There are 2 Soviet references.

SUBMITTED: June 7, 1960

Card 2/2

L 13835-63 EWT(1)/EWG(k)/FCO(w)/BDS/ES(v)/EEC-2 AFFTC/ASD/ESD-3/APQC
SSD Pz-4/Pe-4/Pl-4/Pl-4 PT-2/GW
ACCESSION NR: AP3000536 S/0106/63/000/005/0072/0073 80

AUTHOR: Kulya, V. I.; Nudel'man, P. Ye.

TITLE: Selection of frequency band for intermittent radio communication

SOURCE: Elektrosvyaz', no. 5, 1963, 72-73

TOPIC TAGS: meteor-burst radiocommunication

ABSTRACT: Montgomery and Sugar (Proc. IRE, 1957, vol. 45, No 12) investigated the rate of information transmission vs. frequency band for meteor-burst, or other intermittent transmission. Their formula for the mean probability of error is considered inaccurate and a correct formula is suggested (Enclosure, formulae 2 and 4 respectively). The former formula yields an underrated value of the mean probability of error. The latter formula shows that the traffic capacity is a decreasing function of frequency. Orig. art. has: 7 formulae.

ASSOCIATION: none

Cord 1/31

ACCESSION NR: AP4024720

S/0109/64/009/003/0401/0407

AUTHOR: Nudel'man, P. Ya.

TITLE: Transmitting multidimensional information over a channel with a limited frequency band

SOURCE: Radiotekhnika i elektronika, v. 9, no. 3, 1964, 401-407

TOPIC TAGS: information transmission, multidimensional information, communication channel, vocoder, orthogonal vocoder

ABSTRACT: The possibility of coordinating a multidimensional (e.g., tv, vocoder) message with a practical (limited-band) communication channel by an expansion of the multidimensional signal into a generalized Fourier series, whose coefficients are functions of time, and by transmitting these coefficients over the channel is theoretically studied. The method has been used in orthogonal vocoders and theoretically explored by N. A. Zheleznov ("Some

Card 1/2

ACCESSION NR: AP4024720

problems in the theory of electric information systems," LKVVA, 1960). The present article specifically tries to enhance the efficiency of the method by selecting optimum components for multidimensional-to-single-dimensional conversion. The mean statistical error is minimized by selecting orthogonal functions, transfer constants of filters, and filter passbands. Tv scanning is considered as a particular case of multidimensional signal transmission. "The author wishes to thank D. P. Mil'man, A. Yu. Lev, and V. I. Kulya for their valuable advice." Orig. art. has: 1 figure and 30 formulas.

ASSOCIATION: none

SUBMITTED: 30Jan63

DATE ACQ: 10Apr64

ENCL: 00

SUB CODE: CO

NO REF SOV: 006

OTHER: 002

Card 2/2

NUDEL'MAN, P. Ya.

On the relationship for amplitude-frequency and phase-frequency distortions introduced by a linear system. 'Elektrosviaz'
19 no. 12:67-68 D '65 (MIRA 19:1)

L 09972-57

ACC NR: AR6019062

SOURCE CODE: UR/0274/66/000/001/A007/A007

AUTHOR: Nudel'man, P. Ya.

TITLE: Prediction of a stationary random process by means of a filter with assigned phase characteristics

SOURCE: Ref. zh. Radiotekhnika i elektrosvyaz', Abs. 1A40

REF SOURCE: Tr. uchebn. in-tov svyazi. M-vo svyazi SSSR, vyp. 22, 1964, 147-151

TOPIC TAGS: random process, computer design

TRANSLATION: A form of amplitude-frequency characteristics (with given phase-frequency characteristics) of a linear filter, for predicting a stationary random process with a minimum mean square error, is sought. The solution of this task can be useful in ... vocoder (telephony) design. The linear prediction problem for a stationary random process reduces to the following normalized expression:

$$\epsilon^2 = M \left[\eta(t+T) - \int_{-\infty}^{\infty} h(\tau) \eta(t-\tau) d\tau \right]^2, \quad (1)$$

where $\eta(t)$ is the predicted random process; $h(t)$ is the pulse response of the prediction instrument; M is the averaging of operations $\eta(t)$; T is some positive number; ϵ^2

UDC: 621.391.16

Card 1/2

L 09975-67

ACC NR: AR6019062

is prediction error dispersion minimized by the proper selection $h(t)$. The search for the extremum of functional (1) for a variation $h(t)$ in the class of physically realizable pulse reactions leads to the integral equation with the kernel depending on the difference of the arguments. The minimum of functional (1) is sought in a number of pulse reactions $h(t)$ corresponding to the complex coefficients of the transmission:

$$H(\omega) = |H(\omega)| e^{-i\psi(\omega)} = \int_{-\infty}^{\infty} h(t) e^{-i\omega t} dt$$

with a given phase-frequency characteristic $\psi(\omega)$. A physical realization requirement of the prediction device in this case is not introduced. 1 figure, 1 table, 3 references. P. N.

SUB CODE: 09

ACC NR: AP6032290

SOURCE CODE: UR/0106/66/000/009/0067/0089

AUTHOR: Nudel'man, P. Ya.

ORG: none

TITLE: Orthogonal vocoder with different-width channels for transmitting slow-varying speech parameters

SOURCE: Elektrosvyaz', no. 9, 1966, 67-69

TOPIC TAGS: vocoder, voice communication, speech transmission

ABSTRACT: This theoretical conclusion was verified experimentally: with a specified overall vocoder channel band, it is expedient to have individual-channel bands of different widths; wider bands should correspond to the Fourier coefficients with greater mean energy. Various sets of filters were connected to a Chebyshev-type vocoder, and eight Fourier coefficients of speech-spectrum expansion were transmitted through these filters. It was found that: (1) The best results are obtainable with the widest-band filter in the first channel, a narrower filter type being used in all other channels; (2) The use of three wider-type filters brings about practically no improvement; (3) A saving of 63 cps in the transmission band reduced the speech intelligibility by 3.5% (syllable articulation evaluated by a crew of 5). Orig. art. has: 3 tables. [03]

SUB CODE: 09 / 17 / SUBM DATE: 25Oct65 / ORIG REF: 003

Card 1/1

UDC: 534.4

NUDEL'MAN, R.I.

Melting of crystalline polymers. Izv. vys. ucheb. zav.; fiz.
no.1:8-13 '64.. (MIRA 17:3)

1. Miromskiy gosudarstvennyy pedagogicheskiy institut.

MUDEL'MAN, Sergey Borisovich; SHILOV, F.G., redaktor; BARAG, T.Ya.,
redaktor; ~~CHAZHIN, F.~~, tekhnicheskiy redaktor

[Large brick block apartment houses] Zhilye doma iz krupnykh
kirpichnykh blokov. Alma-Ata, Kazakhskoe gos.izd-vo, 1956. 20 p.
(Apartment houses) (Building blocks) (MLRA 10:7)

NUDEL'MAN, S.B.

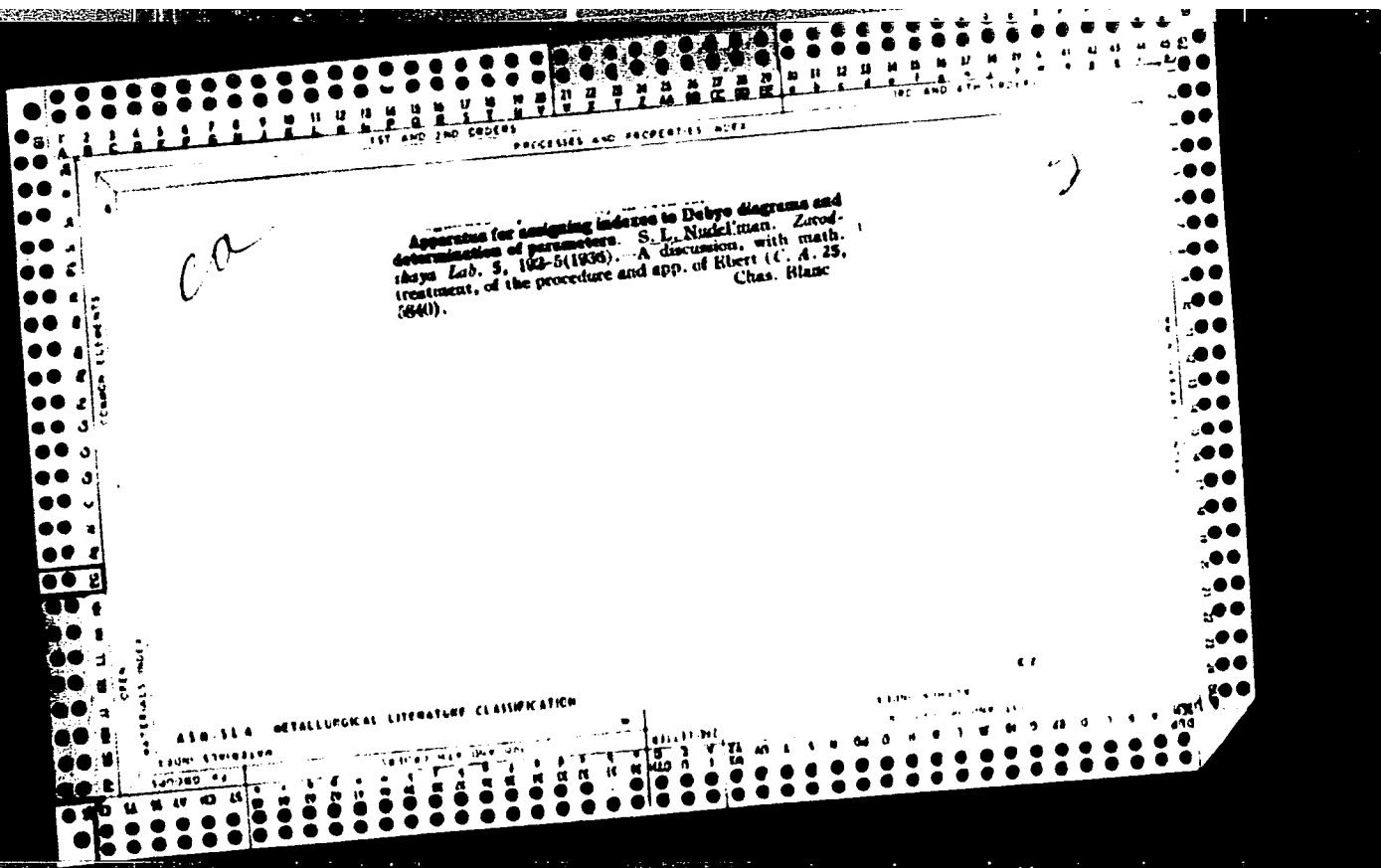
New type of administration and general services combine with storage for work and personal clothes in underground rooms.
Adm.-byt. komb. ugol'. shakht no.5:25-29 '62. (MIRA 17:8)

1. Karagandinskiy gosudarstvennyy inzhenerno-proyektnyy institut po proyektirovaniyu shakhtnogo stroitel'stva Karagandinskogo ugol'nogo basseyna.

NUDEL'MAN, S.L.; SIDORENKO, G.A.

Structural parameters of samarskite. Rent.min.syr. no.3:66-70 '63.
(MIRA 17:4)

1. "sesoyuznyy nauchno-issledovatel'skiy institut mineral'nogo
sy: ya.



NUDELMAN, S. L.

USSR/Physics - Crystallography

May 52

"Graphical Method of Determination of a System of Parameters and Indices of Cubic, Tetragonal, Hexagonal and Rhombic Crystalline Systems," S. L. Nudelman

"Zhur Tekh Fiz" Vol XXII, No 5, pp 773-783

Described method improves previous deficiencies in allowing one to det rhombic systems. It also enables construction of equipment which may be operated by an inexperienced laboratory assistant. Indebted to A. I. Kitaygorodskiy. Received 11 Feb 52.

222719

NUDEL'MAN, S. L.

120-2-24/37

AUTHOR: Nudel'man, S. L.

TITLE: Instrument for X-ray Pattern Analysis. (Pribor dlya
Rasshifrovki Rentgenogramm).PERIODICAL: Pribory i Tekhnika Eksperimenta, 1957, No.2,
pp. 83 - 88 (USSR).

ABSTRACT: It was shown by the author (Ref. 1) that it is possible to design an instrument for the analysis of X-ray pattern. In the present article the author describes the mechanical construction and the use of such an instrument. Figure 1 gives a detailed drawing of the apparatus. The principle of its use is restricted to the analysis of X-ray patterns of simple rhombic systems, since the X-ray patterns of tetrahedral, hexagonal and symmetrical lattices of rhombic systems may be considered as particular cases of the above. In order to explain the sequence of determining the line $4a^2 \sin^2 \theta / \lambda^2$ from all possible indices HKL, five main groups of operations are established and the sequence of operations of the instrument are discussed. It is shown that using this instrument it is possible to determine from the powder method, the type, parameters and indices of crystal lattices of cubical tetrahedral, hexagonal and rhombic systems. It is also possible to determine

Card 1/2

Instrument for X-ray Pattern Analysis.

120-2-24/37

the type, the system and parameters of substances from which crystals cannot be grown, which means that X-ray patterns may be analysed of substances which, up to now, have not been determined in such a manner. A mechanical drawing of the instrument, 17 diagrams representing the consecutive steps in determining the intercepts of various lines and one table summarising results of analysis as obtained by manipulations in any one of the five above mentioned groups are given. A. I. Kitaygorodskiy has been interested in the above described work. There are 2 Slavic references.

SUBMITTED: June, 14, 1956.

AVAILABLE: Library of Congress.

Card 2/2

05458
SOV/120-59-3-29/46

AUTHOR: Nudel'man, S. L.
TITLE: An Instrument for the Interpretation of X-ray Photographs of Polycrystalline Substances Belonging to the Monoclinic System (Pribor dlya rasshifrovki rentgenogramm polikristallicheskikh veshchestv monoklinnoy sistemy)

PERIODICAL: Pribory i tekhnika eksperimenta, 1959, Nr 3, pp 125-127 (USSR)

ABSTRACT: In a previous paper (Ref 1) the present author described an instrument which can be used to interpret X-ray photographs of polycrystalline substances belonging to the orthorhombic system. The present paper describes an application of the above instrument to the interpretation of X-ray photographs of monoclinic crystals. To begin with Eq (1) is re-written in the form of Eq (2) where $a_1 = a \sin \beta$, $c_1 = c \sin \beta$. Eq (2) is then split into Eqs (3), (4), (5), (6) and (7) which correspond to the indices $h00$, $0k0$, $00l$, $hk0$ and $0kl$ of the monoclinic system respectively. It is argued that these indices may be interpreted using this instrument similarly to the same indices for the orthorhombic system whose

card 1/3

05458

SOV/120-59-3-29/46

An Instrument for the Interpretation of X-ray Photographs of Polycrystalline Substances Belonging to the Monoclinic System

parameters are a_1 , b , c_1 . Eqs (8) and (9), which correspond to $h0\ell$ and $hk\ell$ of the monoclinic system, differ from the analogous equations of the orthorhombic system by the quantity $-2h\ell \cos \beta / a_1 c_1$. Since in the instrument described in Ref 1 the parameters a , b and c change their values depending on the displacement of the indices $hk\ell$, which are represented on the instrument in the form of moveable wires, relative to the lines $1/d^2$, which are also represented in the instrument by straight lines intersecting the coordinate axes at equal distances, it follows that the quantity $-2h\ell \cos \beta / a_1 c_1$ is transformed into $2h\ell \cos \beta$. The latter quantity may be found on the instrument as the difference between the ordinate of the $h0\ell$ wire and the ordinate of the intersection of the y -axis with the $1/d^2$ line corresponding to these indices. The indices $hk\ell$ may be found in a similar way. Thus, the instrument may be used to determine not only a , b and c but also β . i.e. it may be

Card 2/3

05458

SOV/120-59-3-29/46

An Instrument for the Interpretation of X-ray Photographs of
Polycrystalline Substances Belonging to the Monoclinic System
used to interpret X-ray photographs of substances
belonging to the monoclinic system.
There are 3 figures and 4 Soviet references.

SUBMITTED: February 12, 1958

Card 3/3

AUTHOR: Nudel'man, S.L.

SOV/70-4-4-28/34

TITLE: On the Lattice Parameters of Chrysotile

PERIODICAL: Kristallografiya, 1959, Vol 4, Nr 4, pp 621-623 (USSR)

ABSTRACT: Preceding communications (Refs 1,2) have shown how to index X-ray powder photographs of orthorhombic and monoclinic crystals. Chrysotile is here used as an example, although the parameters were known. Data from J.W.Gruner (Ref 3) were used for which Gruner himself had found $a = 5.33$, $b = 9.24$, $c = 7.33 \text{ \AA}$, $\beta = 33^{\circ}16'$. The method described earlier gave $a = 9.068$, $b = 6.715$, $c = 8.089 \text{ \AA}$, $\beta = 62^{\circ}$. The space group is C_{2h} . The r.m.s. value of $(d_{\text{obs}}^{-2} - d_{\text{calc}}^{-2})$ is 0.0008 with this cell and 0.0019 with Gruner's, the greatest difference being 0.0025 compared with 0.0057 with Gruner's cell. A table of the indexing is given. There are 1 figure, 1 table and 7 references, of which 4 are Soviet and 3 English.

SUBMITTED: October 25, 1958

Card 1/1

S/181/60/002/010/046/051
B019/B056

AUTHOR: Nudel'man, S. L.

TITLE: Letter Addressed to the Periodical "Fizika tverdogo tela"

PERIODICAL: Fizika tverdogo tela, 1960, Vol. 2, No. 10, pp. 2637 - 2638

TEXT: In this "Letter to the Editor" the author corrects an error in his earlier paper (Ref.1). In this paper the quadratic form of the triclinic syngony was erroneously represented by equation (27). Thereby, wrong values were obtained for the parameters a , b , c , α , β of caolinite. The author gives the correct representation of this quadratic form and obtains for these parameters: $a = 5.17 \text{ \AA}$, $b = 8.93 \text{ \AA}$, $c = 7.37 \text{ \AA}$, $\alpha = 91^{\circ}48'$, $\beta = 105^{\circ}$, and $\gamma = 89^{\circ}32'$. Also some other changes in the text are discussed. There are 3 Soviet references. ✓

SUBMITTED: March 16, 1960

Card 1/1

NUDEL'MAN, S.L.

Instrument for solving X-ray patterns of polycrystalline substances
of the triclinic system. Kristallografiia 5 no.5:819-823 S-0 '60.

(MIRA 13:10)

(X-ray crystallography)

NUDEL'MAN, S.L.

New graphic method for deciphering debyeograms of substances of cubic, tetragonal, and hexagonal systems. Min. sbor. no.15:109-119 '61. (MIRA 15:6)

1. Gosudarstvennyy universitet, Chernovtsy.
(X-ray crystallography)

NUDEL'MAN, Samuil L'voyich; MAKEYEV, V.I., red. izd-va; GUROVA, O.A.,
tekh. red.

[Use of the variable scale method for deciphering powder
rentgenograms]Rashifrovka poroshkovykh rentgenogramm metodom
peremennogo mashtaba. Moskva, Gosgeoltekhizdat, 1962. 83 p.
(MIRA 15:9)

(X-ray crystallography)

NUDEL'MAN, S.L.; FRANK-KAMENETSKIY, V.A.

Size of the unit cell of cooperite. Rent. min. syr. no.2:
105-107 '62. (MIRA 16:11)

1. Leningradskiy gosudarstvennyy universitet.

NUDEL'MAN, S.L.

Determination of the coordinates of atoms (ions) based on
the X-ray powder data. Rent. min. syr. no.2:108-114 '62.
(MIRA 16:11)

1. Leningradskiy gosudarstvennyy universitet.

BOCHAROV, Yu., arkhitektor, SHALIMAN, V., arkhitektor; FEEZINSKAYA, N.,
arkhitektor

Development of the city structure in the group form of settlement.
Eksper. proekt. no. 5.88-96 1/2. (M.P.A. 18.9)

DERBAREMDI'ER, M.I.; SEREBENNKOVA, K.I.; TERNOVSKIY, V.A.; (prim'mal)
uchastiye; SHAROV, P.M.; NOVIKOV, L.Z.; LUR'YE, E.I.; FIS'MEN,
M.K.; KARABIN, A.I. [deceased]; KOSTIN, L.I.; FROLOV, V.F.;
MEDVEDEV, P.V.; GERIMKHANOV, S.G.; BONDAR', V.G.; TIMOFEEV,
P.I.; MININA, L.V.; ARBEKOV, F.F.; NIKOLAYEV, N.I.; YAROSLAV,
T.Ye.; NUDEL'MAN, V.G.

Gasification of mazut under pressure in a steam-oxygen blast.
Gaz. prom. 9 no.11:49-50 '64. (MIRA 17:12)

GRINSHTEYN, V.I., inzh.; NUDEL'MAN, V.N., inzh.; RAKHMANOV, I.A., inzh.

Negative sequence power relay. Vest. elektroprom. 34 no.8:74-75
Ag '63. (MIRA 16:9)

(Electric relays)

L 45832-66 EWT(1)

ACC NR: AP6030580

SOURCE CODE: UR/0413/66/000/016/0062/0062

INVENTOR: Grinshteyn, V. I.; Nudel'man, V. N.; Ol'nov, V. M.

19
B

ORG: none

TITLE: Contactless ²⁵overload relay, Class 21, No. 184957 [announced by Chuvash Scientific Research Institute of Electrical Engineering (Chuvashskiy elektrotekhnicheskii nauchno-issledovatel'skiy institut)]

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 16, 1966, 62

TOPIC TAGS: contactless relay, overload, RC circuit, transistorized balanced amplifier

ABSTRACT: The proposed contactless overload relay utilizes semiconductors and contains an input relay unit, R-C circuits with an adjustable delay, and an output unit using electromagnetic slave mechanisms. To divide the controlled heteropolar lines galvanically and thus insure relay sensitivity to the overloads of both polarities, the relay contains two transistorized balanced amplifiers

Card 1/2

UDC: 621.316.925.43:621.315.592

L 45832-66

ACC NR: AP6030580

whose outputs are connected with the relay unit input, and the inputs are connected with the shunts set up in the lines to be controlled. Orig. art. has: 1 figure. [DW]

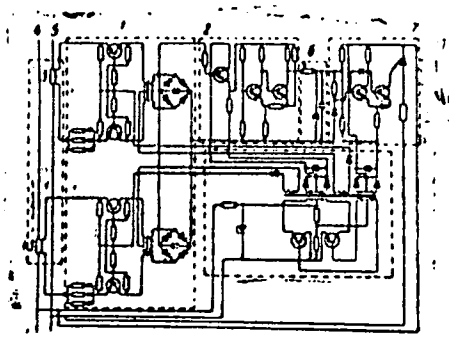


Fig. 1. Contactless overload relay.
1—Two transistorized balanced amplifiers; 2—relay unit;
3—shunts; 4 and 5—controlled lines; 6—R-C circuits; 7—output unit with electromagnetic slave mechanisms

SUB CODE: 09/ SUBM DATE: 21Jun65/

Card 2/2 *Jo*

NUDEL'MAN, Ya.I., inzh.

Stock metal trestles for the assembly of the precast reinforced concrete elements of one-story industrial buildings. Mont. i spets. rab. v stroi. 25 no.5:21-22 My '63. (MIRA 16:7)

1. Trest Stal'montazh.
(Scaffolding)

NUDEL'MAN, YA. L.

42224. NUDEL'MAN, YA. L. Integral'yye uranuneniya ustoychivosti sterzhney, sterzhnevykh sistem i plastin. Nauch. trudy (Odes. In-t inzh. mor. flota), VYP. 7, 1948, cl79-93. - bibliogr: 7 nazv.

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

NUDEL'MAN, YA. L.

Methods of calculating proper frequencies and critical force in bar framework systems Leningrad
Gos. izd-vo tekhn.-teoret. lit-ry, 1949. 175 p. (Sovremennye problemy mekhaniki) (50-20775)

QA955.N8

30803. NUDEL'MAN, Ya. L. and BRONSHTEYN, N. I.

Novyy metod opredeleniya chastot mnogoprolstnykh balok na uprugikh oporakh, nagruzhennykh sosredotochennymi massami. Nauk. trudy (Odes. in-t inzhenerov mor. flota), vyp. 8, 1949. s. 38-49.

11 AUG 52

USSR/Metals - Elasticity, Plasticity

"Wave Formations on the Surface of Certain Machine Parts," Ya. L. Nudel'man and L. B. Erlikh

"DAM SSSR" Vol 85, No 5, pp 970-974

In the thin surface layer of many machine parts occur compressional stresses during their prepn or employment. Establishes that under definite conditions elastic or elastic-plastic state of equill in the compressed layer become unstable, as a result of which regular waves form on the surface of metal objects. States that the phenomenon

239T66

of stability loss in the form of waves on the surface of real objects is rarely observed in pure form, but is more often in the form of specific ruptures in the surface layer. Submitted by Acad S. L. Sobolev 12 Jun 52.

239T66

PA 239T66

NUDEL'MAN, YA. L.

Авдеев, Г. Л.

"A Method of Solving Equations of Frequencies and Critical Forces Which are Set Up by the Method of Forces," Sb. Tr. Odes. k. Gidrotekhn. In-sta, No 6, 1955, pp 155-160

A method of solving frequency equations and equations of stability by the method of successive imposition of sections. It is stated that for equations up to the fourth order this method, which is based on finding a narrow interval for the unknown root of an equation, is relatively simple. Limitations of the method are indicated. (RZhKekh, No 5, 1955) SO: Sum.No. 713, 9 Nov 55

NUDEL'MAN, YA. L.

Call Nr: AF 1108825

Transactions of the Third All-union Mathematical Congress, Moscow, Jun-Jul '56,
Trudy '56, V. 1, Sect. Rpts., Izdatel'stvo AN SSSR, Moscow, 1956, 237 pp.

Nudel'man, Ya. L. (Odessa). Some Problems in the
General Theory of Elastic Stability.

208

SOV/124-57-4-4821

Translation from: Referativnyy zhurnal. Mekhanika, 1957, Nr 4, p 134 (USSR)

AUTHOR: Nudel'man, Ya. L.

TITLE: On a Method for the Solution of the Stability Equation (Ob odnom sposobe resheniya uravneniy ustoychivosti)

PERIODICAL: V sb.: Issledovaniya po vopr. ustoychivosti i prochnosti, Kiye., AN UkrSSR, 1956, pp 102-112

ABSTRACT: The problem as to whether a frame is stable with a prescribed value of the load P is solved by the analysis of a sequence of systems derived from the basic system of the slope-deformation method by step-by-step elimination of connections. Let $\|a_{ij}(P)\|$ be the matrix of the n^2 coefficients of the canonical equations of the slope-deformation method. The coefficients $a_{ij}^{(k)}(P)$ are determined in accordance with the recurrent formula

$$a_{ij}^{(k)}(P) = a_{ij}^{(k-1)}(P) - \frac{a_{kj}^{(k-1)}(P) a_{ik}^{(k-1)}(P)}{a_{kk}^{(k-1)}(P)}$$

Card 1/2

$$(i, j = k+1, \dots, n; k = 1, 2, \dots, n-1)$$

SOV/124-57-4 4821

On a Method for the Solution of the Stability Equation

In order that a frame loaded with forces consistent with the parameter P may be stable, it is necessary and sufficient that the basic system of the slope-deformation method be stable and that

$$\alpha_{kk}^{(k-1)}(P) > 0 \quad (k = 1, \dots, n) \quad (*)$$

For a practical computation of the critical parameter, the range of its variation must be given from the outset; this range is later narrowed by means of successive approximations with the application of criterion (*). This process of computation coincides in each step with the evaluation of the determinant of the canonical equations of the slope-deformation method with the aid of Gauss' algorithm. The article is in line with the author's other works on the same subject [e.g., "Metody opredeleniya sobstvennykh chastot i kriticheskikh sil dlya sterzhnevnykh sistem" (Methods for the Determinations of the Natural Frequencies and Critical Forces for Rod Systems). Gostekhizdat, 1949].

V. V. Bolotin

Card 2/2

SOV/124-57-5-6046

Translation from: Referativnyy zhurnal. Mekhanika, 1957, Nr 5, p 146 (USSR)

AUTHOR: Nudel'man, Ya. L.

TITLE: Some Problems of the General Theory of Elastic Stability (Nekotoryye voprosy obshchey teorii uprugoy ustoychivosti)

PERIODICAL: Tr. 3-go Vses. matem. s"yezda. Vol I, Moscow, AN SSSR, 1956, pp 208

ABSTRACT: Bibliographic entry

Card 1/1

NUDEL'MAN, Ya.L.; OVCHINNIKOV, P.F.

Bending of beams with variable cross section accounting for
shear deformations. *Prykl. mekh.* 2 no.1:40-50 '56. (MLBA 10:2)

1. Odes'kiy gidrotekhnichniy institut.
(Girders) (Flexure)

NUDELMAN Ya.L., doktor fiziko-matem. nauk, prof. (Odessa);
~~NUDELMAN~~ V.A., kand. tekhn. nauk (Odessa)

Method of superposition in problems on the stability of
elastic systems. Issl. po teor. sooruzh. no.12:89-100 '63.
(MIRA 16:6)

(Elastic rods and wires)
(Stability)

VIL'GA, M.A., inzh. (Odessa); NUDEL'MAN, Ya.L., doktor fiz.-matem. nauk,
prof. (Odessa)

Stability of rectilinear rods with elastic longitudinal connections.
Issl. po teor. sooruzh. no.13:183-187 '64.

(MIRA 18:2)

NUDEL'MAN, Ya.S.

Cast keel-blocks to be used in shipyards. Sudostroenie 24 no. 6:56-
57 Je '58. (MIRA 11:8)
(Shipbuilding--Equipment and supplies)

NUDEL'MAN, Ya.S., inzh.

Repair of the ferry "Zapoliarnyi." Sudestreenie 25 no.3:
47-48 Mr '59. (MIRA 12:5)
(Ferries--Maintenance and repair)

NUDEL'MAN, Z. N.

USSR/ Chemistry - Insecticides

Card 1/1 Pub. 86 - 13/38

Authors : Nudel'man, Z. N.

Title : Synthetic insecticides

Periodical : Priroda 44/6, 83 - 86, Jul 1955

Abstract : A brief account is given of the difficulties encountered in endeavoring to find an economical and effective insecticide. The account includes the discovery of DDT and improved insecticides. The chemistry of insecticides containing Cl, P, and S is discussed in detail, as well as the problems connected with the application of poisons without harming the natural destroyers of predatory insects. Eleven references: 6 USSR, 4 USA and 1 Dutch (1953-1954). Drawing.

Institution :

Submitted :

NUDEL'MAN, Z.H. (Moscow)

Repellents. Priroda 44 no.10:86-88 0'55. (MIRA 8:12)
(Insect baits and repellents)

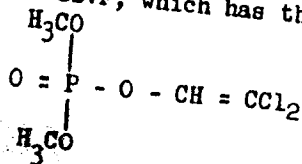
NUDEL'MAN, Z.N. (Moskva)

Herbicides. Priroda 45 no.3:80-83 Kr '56. (MIRA 9:7)
(Herbicides)

NUDEL'MAN, Z.N.

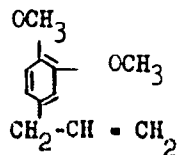
"Insecticidal Baits," by Z. N. Nudel'man, Moscow, Priroda, Moscow, Vol 45, No 8, Aug 56, pp 88-91

Considerable success has been achieved with insecticidal baits as a means of controlling harmful insects. The usual methods of applying insecticides, i.e., dusting, spraying, aerosols, and insecticidal smokes, are not always fully effective, and in many cases their use is inconvenient since they require the removal of foods or other objects with which humans may come in contact from the area to be treated. Insecticidal baits have two advantages: first, they bring the insects into close contact with the poisons, and second, if the bait is a food, the poisons kill the insects through intestinal absorption. The use of insecticidal baits became possible with the development of organophosphorus compounds -- parathion [thiofos], diazinon, dipterex, malathion [karbofos], and others -- which are used with sugar water, powdered sugar, and other sugar preparations for the destruction of flies, and with food products for the destruction of roaches. One of the more effective organophosphorus compounds is the newly developed insecticide DDVF, which has the following structural formula:



DDVF is no less toxic to flies than parathion, but is considerably less poisonous to warm-blooded animals and humans.

Sugar-baited insecticides, however, fail to attract fruit flies. In 1952, it was found that certain protein hydrolysates had the capacity to attract insects, and when used in combination with parathion, malathion, and DDVF formed insecticides which were effective against fruit flies. One of the more effective lures, whose action has not yet been clarified, is methyl eugenol which has the following structural formula:



Methyl eugenol is marked by high selectivity, and attracts only male fruit flies. The great power of its attraction makes possible its application in small quantities and over small areas.

Insecticidal baits form a simple and effective means of control of flies in cases where other methods of applying insecticides are not practicable.

Sum 1239

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S/081/62/000/006/110/117
B168/B101

15.9/30

AUTHORS: Devirts, E. Ya., Kaplun, M. G., Nudel'man, Z. N., Novikov, A. S.

TITLE: Chemical mastication of natural and butadiene-styrene rubbers

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 6, 1962, 692, abstract
6P560 (Tr. N.-i. in-ta rezin. prom-sti, sb. 7, 1960, 3 - 16)

TEXT: Methods of producing the chemical plasticizers peptone 22 (I) and rhenacite V (II) have been worked out and these substances have been synthesized under laboratory conditions. I, II and imported rhenacite IV (III) were tested as accelerators for the mastication of natural rubber and SK-30A (SKS-30A). I, II and III are effective chemical plasticizers for mastication of natural rubber in the rubber mixer at 120 - 130°C. II and III accelerate mastication of natural rubber on rollers at 70 - 80°C. I, II and III do not affect the physico-mechanical properties, the resistance to heat ageing or the swelling of rubbers. II is an effective plasticizer for SKS-30A when the rubber is being processed in the rubber mixer and on rollers. [Abstracter's note: Complete translation.]
Card 1/1

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15.6205 2209 2109 1451

S/138/60/000/005/005/012
A051/A029

AUTHORS: Nudel'man, Z.N., Novikov, A.S.

TITLE: The Structuralizing Reaction of Polydimethylsiloxanes in the Cold Vulcanization of Polysiloxane Rubbers ↵

PERIODICAL: Kauchuk i Rezina, 1960, ⁹No. 5, pp. 17 - 20.

TEXT: The present article is dedicated to the experimental confirmation of the condensation of alkoxy-derivative metals, metal-organic groups and silicon of the general formula $M(OR)_n$, (where M is a metal, silicon, etc., R an alkyl or aryl group, n the valency of M), at the hydroxyl groups of the polysiloxanes and also to the study of the mechanism of this condensation. It is proven that the condensation of the polyalkoxysilanes with polydimethylsiloxanes takes place only at the hydroxyl groups of the latter. The complex-catalytic nature of the solidification of the polysiloxanes at room temperature is also shown. In order to clarify the mechanism of condensation at the free hydroxyl groups, the effect of certain admixtures on this reaction was investigated. For example, by adding aluminum pyridine

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Card 1/4

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A051/A029

The Structuralizing Reaction of Polydimethylsiloxanes in the Cold Vulcanization of Polysiloxane Rubbers

with butylate to polysiloxane or triethylamine (molar ratio of the amine to the butylate of aluminum, 1:1), the reaction was considerably slowed up and the nature of the formed products changed. If amine in the ratio of 2:1 or 3:1 is added, no structuralizing takes place at all. The authors (Ref. 6) had already shown that when mixing polysiloxane rubber with alkoxy-derivatives of many metals and metal-organic groups, rapid gelatination of the rubber takes place with the formation of high-molecular and in some cases non-fusible products and products insoluble in benzene. In that case it can be assumed that the reaction takes place at the outer hydroxyl groups of the polysiloxane rubber. The condensation arrangement of the hydroxyl groups requires confirmation since there are several variations of the reaction, e.g., the break in the large polysiloxane rings or chains with simultaneous bonding of the liberated ends with the structuralizing agent. The interaction of metal alcoholates with two types of polysiloxanes was investigated. Table 1 shows the relationship of the aluminum butylate quantity needed for the complete structuralizing of the polysiloxane

Card 2/4

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S/138/60/000/005/005/012
A051/A029

The Structuralizing Reaction of Polydimethylsiloxanes in the Cold Vulcanization of Polysiloxane Rubbers

and the molecular weight of the polysiloxane. The experimental procedure is outlined and the structural formulae of the reacting compounds are presented. The results of the indicated experiments point in favour of the reaction scheme of the polysiloxanes and the alkoxy-derivatives of metals at the hydroxyl groups. It is stated that the reaction of polysiloxane with butylorthotitanium is a hydrolysis of the latter by the moisture of air to orthotitanic acid and subsequent condensation of this acid with hydroxyl groups. Another possible mechanism is the formation of an intermediate complex compound, metal alcoholate with the polysiloxane, as a result of the donor-accepting bond of the metal atom with the oxygen atom of the hydroxyl group with subsequent detachment of the alcohol. As a result of the experimental facts, the authors claim that it is easy to explain the difference in the nature of the gels obtained from polydimethylsiloxane, aluminum butylate and butylorthotitanium. The accepted assumptions on the mechanism of the condensation reaction made it possible to use tetraethoxysilane as the structuralizing agent in this reaction or other polyalkoxy-

Card 3/4

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S/138/60/000/012/002/009
A051/A027

AUTHORS: Novikov, A.S., Nudel'man, Z.N.

TITLE: The Kinetics and Mechanism of the Catalytic Reaction Between Polydimethylsiloxanes and Polyalkoxysilanes

PERIODICAL: Kauchuk i rezina, 1960, ¹⁹No.12, pp. 3-7

TEXT: In a previous work (Ref.1) the authors dealt with the catalytic reaction of structuralizing of polydimethylsiloxane rubber with alkoxysilanes which takes place by condensation of the latter with the hydroxyl groups of polydimethylsiloxane and separation of alcohol. In this article it is pointed out that the mechanism of the reaction has been only slightly investigated and it is further suggested that the kinetics of the reaction be studied during the period from its start until the moment of the spatial lattice formation. Such an investigation was carried out by measuring the elasticity growth of the benzene solution of the CKT (SKT) rubber after it had been mixed with the catalyst and the structuralizing agent in a spherical Hepler viscosimeter. It was shown that the elasticity growth was determined only by the growth of the molecule. Fig.1 shows that the growth process of the

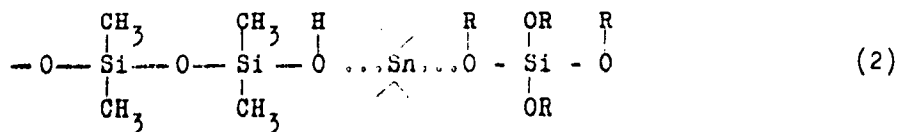
Card 1/8

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S/138/60/000/012/002/009
A051/A027

The Kinetics and Mechanism of the Catalytic Reaction Between Polydimethylsiloxanes and Polyalkoxysilanes

elasticity for the system 15% solution of SKT in benzene-tetraethoxysilane-catalyst (0.5 g) is not uniform. The shape of this curve is explained by the many-stage type of reaction of structuralizing (Ref. 5). It is suggested that the initial part of the curve is determined by the first stage of the reaction which consists in the formation of the intermediary complex compound of one molecule of the catalyst with one molecule of the hydroxyl group of the polydimethylsiloxane and one molecule of oxygen of the tetraethoxysilane molecule:



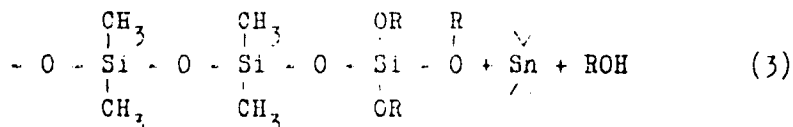
This complex is then regrouped and a new siloxane bond is formed, a catalyst molecule is separated off, probably in the form of a complex with the separated alcohol molecule:

Card 2/8

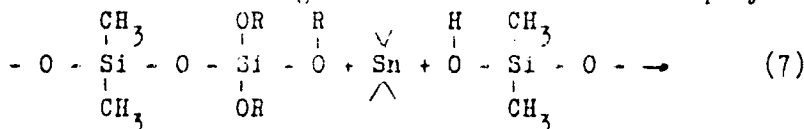
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AO51/A027

The Kinetics and Mechanism of the Catalytic Reaction Between Polydimethylsiloxanes and Polyalkoxysilanes



The latter stage of the reaction corresponds to the part of the curve parallel to the abscissa axis. It is not the induction period, since the reaction is taking place although not causing an increase in the molecular weight of the system. Other confirmations of the interaction with initial formation of a transfer complex were obtained from infrared spectra of the system (Figs. 2,3). These graphs prove that there is no induction period necessary in the formation of the complex in the given system. The second stage of the reaction increases the molecular weight to twice the amount of polysiloxane:

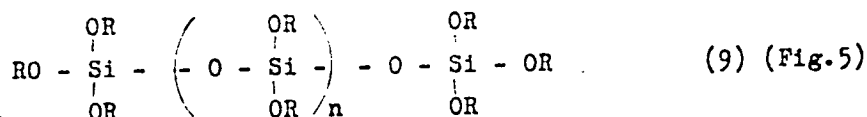


Card 3/8

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A051/A027

The Kinetics and Mechanism of the Catalytic Reaction Between Polydimethylsiloxanes and Polyalkoxysilanes

possible, i.e., molecules where the donor-acceptor bond with one atom of silicon would not significantly change the density of the electrons in the other oxygen atoms. The reaction mechanism of catalytic condensation of polydimethylsiloxane with tetraethoxysilane and other polyalkoxysiloxanes is confirmed on an example of the gelatination of a benzene solution of SKT in the presence of a polyethoxysiloxane-type structuralizing agent, where $n = 8 - 10$:



There are 5 graphs and 5 Soviet references.

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

Card 5/8

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S/138/60/000/012/002/009
A051/A027

The Kinetics and Mechanism of the Catalytic Reaction Between Polydimethylsiloxanes and Polyalkoxysilanes

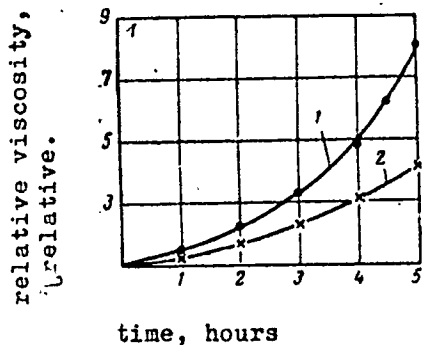


Fig. 1 Viscosity increase in a 15 % solution of SKT in benzene with tetraethoxysilane and catalysts: 1 - dicaprylate of dibutyl tin, 2 - distearate of dibutyl tin.

Card 6/8

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S/138/60/000/012/002/009
A051/A027

The Kinetics and Mechanism of the Catalytic Reaction Between Polydimethylsiloxanes and Polyalkoxysilanes

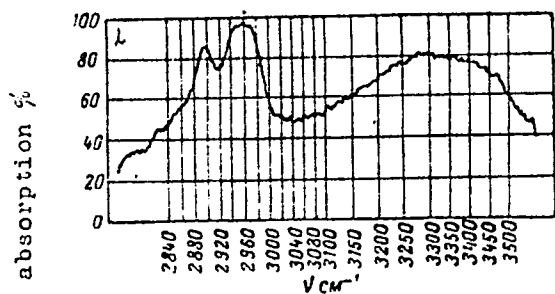


Fig.2 Infrared spectrum of polydimethylsiloxane with molecular weight of about 4,000.

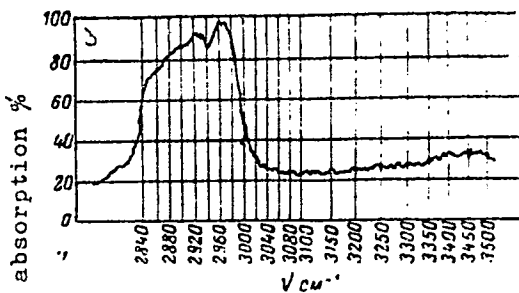


Fig.3 Infrared spectrum of a polydimethylsiloxane mixture with an 8% tetraethoxysilane and 2% di-caprylate of dibutyl tin immediately after preparation.

Card 7/8

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A051/A027

The Kinetics and Mechanism of the Catalytic Reaction Between Polydimethylsiloxanes and Polyalkoxysilanes

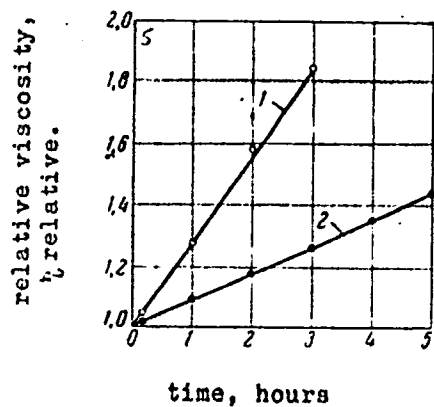


Fig. 5 Viscosity increase in a 15% solution in benzene with polyethoxysiloxane and catalysts: 1- dicaprinate of dibutyl tin, 2- distearate of dibutyl tin.

S/661/61/000/006/043/031
D244/D302

AUTHOR: Nudel'man, Z. N.

TITLE: On the mechanism of cold vulcanization of polysiloxane rubber

SOURCE: Khimiya i prakticheskoye primeneniye kremneorganicheskikh soedineniy; trudy konferentsii, no. 6: Doklady, diskussii, resheniye. II Vses. konfer. po khimii i prakt. prim. kremneorg. soyed., Len. 1958. Leningrad, Izd-vo AN SSSR, 1961, 210-213

TEXT: The author studied the kinetics of gelation of polysiloxane rubber-benzene solutions to obtain a scheme for the mechanism of catalytic formation of structure in polydimethyl siloxane rubbers. The structure formation is promoted by tetraethoxysilane and similar compounds. The process was studied by determining viscosities of the solution. It was established that organo-tin catalysts act on the hydroxyl group of polysiloxane rubber in such a way as to cause a shift of the electron pair from the O atom to the Sn atom,

Card 1/2



On the mechanism of ...

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followed by transfer of an electron from the H atom to the O atom. When a donor-acceptor coordination bond is formed with a molecule of tetraethoxysilane, a redistribution of electron density occurs in the latter, leading to transfer of the reactive center in the molecule. This prevents the reaction of tetraethoxysilane molecule with more than one molecule of the catalyst. It was shown that the polymerization begins immediately after mixing the reagents which would not be the case if the multi-step reaction mechanism was applicable. Thus the mechanism proposed by N. N. Baranovskaya (Moscow) is not correct. To obtain formation of a structure, the rubber was heated with 1.5% of benzoyl peroxide. In the discussion which followed Baranovskaya pointed out that her mechanism was proposed for bulk vulcanization, whereas the author's mechanism applied probably only to the polymerization in solution. There are 2 figures.

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

Card 2/2

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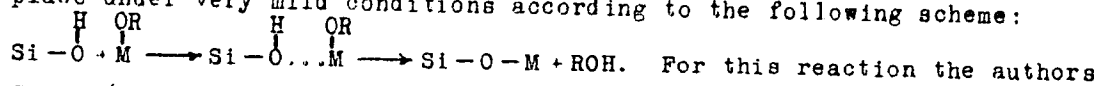
2203

S/190/61/003/006/007/019
B110/B216AUTHORS: Nudel'man, Z. N., Sviridova, A. V., Novikov, A. S.

TITLE: Synthesis of linear alumosiloxane polymers by silanol condensation

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 3, no. 6, 1961, 841-845

TEXT: Since no method has been described for the preparation of linear metallosiloxanes of preset structure, the authors tried to synthesize these polymers by applying silanol condensation (Ref. 1: Kauchuk i rezina, 1960, No 5, 17). This condensation takes place on mixing organosilicon compounds containing the silanol group Si-OH with alkoxy derivatives of metals, organometallic groups or silicon (e.g. aluminum alcoholates, dialkoxy derivatives of the monoacetylacetonate, other aluminum complexes, alkoxy derivatives of titanium, tin and iron, etc.). Separation of the alcohol and formation of the metallosiloxane bond take place under very mild conditions according to the following scheme:



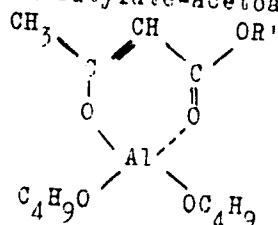
Card 1/7

23764

Synthesis of linear alumosiloxane...

S/190/61/003/006/007/019
B110/B216

used a bifunctional aluminum alcoholate with 2 reactive alkoxy groups, i.e., an aluminum butylate-acetoacetic ester complex:



Owing to its uniform electron density distribution over the ring, this complex is more resistant to hydrolysis than the alkoxy groups. On treatment with water, the alkoxy groups are hydrolyzed off, and condensation yielding a linear alumoxane polymer takes place. A similar behavior was to be expected in silanol condensation. Polydimethylsiloxane (molecular weight 3,000-50,000) having silanol groups at the ends of the chain was used as reaction partner. The two components were mixed in benzene in the required ratio and the polymer formed then precipitated with acetone. The polysiloxane molecules of high molecular weight determined the basis

Card 2/7

23764

Synthesis of linear alumosiloxane...

S/190/61/003/006/007/019
B110/B216

properties of these modified alumosiloxane derivatives (MAS), which are modified by aluminum links. The time required for the reaction is directly proportional to the molecular weight of the polydimethylsiloxane derivative used. A comparison of the viscosities of MAS (Table 1) in toluene and solutions of the initial siloxane indicates the increased molecular dimensions of MAS. Their greater hardness is due to the formation of donor-acceptor bonds between the aluminum groups of different polymer molecules and to multiple coordination of the aluminum atom. The oxygen atom in the alkoxy group of the acetoacetic ester has the greatest electron density and is able to form complexes. For this reason the ethyl and octyl esters of acetoacetic acid, having different complexability were used. Hardness was determined thermomechanically according to Kargin in the temperature range -60°C to 200°C (at a rate of 4°C per 10 min). The extent of intermolecular interaction is mainly determined by the relative number of aluminum links in the chain. The properties due to the aluminum links are more marked if the initial siloxane is lower-molecular. The Al content of MAS depends only on the molecular weight of the initial siloxane and not on the ratio aluminum complex/siloxane ($26,300 = 1.99\% \text{ Al}$; $3160 = 3.61\% \text{ Al}$). The greater hardness of the second

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Card 3/7

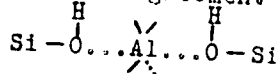
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Synthesis of linear alumosiloxane...

S/190/61/003/006/007/019
B110/B216

polymer is due to its higher Al content and the numerous Al links. The above-stated composition is confirmed by the findings that the polymers are completely soluble in benzene and toluene, flow under pressure, melt on heating and sinter at high temperatures. The residual compression is also characteristic of structureless polymers. This is corroborated by the viscosity (Table 1) and the presence of Al in these polymers. Acetylacetone forms very stable acetylacetonates with the Al of many aluminum compounds, splitting the Si-O-Al bond. On treating MAS with excess acetylacetone at room temperature (Table 2), the initial polydimethylsiloxanes were regenerated, which shows that condensation did not

take place: $Si-OH + HO-Si \xrightarrow{Al} Si-O-Si + H_2O$. Heating of MAS to $>200^\circ C$ leads to reversible softening, which together with its resistance to pyridine, is not in agreement with the presence of a large number of complex bonds



This method can also be applied in the synthesis of linear polymers modified by titanium, tin, iron, etc., in the given order, their properties

Card 4/7

23764

Synthesis of linear alumosiloxane...

S/190/61/003/006/007/019
B110/B216

depending on the metal alkoxide used and its ratio to the polysiloxane.
There are 1 figure, 2 tables, and 3 references: 2 Soviet-bloc and
1 non-Soviet-bloc.

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

SUBMITTED: July 25, 1960

Table 1: Viscosity of toluene solutions of MAS in initial polydimethyl-
siloxane derivatives. a) Mol-wt. of initial polydimethylsiloxanes;
b) polydimethylsiloxane; c) concentration, g/100 ml; d) given rate;
e) MAS; 1) viscosity at 20°C; 2) viscosity at 25°C.

Card 5/7