

ACCESSION NR: AT4044402

ASSOCIATION: Glavnaya geofizicheskaya observatoriya, Leningrad (Main Geophysical Observatory)

SUBMITTED: 00

ENCL: 00

SUB CODE: ES

NO REF SOV: 002

OTHER: 001

Card 3/3

LUR'YE, V.A., inzh.; SHCHEMLINSKIY, L.A., inzh.

Calculations for a reelless reaper. Trakt. i sel'khoz mash.  
no.5:19-21 My '65. (MIRA 18:6)

1. Gosudarstvennoye spetsial'noye konstruktorskoye byuro  
Pridneprovskogo soveta narodnogo khozyaystva.

MURIN, A. N., LUR'YE, V. G.

"Electric Conductivity and Diffusion in Silver Halide Samples Subjected to Plastic Deformation."

Zhurnal Khimicheskoi Fiziki, Moscow, 1956  
41: 1337, 1338.

Report of the author to the Academy of Sciences of the USSR, on  
the results of the work on the electric conductivity of silver halides, 1956

LUR'YE, V.M.

ZIL'BERSHTEYN, B.A., inzhener; LUR'YE, V.M., kandidat tekhnicheskikh nauk.

Reasons for the development of a new series of current transformers  
for voltages up to 10 kv. Vest. elektroprom. 27 no.10:13-19 0 '56.  
(MLRA 10:9)

1. Vsesoyuznyy elektrotekhnicheskiy trest Ministerstva elektrotekh-  
nicheskoy promyshlennosti.

(Electric transformers)

8 (4)

SOV/112-57-5-10448

Translation from: Referativnyy zhurnal. Elektrotehnika, 1957, Nr 5, p 131 (USSR)

AUTHOR: Stepanenko, M. G., Lur'ye, V. M.

TITLE: Design of Electric Glass-Melting Furnaces  
(Proyektirovaniye elektricheskikh steklovarenykh pechey)

PERIODICAL: Tr. Vses. n.-i. in-ta stekla, 1956, Nr 36, pp 51-70

ABSTRACT: Electric glass-melting furnaces have a number of advantages compared to flame-type furnaces; it is expected that in the near future, when new large electric stations will be put in operation, such furnaces will receive wide usage in the USSR. At present, however, the problems of design and construction of glass-melting furnaces have not been satisfactorily solved, either in the USSR or abroad. In designing electric glass-melting furnaces, their fundamental parameters are selected after those of the flame-type furnaces, or else they are selected arbitrarily. As a result, the per-unit energy consumption of actual electric furnaces fluctuates widely. The prospects of electric glass melting require that reliable methods for designing

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**Design of Electric Glass-Melting Furnaces**

the furnaces be developed, particularly methods for furnaces of 80-120 tons per day capacity. The principal distinguishing feature of electric glass melting is that heat is produced within the glass melt proper; the heat is not transmitted via the glass-melt surface as in the flame-type furnaces. This results in a more uniform temperature distribution over the entire glass-melt volume, and in lower maximum temperatures at individual points; the temperature under the furnace roof does not exceed 1,250°C, which results in a higher electrode and lining durability. The process in an electric furnace can be forced by using higher glass-melt temperatures. Horizontal convection in an electric furnace is weak, and the furnace outlet requires additional heating. The glass-melt surface in the electric furnace is a cooling surface, hence the viscosity of the surface layers is higher. This can be prevented by a lower roof, by coating the surface with a special mixture, by a vacuum, and by placing high-capacity electrodes near the surface. Decreasing the surface area and making the bath deeper did not result in a decrease of heat losses

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through the surface because the losses through the walls increased. An operating voltage of 70-110 v is used; it can be increased to 220 v. The bath width must be limited in order to limit the voltage. As glass melt is electrically hot, workers and glass-forming machines that come in contact with the glass melt must be insulated from the ground. Usually the single-phase type of electric furnace is used. The most expedient surface configuration is a long rectangle. Attempts to construct a 3-phase furnace have been unsuccessful so far. The construction of an electric glass-melting furnace is much simpler than that of a flame-type; the electric furnaces are usually protected by a metal housing. Three types of electrodes are used; the wall type, the through type, and the semi-through type. The electrodes are made from a graphitized carbon or from high-melting metals. The latter require compressed-air cooling, which lowers their efficiency. With through-type electrodes, the temperature and current-density distribution over the glass melt is nonuniform because of different cooling conditions at various spots of

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the melt. Wall-type graphitized electrodes are the best. Thermal and electrical calculations of an electric glass-melting furnace are difficult, and in practice the required power is determined on the basis of the bath volume. The design methods for a single phase wall-electrode furnace suggested by the authors permit determining its fundamental parameters with sufficient accuracy, except for the calculated resistivity at various spots of the melt, which is associated with the distribution of working temperatures. Capacity per unit volume and energy consumption per ton of the glass produced are two most characteristic performance data.

V. P. Kh.

Card 4/4



AUTHORS: Afanas'yev, V.V., Uspenskiy, Yu.M., Vigdergauz, R.V., Zil'bershteyn, B.A., Engineers; Lur'ye, V.M., Candidate of Technical Sciences

110-58-5-23/25

TITLE: Concerning the Article "The Principles of Construction of a New Series of Current-transformers for Voltages up to 10 kv" (Po povodu stat'i "O printsipakh postroyeniya novykh seriy transformatorov takzha na napryazheniye do 10 kv") (and Authors' Reply)

PERIODICAL: Vestnik Elektropromyshlennosti, 1958, Vol 29, Nr 5, pp 71-77 (USSR).

ABSTRACT: This is a discussion by two separate contributors on an article by Engineer B.A. Zil'bershteyn (Gosplan RSFSR) and Candidate of Technical Sciences V.M. Lur'ye (NII EP), published in Vestnik Elektropromyshlennosti, 1956, Nr 10. The authors' reply is also given.

Contribution by Afanas'yev, Engineer

This contributor considers that the author has made a serious error in not recognizing that the one-second thermal stability that he quotes is based on a guaranteed current that is limited by short-circuit stress considerations. Accordingly, his Figure 2 is misconceived. His considerations should have been based on a current below the limiting value and of longer duration.

Contribution by Uspenskiy, Yu.M., Engineer and Vigdergauz, R.V., Engineer

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Concerning the Article "The Principles of Construction of a New Series of  
Current-transformers for Voltages up to 10 kV" 110-58-5-23/25

These authors welcome certain features of the article, particularly those in which new constructions are described. However, they consider that the authors have formulated the question of class of accuracy and load incorrectly. They consider that the authors' fears about an unsuitable current transformer causing damage to measuring instruments during short-circuit conditions are less important than they think. They consider that the authors are not providing sufficiently high overload capacity and do not agree that different current transformers are needed for measurement and protection. The article is also thought to present the question of current-transformer stability during short-circuit incorrectly and to confuse the matter of low- and high-voltage current transformers.

Authors' Reply

The reply is spirited. The authors show that in his own book, Afenas'yev supported their method, which he is now criticising. They hold to their views. They consider that since the article itself was directed against the excessive demands that designers sometimes make on current-transformers, it is not surprising

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Concerning the Article "The Principles of Construction of a New  
Series of Current-transformers for Voltages up to 10 kV" 110-58-5-23/25

that the article should have been attacked by two members of  
a large design organisation. The authors defend their  
position firmly on all the points under discussion.

ASSOCIATION: Zavod "Elektroapparat" , Lengiden , Gosplan RSFSR,  
MII EP

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ZIL'BERSHTEYN, B.A., inzh.; LUR'YE, V.M., kand. tekhn. nauk

Reply to V.V.Afanas'ev, I.U.M.Uspenski, R.V.Vigdergauz. Vest.  
elektrorem. 29 no. 5:74-77 My '58. (MIRA 11:7)

1. Gosplan RSFSR (for Zil'bershteyn). 2. Nauchno-issledovatel'skiy  
institut elektricheskoy promyshlennosti.  
(Electric transformers)

LUR'YE, V.M., kand.tekhn.nauk

Range expansion for switchboard-type ammeters. Elek.sta. 29 no.5:88-89  
My '58. (MIRA 12:3)

(Ammeter)

LUR'YE, V.M., kand.tekhn.nauk

Precision criteria of instrument current transformers.  
Vest. elektroprom. 33 no.5:36-41 My '62. (MIRA 15:5)  
(Electric transformers--Standards)  
(Electric measurements)

RUKHLIN, P.N., kand.tekhn.nauk; LUR'YE, V.S., inzh.

Equipment for and technology of electric slag welding and  
built-up bead welding of long joints. Svarka 1:201-214  
'58. (MIRA 12:8)  
(Electric welding--Equipment and supplies)

LUR'YE, V.S.

New design of charging-bucket cars. Biul.tekh.--ekon.inform.  
no.1:8-10 '60. (MIRA 13:5)  
" (Metallurgical plants--Equipment and supplies)



LUR'YE, V.S., ginekolog

Work record of a gynecological station. Zdrav. Bel. 7 no.6:12-13  
Je '61. (MIRA 15:2)

1. Iz kafedry akusherstva i ginekologii (zaveduyushchiy kafedroy -  
prof. I.M.Starovoytov) Minskogo meditsinskogo instituta na baze  
I klinicheskoy bol'nitsy (glavnyy vrach A.I. Shuba).  
(GYNECOLOGY)

URT'YEV, Viktor Petrovich; LUR'YE, Vitol'd Samar'yavich; ISAYEV,  
Al'bert Semenovich; ORLOV, Nikolay Il'ich; TSAR' LUKHIN, Petr  
Gavrilovich; SOKOLOV, A.N., red.; SHILLING, V.A., red.isd-va;  
BELOGUROVA, I.A., tekhn. red.

[Vacuum arc furnace] Dugovaya vakuumnaia pech'. Leningrad, 1962.  
25 p. (Leningradskii dom nauchno-tekhnicheskoi propagandy. Ob-  
men peredovym opytom. Seria: Liteinoe proizvodstvo, no.5)  
(MIRA 16:2)

(Electric furnaces) (Vacuum metallurgy)

BANKIN, V.A.; LUR'YE, Ya.I. (Leningrad)

Information bulletin of the Central Institute of Prosthetic Research  
of the Ministry of Public Health of the R.S.F.S.R." Reviewed by  
V.A. Bankin, I.A.I. Lur'e. Ortop., travm. i protez. 20 no.4:82-84  
Ap '59. (MIRA 13:4)

(ORTHOPEDIA)

LUR'YE, Ya. L.

Lur'ye, Ya. L. "On the problem of the nature of blood circulation during certain acute, subacute and chronic infectious processes in internal illness clinics," Trudy Kuybyshevsk. gos. med. in-ta, Vol, I, 1948, p. 70-80

SO: U-2888, Letopis Zhurnal'nykh Statey, No. 4, 1949

LUR'YE, Ya. I.

Cardiovascular system in anemia. Klin. med., Moskva 30 no.2:78-79  
Feb 1952. (GLML 22:1)

1. Candidate Medical Sciences. 2. Of the Clinic of Propedautic  
Therapy (Head -- Prof. V. A. Klimovitskiy), Kuybyshev Medical Institute.

102. Cardiovascular Changes in Brucellosis

"Changes in the Cardiovascular System in Brucellosis," by Ya. L. Lur'ye and Ye. P. Tarkhanova, Trudy Kuybishevskogo Meditsinskogo Instituta (Works of the Kuybishev Medical Institute), Vol 5, 1954, pp 296-303 (from Sovetskoye Meditsinskoye Referativnoye Obozreniye, No 20, 1956, p 54, abstracted by K. Gorbunova)

"Thirty-eight patients suffering from brucellosis, principally the chronic and subacute forms, were examined. All patients were subjected to detailed clinical and serological investigations. The Burnet test was positive in the majority of the patients. Analysis of the data obtained led to the conclusion that subjective disturbance of the cardiovascular system and physical heart disorders were observed in a considerable number of the patients. Upon electrocardiographic investigation, changes in the electrocardiogram which indicated diffuse dystrophic changes in the myocardium were evidenced in the majority of cases, and variations which reflected focal changes in the myocardium occurred in a number of cases. The blood flow rate was retarded somewhat which bore witness to reflected affection of vascular tonus. Capillaroscopic investigations which were conducted in a number of cases revealed pronounced disturbances in the peripheral blood circulation of brucellosis patients." (U)

LUR'YE, Ya.L., kand.med.nauk (Kuybyshev)

Higher nervous activity in rheumatism. Klin.med. 36 no.5:84-87  
My '58 (MIRA 11:7)

1. Iz kafedry propedevticheskoy terapii (zav. - prof. S.V. Shestakov)  
Kuybyshevskogo meditsinskogo instituta.

(RHEUMATISM, physiology,  
higher nerv. activity (Rus))  
(CENTRAL NERVOUS SYSTEM, physiology  
higher nerv. activity in rheum (Rus))

LUR'YE, Ya.L., kand.med.nauk

State of higher nervous activity in anemia. Trudy Kuib.med.inst.  
11:66-73 '60. (MIRA 15:8)

1. Iz kliniki propedevticheskoy terapii (zav. klinikoy prof. S.V.  
Shestakov) Kuybyshevskogo meditsinskogo instituta.  
(ANEMIA) (NERVOUS SYSTEM)



LUR'YE, Ya.S.

"Discovery of England" by the Russians at the beginning of the  
16th century. Geog.sbor. no.3:185-187 '54. (MLBA 7:11)  
(Russia--Foreign relations--Great Britain)

SHTEYNMAN, V.V.; LUR'YE, Ye.B.

Universal adjustment die for hole punching. Kuz.-shtam.proizv.  
5 no.3:45-47 Mr '63. (MIRA 16:4)

(Dies (Metalworking))

NOVIKOV, D.Z.; LUR'YE, Ye.B., nauchn. red.; MARKOV, L.A., red.;  
POLYANSKAYA, Z.P., tekhn. red.

[Standard automatic lines for the production of particle  
boards] Tipovye avtomaticheskie linii dlia proizvodstva  
struzhechnykh plit; obzor. Moskva, 1963. 59 p.  
(Seria III-78) (MIRA 17:1)

1. Tsentral'nyy institut nauchno-tekhnicheskoy informatsii  
po avtomatizatsii i mashinostroyeniyu.

5.3830

25272

S/190/61/003/007/016/021  
B101/B226

11.2210

AUTHORS: Kargin, V. V., Plate, N. A., Litvinov, I. A., Shibayev,  
V. P., Lur'ye, Ye. G.

TITLE: Processes of polymerization and grafting on newly formed  
surfaces of inorganic substances

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 3, no. 7, 1961,  
1091 - 1099

TEXT: In previous papers (Vysokomolek. soyed., 1, 339, 1959; *ibid.*, 1,  
1713, 1959), the authors had shown that polymerization of vinyl monomers  
can be initiated by an intensive mechanical dispersion of solid inorganic  
substances. The present paper studies this effect when dispersing  
metals, metal oxides, and ionic salts. Because in the hitherto used  
vibration mill grindings of iron balls had a disturbing effect upon the  
polymerization processes, three new grinding devices have been constructed  
(1) The monomer, the substance to be dispersed, and glass balls were  
filled into an ampul being fastened to the vibration mill. (2) The  
ampuls were fastened to the armature of an electromagnet which was fed

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Processes of polymerization ... 25272

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by a. c. (3) The ampuls were fastened to the coil of an electromagnetic 10-w loudspeaker. The use of vacuum and different temperatures was made possible by working with ampuls. Frequency was varied between 50 and 120 cps, the amplitude being 2-5 mm. Duration of dispersion amounted to 30 - 90 min. (A) Polymerization by means of  $Al_2O_3$  (corundum, energy of crystal lattice 3610 kcal/mole) or  $Cr_2O_3$  ( $E_{Cr_2O_3} = 4668$  kcal/mole) was

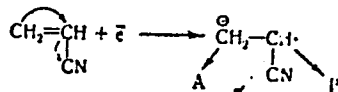
studied with styrene, methyl methacrylate, acrylonitrile, vinyl acetate, and some organic substances of the acetaldehyde type. Intensive dispersion of these oxides in the presence of styrene or methyl methacrylate led to rapid polymerization. In the case of methyl methacrylate, a polymer having a molecular weight of 25,000 was obtained. Vinyl acetate was not polymerizable. When dispersing corundum, acetaldehyde yielded, after 2 hr, 3 - 5 % polyacetaldehyde. Also in this case, the results were not different from those obtained by J. Furukawa et al. (see below) by means of  $Al_2O_3$  annealed at  $600^\circ C$ . Dispersion of corundum

in acetone under exclusion of air resulted, at room temperature, in small quantities of mesityl oxide and phorone. No high yields could be obtained, since the resultant  $H_2O$  is adsorbed on the surfaces of  $Al_2O_3$ .

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B101/B226

and the active centers are blocked. (B) Polymerization in the presence of Fe, Al, and Mg easily succeeded in acrylonitrile and methyl methacrylate between - 30 and + 50°C. The results did not differ from the data obtained earlier for styrene - SiO<sub>2</sub> and styrene - NaCl. Considering the polymerization mechanism of acrylonitrile, assumption is made that in the metal surface electrons are excited, which, at low work function (W<sub>Fe</sub> = 4.31 ev, W<sub>Al</sub> = 4.2 ev, W<sub>Mg</sub> = 2.74 ev) pass over to the monomer adsorbed on the metal surface, and release the reaction according to the following scheme:



A denotes the possibility of chain growth according to anionic mechanism, P according to radical mechanism. Besides, in the presence of Fe, complex formation of Fe with nitrile groups and formation of cyclic groups is assumed for acrylonitrile. Furthermore, account has to be taken of that the metals are covered by an oxide film. On the oxide film, a grafting of the resulting polymer could appear, and separation of the Me-O bonds during

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dispersion also could have an initiating effect. In the system Mg-methyl methacrylate, a highly swelling polymer was obtained, a metal-polymer gel, the lattice points of which consist of metal particles being bound to the polymethyl methacrylate by means of Me-O-C bonds. When treating these polymers with HCl, the molecular weight decreased (from 74,000 to 30,000 in the system with Al; from 250,000 to 160,000 in the system with Mg). Therefrom, conclusion is drawn that a hydrolysis of Me-O-C bonds had taken place. Attempts to polymerize styrene or methyl methacrylate by dispersing metallic Cr or W were unsuccessful. The too high work function of these metals is considered to be the cause of this fact. The capability of initiating polymerization thus does not depend on the absolute strength of interatomic bonds in the crystal, but on the capability of forming active centers of the electron donor- or radical type. (C) Polymerization by dispersion of salts (NaCl, KCl, CaF<sub>2</sub>) already took place at room temperature in methyl methacrylate, acrylonitrile, styrene, and α-methyl styrene. Assumption is made that also in this case initiation takes place by transferring an electron to the monomer. The electron might be set free by ionization- or crystal defects of the F-center type. Dispersion of TiCl<sub>3</sub> or BeCl<sub>2</sub> in the presence of styrene led to its rapid

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B:01/B226

polymerization, even at  $\sim 80^{\circ}\text{C}$ . These salts had no effect upon methyl methacrylate. In this case, the initiation of the polarizing effect of  $\text{Ti}^{3+}$  or  $\text{Be}^{2+}$  is reduced to the double bond of styrene tending toward cationic polymerization. In agreement with the experiment, monomers with electronegative substituents (methyl methacrylate) could not be polymerized. S. D. Levina, K. P. Lobanova, P. Yu. Butyagin, A. A. Berlin, K. S. Minsker and V. K. Bykhovskiy are mentioned. There are 3 figures and 21 references: 10 Soviet-bloc and 11 non-Soviet-bloc. The three most important references to English-language publications read as follows: J. Furukawa, T. Saegusa, T. Tsuruta, H. Fujii, T. Tataka, *J. Polymer Sci.*, 36, 546, 1959; H. Adkins, A. Krause, *J. Amer. Chem. Soc.*, 44, 389, 1922; M. Ueta, W. Kanzig, *Phys. Rev.*, 24, 1390, 1954; 21, 159, 1955.

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

SUBMITTED: November 19, 1960

Card 5/5



15810

S/191/62/000/009/006/012  
B101/B144

AUTHORS: Farberova, I. I., Ratner, S. B., Lur'ye, Ye. G., Gurman, I. M., Ignatova, T. A., Nosova, L. A.

TITLE: Effect of some factors of composition and manufacture on the wear of plastics

PERIODICAL: Plasticheskiye massy, no. 9, 1962, 35 - 38

TEXT: The results of wear tests on plastics using emery cloth (EC) and metal gauze (MG) are given. For MG wear tests and tests with smooth steel the equation  $v = v_1 P^{\alpha}$  holds mainly for the frictional wear while the EC test characterizes the purely abrasive wear. Data of wear ( $\text{mm}^2/\text{m}\cdot\text{cm}^2$  at  $5 \text{ kg/cm}^2$ ) at  $60^{\circ}\text{C}$  (first figure EC test, second figure MG test, third figure  $v$ ) for epoxy compounds with various fillers: ED-5 (ED-5) resin with dibutyl phthalate without filler: 48, 1.8, 3.5; with graphite: 70, 0.05, 1.8; with iron powder: 25, 0.05, 1.6. For polyvinylchloride plastics filled with asbestos, talcum or quartz an initial decrease of wear with increasing filler content is followed by an increase. The minimum of  
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√B

Effect of some factors of composition...

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B101/B144

wear is explained by the limit of compatibility between filler and polymer. For polyamides, a strong reduction of wear is already achieved with low filler addition. Data for polyamide 68 (first figure EC test, second figure MG test,  $\text{mm}^3/\text{m}\cdot\text{cm}^2$ ): without filler 0.61, 0.0025; with 5% talcum 0.64, 0.0006; with 20% talcum 0.73, 0.0014; with 40% talcum 1.10, 0.010; with 0.5%  $\text{MoS}_2$  0.91, 0.0003; with 5%  $\text{MoS}_2$  1.01, 0.0006. The MG test is much more sensitive than the EC test. The EC test shows the wear in polymers to be a linear function of the product of impact strength and hardness, whereas according to the MG test the wear is a linear function of the product of tensile strength and breaking elongation. There are 3 figures and 3 tables. The English-language reference is: ASTM Standards on Plastics, ASTM D1242, 56 (1957).

VB

Card 2/2

17.1104  
178500

41916

S/191/62/000/011/011/019  
B101/B186

AUTHORS: Lur'ye, Ye. G., Ratner, S. B.  
TITLE: The role of fatigue and destruction in abrasion of polymers  
PERIODICAL: Plasticheskiye massy, no. 11, 1962, 47-48

TEXT: The lower resistance to wear occasioned by fatigue of the upper polymer layer was studied. Unfilled rubber was first rubbed with a metal net, then covered with 10  $\mu$  thick terylene film and again rubbed for 20-30 hrs. The kinetics of abrasion was determined after removal of the protective film. Polymethyl methacrylate (PMMA) was fatigued by rubbing against a smooth steel surface, after which the abrasion was determined again. The results (Fig. 1) show that the upper layer of rubber fatigues to a depth of 0.1 mm that of PMMA down to about 0.01 mm. Similar results were obtained for rubber filled with carbon black. Multiple compression was much less effective, fatigue not occurring before 2 hrs. The mechano-chemical destruction of polymers is confirmed by the fact that the abraded crumbs had a lower intrinsic viscosity than the initial materials. For

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The role of fatigue and destruction ...

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B101/B186

PMMA and vinyl plastic, the decrease in intrinsic viscosity was greater in abrasion with metal net than with emery cloth. For polystyrene and polycarbonate, however, the decrease in intrinsic viscosity depended on the size of crumbs, and the intrinsic viscosity of crumbs abraded with fine emery cloth was lower than that of crumbs obtained with coarse emery cloth. Thus the degree of destruction depends not only on the fatigue but also on the degree of crushing. There are 2 figures and 1 table.

f

Fig. 1. Dependence of the rate of wear on the fatigue. (1) PMMA fatigued by sliding over smooth steel; (2) non-fatigued PMAA; (3) unfilled rubber fatigued by rubbing with metal net (with protective film); (4) unfilled rubber not fatigued. Ordinate: wear rate  $\cdot 10^{-6} \text{ min}^{-1}$ , left-hand scale for curves 1 and 2, right-hand scale for curves 3 and 4; abscissa:  $\tau$ , min, upper scale for curves 1 and 2, lower scale for curves 3 and 4.

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L 13367-63

EPF(c)/EPR/ENP(j)/BDS/EWT(m) AF:TC/ASD Pr-4/Ps-4/

Pc-4 RM/WW

ACCESSION NR: AP3003308

S/0192/63/000/007/0038/0042 70

AUTHORS: Ratner, S. B.; Farberova, I. I.; Radyukovich, O. V.; Lur'ye, Ye. G.TITLE: Interrelation of durability of plastics with other mechanical propertiesSOURCE: Plasticheskiye massy\*, no. 7, 1963, 38-42

TOPIC TAGS: durability of plastic, mechanical properties of plastic, plastics, elasticity, softening point

ABSTRACT: Analysis shows that the wear  $V$  is related to the mechanical properties of the plastics by the following qualitative relationship:

$$V \propto \frac{\mu}{H\sigma\epsilon}$$

where  $V$  is the reduction of volume or size per unit of friction travel. One of the important factors in this formula which characterizes the elasticity of the material during destruction is  $\epsilon$  which is the factor of rupturing elongation. The experiments show that an increase of  $\epsilon$  has a fundamental role in the increase of durability. In the examination of a large number of plastics the correlation between the expression  $H\sigma\epsilon/\mu$  and durability was noticed indeed. The main

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formula shows that the increase of temperature may result not only in the decrease of durability, but also in the increase of durability as a result of a sharp increase of  $\epsilon$  with an excessive compensating decrease of  $\sigma$ . The experiments in wear with plastic to metal samples at various temperatures showed the justification of the theoretical analysis. The temperature curve of the wear has 2 extremes which form a decreasing curve up to the softening point temperature. The increase of temperature in this region results in a sharp increase of durability. The increase of temperature practically does not affect the wear of the crystalline materials up to the polymer melting point and then shows a sharp decrease in durability. The sharp increase in wear during the softening of plastics is followed by a sharp change in friction. This friction increases for the amorphous materials as a result of their transformation into a highly elastic state and decreases for crystalline materials as a result of their melting. In both cases these sharp changes in the coefficient of friction can be used as a method of determination of the thermostability of materials under the conditions of wear. Orig. art. has: 1 table and 8 figures.

ASSOCIATION: none

SUBMITTED: 00

SUB CODE: MA

DATE ACQ: 30Jul63

NO REF SOV: 015

ENCL: 00

OTHER: 001

Card 2/2

L 23583-65 EWT(m)/EPF(c)/EPR/EWP(j) Pc-4/Pr-4/Ps-4 WK/RM

ACCESSION NR: AP4049383

Z/0009/64/000/011/0589/0594

AUTHOR: Ratner, S. B.; Farberova, I. I.; Lurje, Je. G. (Lur'ya, Ye. G.); Stinskas, A. V.

TITLE: Long term resistance of plastics to dynamic stress

SOURCE: Chemicky prumysl, no. 11, 1964, 589-594

TOPIC TAGS: wear resistance, fatigue strength, plastic durability, durability testing, plastic additive, abrasive strength

ABSTRACT: The authors have published several previous articles on this subject, mostly in Russian journals. The present article is therefore a general summary of their research. They point out that the resistance of plastics to mechanical wear and fatigue depends on the course of both mechanical and mechanical-chemical destructive processes. Abrasion and friction both cause wear. The tests described were carried out with abrasives and plastics in a way which was similar to wear as it occurs in practice, so that the experimental results can readily be applied to industrial conditions. The durability of plastics increases with hardness and duration of testing. Since fatigue also plays a role, additives are recommended to slow down the destructive processes, but no specific additives are discussed. Cooling during stress increases resistance to fatigue. During cyclic stress,

Card 1/2

L 23583-65

ACCESSION NR: AP4049383

partial recovery of the resistance to fatigue is often noted. Orig. art. has: 8 figures and 3 tables.

ASSOCIATION: NILPM, Moscow

SUBMITTED: 01Sep62

ENCL: 00

SUB CODE: MI

NO REF SOV: 016

OTHER: 001

Card 2/2



L 3564-66 EWT(d)/EWT(m)/EWP(w)/EWF(c)/EWP(j)/T EM/DJ/GS/RM  
ACCESSION NR: AT5022673 UR/0000/65/000/000/0156/0159

AUTHORS: Ratner, S. B.; Klitenik, G. S.; Lur'ye, Ye. G.

34  
30  
B41

TITLE: Wear of polymers as a process of fatigue damage

SOURCE: AN SSSR, Nauchnyy sovet po treniyu i smazkam. Teoriya treniya i iznosa (Theory of friction and wear). Moscow, Izd-vo Nauka, 1965, 156-159

TOPIC TAGS: polymer, polymer wear, polymer fatigue, rubber wear, polymer friction

ABSTRACT: The effects of contact pressure and friction on the fatigue wear of polymers (as opposed to abrasive wear) were investigated. Based on the fatigue theory, the wear I for the case of elastic contacts can be expressed as

$$I = c/c_0 \cdot E^{(1-\beta)-1} p^{1+\beta}$$

(I. V. Kragel'skiy and Ye. F. Nepomnyashchiy. Ob ustalostnom mekhanizme iznosa pri uprugom kontakte. Izv. AN SSSR, Mekhanika i mashinostroyeniye, 1963, No. 5) where  $\beta$  and C are characteristic of the surface roughness,  $t$  = constant characterizing the fatigue resistance of the rubber according to

$$n = \left(\frac{c_0}{c}\right)^t = \left(\frac{c_0}{k/p}\right)^t$$

L 3564-66

ACCESSION NR: AT5022673

4

(M. M. Reznikovskiy. Kauchuk i rezina. 1950, No. 9). Physically  $t$  has the meaning

$$t \approx 3 \lg n_{1/2}$$

(where  $n_{1/2}$  = number of cycles required to give half the polymer strength). The combined equations

$$I = I_0 p^\alpha;$$

$$\alpha = 1 + \beta t = 1 + 3 \lg n_{1/2}$$

were experimentally investigated, and it was found that  $\alpha > 1$  while  $\alpha = 1$  for abrasive wear. For 9 different polymers  $\alpha$  was found to vary linearly from 0.9-4.0 as  $t$  increased from 0-60. It was also found that small changes in  $f$  lead to large changes in wear (see first equation above) with wear decreasing more with  $f$  for larger values of  $\alpha$  (S. B. Ratner. Dokl. AN SSSR, 1963, 155, 848). Introduction of a lubricant results in increased wear, with  $I/I_{lub}$  almost linear with  $\alpha_{lub} - \alpha$ . Orig. art. has: 2 tables, 1 figure, and 6 formulas.

ASSOCIATION: Nauchnyy sovet po treniyu i smazkam, AN SSSR (Scientific Committee on Friction and Lubrication, AN SSSR)

44

SUBMITTED: 18 May 65

ENCL: 00

SUB CODE: MT

NO REF SOV: 005

OTHER: 000

oc

Card 2/2 mbr

L 18412-66: EWT(m)/EWP(j)/T/ETC(m)-6  
ACC NR: AP6003417

WW/DJ/RM  
SOURCE CODE: UR/0190/66/008/001/0088/0093

AUTHORS: Ratner, S. B.; Lur'ye, Ye. G.

79  
68

ORG: Scientific Research Institute for Plastics (Nauchno-issledovatel'skiy institut plasticheskikh mass)

B

TITLE: Relationship between wear<sup>6</sup> and thermochemical stability<sup>15</sup> of plastics

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 8, no. 1, 1966, 88-93

TOPIC TAGS: polymer, polymer structure, polymer rheology, physical chemistry, tensile strength, thermal fatigue, mechanical fatigue

ABSTRACT: The effect of a number of stabilizers on the wear and thermochemical stability of several polymers was determined to extend the investigation of the authors (Dokl. AN SSSR, 166, 151, 1966). The polymers studied were: polyamide<sup>15</sup> 68, high pressure polyethylene<sup>6</sup>, polyvinylchloride<sup>6</sup>, polycarbonate<sup>15</sup>, polystyrene<sup>15</sup>, polyformaldehyde, and polyamide AK-7. The experimental results are presented in graphs and tables (see Fig. 1). The experimental data were processed according to the equations of S. B. Ratner and G. S. Klitenik (Zavodsk. lab., 1959, No. 11, 1375). It is concluded that the wear stability of polymers may be

15  
15

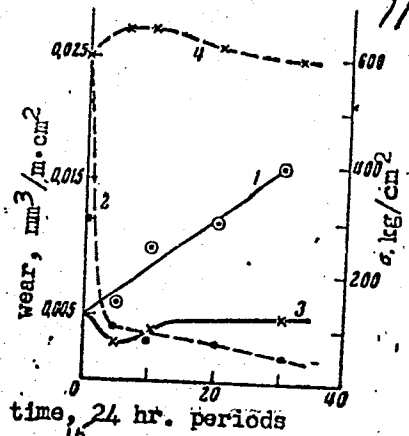
Card 1/2

UDC: 678.01:53+678.01:54

Z

L 18412-66  
ACC NR: AP6003417

Fig. 1. The effect of aging of poly-formaldehyde under the influence of UV-light (1,2) and heat (3,4) on the magnitude of wear (1,3) and tensile strength (2,4) (Stabilizer santovar 0).



increased by the introduction of suitable stabilizers. The authors thank M. S. Akutin, K. N. Vlasova, V. V. Gur'yanova, V. V. Kovrig, G. S. Klitenik, B. M. Kovarskaya, I. I. Levantovskaya, B. I. Pashenin, and P. M. Tanunina for specimens of polymers and for help received during experimental work. Orig. art. has: 3 tables, 1 graph, and 3 equations.

SUB CODE: 11, 09/ SUBM DATE: 16Feb65/ ORIG REF: 020

Card 2/2 *ju*

L 18911-66 ENT(m)/ENP(j)/T/ETC(m)-6 WW/DJ/RM

ACC NR: AP6008055

SOURCE CODE: UR/0020/66/166/004/0909/0912

AUTHOR: Ratner, S. B.; Lur'ye, Ye. G.

61  
54  
8

ORG: none

TITLE: Abrasion of <sup>4455</sup>polymers as a kinetic thermoactivation process

SOURCE: AN SSSR. Doklady, v. 166, no. 4, 1966, 909-912

TOPIC TAGS: polymer, material failure, mechanical fatigue

ABSTRACT: The wear of a <sup>16</sup>polymer is analyzed from the standpoint of the molecular-kinetic theory which treats failure not as a critical event but as a gradual process. The effect of temperature and load on the wear of elastic plastics (high-pressure polyethylene<sup>15</sup> and plasticized polyvinyl chloride<sup>15</sup> and polymethyl methacrylate)<sup>15</sup> is discussed. It is shown that fatigue abrasion occurs via a thermoactivation mechanism and that it is a multiple process in both its micro- and macroscopic aspects. Abrasive wear corresponds to a critical condition and consists of a single event in both aspects. The relationships arrived at permit one to treat wear from the standpoint of the fluctuational theory of failure, to establish the character-

UDC: 678.01 : 53

Card 1/2

2

L 18911-66

ACC NR: AP6008055

7

istics of wear as a complex form of failure, and to determine the characteristics of the mechanical behavior of polymers. The paper was presented by Academician V. A. Kargin 11 May 1965. The authors thank V. A. Kargin, L. A. Igonin, V. V. Kovrige, and Yu. M. Malinskiy for reviewing the results, and N. Ganul and S. Kovaleva for assistance in the experiments. Orig. art has: 4 figures, 3 formulas.

SUB CODE: 11, 20

SUBM DATE: 06May65/

ORIG REF: 013/

OTH REF: 000

Card 2/2 me

L 06231-67 EWT(m)/EWP(j) IJP(c) DJ/RM

ACC NR: AP6030659

SOURCE CODE: UR/0020/66/169/006/1370/1372

AUTHOR: Lur'ye, Ye. G.; Ratner, S. B.; Barshteyn, R. S.

ORG: State Scientific Research Institute of Plastics (Gosudarstvennyy nauchno-issledovatel'skiy institut plasticheskikh mass)

TITLE: The effect of the mechanism of plasticizing on the wear of polyvinyl chloride

SOURCE: AN SSSR. Doklady, v. 169, no. 6, 1966, 1370-1372

TOPIC TAGS: polyvinyl chloride, plasticizer, abrasion, chemical bonding

ABSTRACT: The purpose of this investigation was to determine the effect of the mechanism of plasticizing on the mechanical properties of polymers. Three systems were investigated: (a) polyvinyl chloride + 45% dioctylphthalate; (b) polyvinyl chloride + 25% dioctylphthalate; (c) polyvinyl chloride + 25% polyester plasticizer. The obtained polymers were subjected to abrasion on a disc grinder against a metal grid. The temperature during experiments varied within 20-100°C. Destruction of polymers during abrasion is described by the following equation:

$$I = I_0 \exp \left[ - \frac{U_0 - \lambda p_r}{RT} \right], \quad (1)$$

where  $I$  is the intensity of wear,  $p_r$  is the force per unit area of the specimen,  $U_0$  is

UDC: 541.68

Card 1/3

L 06231-67

ACC NR: AP6030659

the energy of activation for the breakage of bonds and  $I_0$  and  $\lambda$  are constants. The data obtained for the above three systems are shown in figure 1. It can be seen that

2

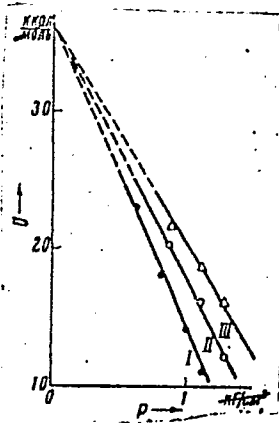


Fig. 1  
Effect of specific pressure  $p_r$  on the effective energy of  $U$ . I--polyvinyl chloride + 45% dioctylphthalate; II--polyvinyl chloride + 25% dioctyl-

$U$  is a linear function of  $p_r$ . The extrapolation of  $U-p_r$  curves for all polymers produces a single  $y$ -intercept, corresponding to  $U_0 = 36$  kcal/mol. This value is very close to the energy of activation for the breakage of the chemical bond during thermal destruction of polyvinyl chloride. Thus,  $U_0$  is determined strictly by the strength of the chemical bond and does not change with the change in the type of plasticizer, which affects only the magnitude and the distribution of intermolecular bonds in the polymer. The values of  $I$  are determined from the slope of  $U-p_r$  curves, and are different for each of the three considered systems. Increases in the amount of plasticizer increase  $\lambda$ . From equation (1),  $I$  approaches  $I_0$  as  $1/T$  approaches 0. The obtained data show, however, that  $I=I_0$  at some finite temperature. At these temperatures, polymers cease to exist as solids. The authors thank S. I. Kovaleva and V. G. Gorbunova for their help in carrying out the experiments. Presented by Academician V. A. Kargin on 16 December 1965. Orig. art. has: 2 figures.

Card 2/3



L 06231-67

ACC NR: AP6030659

phthalate; III--polyvinyl chloride + 25% polyester plasticizer.

SUB CODE: 07,11/      SUBM DATE: 09Dec65/      ORIG REF: 011/      OTH REF: 001

Card 3/3

*phh*

LUR'YE, YE. I., LINAYEVA, YE.A.

Antibiotics

Result of using albomycin in pneumonia in infants. Novosti med. no. 23, 1951.

9. Monthly List of Russian Accessions, Library of Congress, DECEMBER 1952 1953. Unclassified.

LUR'YE, Ye.I.; BORKOVAYA, V.I.

Industrial flow-system for the continuous rectification of synthetic fatty acids. Trudy VNIINeftekhim no.1:44-65 '60. (MIRA 14:1)

1. Lengiprogaz.

(Acids, Fatty)

(Distillation, Fractional)

LUR'YE, Ye.I.; SHISHLOVA, L.G.

Industrial flow-system for the continuous rectification of  
synthetic aliphatic alcohols. Trudy VNIINeftekhim no.1:66-83  
'60. (MIRA 14:1)

1. Lengiprogaz.  
(Alcohols)

(Distillation, Fractional)

SREDIN, V.V., inzh.; LUR'YE, Ye.I., inzh.

Production of synthetic fatty acids and aliphatic alcohols  
from liquid paraffins. Masl.-zhir. prom. 27 no. 2:22-25

'61.

(NIRA 14:2)

(Acids, Fatty) (Alcohols) (Paraffins)

IGONON, P.G., inzh.; SVITKIN, V.V., inzh.; MITROFANOV, M.G., kand.tekhn.nauk;  
SLEPTSOV, Yu.S., inzh.; KOLOZHVARI, A.A., inzh.; PASHENKO, M.A., inzh.;  
ZHIVOLUPOV, M.A., inzh.; Primalni uchastiye: MUSHENKO, D.V.;  
TSYSKOVSKIY, V.K.; SHCHEGLOVA, TS.N.; FREYDIN, B.G.; PYL'NIKOV, V.I.;  
LEVINA, M.I.; LEVIN, A.I.; LUR'YE, Ye.I.; BAYKINA, T.A.; UDOVENKO, S.A;  
MARCHENKO, T.A.

Effect of the method of liquid paraffin oxidizing on the yield and  
quality of the obtained fatty acids. Masl.-zhir.prom. 28 no.11:20-23  
N '62. (MIRA 15:12)

1. Groznenskiy nauchno-issledovatel'skiy neftyanoy institut (for Igonin, Svitkin, Mirtofanov, Sleptsov, Kolozhvari, Pashenko, Zhivolupov).
  2. Vsesoyuznyy nauchno-issledovatel'skiy institut neftekhimicheskikh protsessov (for Mushenko, Tsyskovskiy, Shcheglova, Freydin, Pyl'nikov, Levina, Levin).
  3. Lengiprogaz (for Lur'ye, Baykina).
  4. VNIISINZh (for Udovenko, Marchenko).
- (Paraffins) (Acids, Fatty)

GAFT, Ya.M.. kand.med.nauk; Prinimali uchastiye: BRANZBURG, N.A., vrach;  
GOL'TS, I.P., vrach; GORELIK, Ye.S.. vrach; ZVONKINA, O.M., vrach;  
LIVSHITS, R.I., vrach; LUR'YE, Ye.L., vrach; OZHE, N.B.; vrach;  
RYBAL'SKAYA, V.G., vrach; CHELNOKOVA, A.K., vrach; YAVORSKIY, A.V.,  
vrach

Dynamics of the tuberculous process in patients transferred to the  
third group of dispensary registration. Probl. tub. 38 no.3:3-8  
'60. (MIRA 14:5)

1. Iz protivotuberkuleznogo dispansera No.4 Moskv (glavnyy vrach -  
zasluzhennyy vrach RSFSR S.M.Zamukhovskiy).  
(TUBERCULOSIS)

L 36287-65 EPF(c)/EAP(j)/EWT(m)/T PC-H/Pr-H RM

ACCESSION NR: AR5003011

S/0081/64/000/020/S074/S074

21  
B

SOURCE: Ref. zh. Khimiya, Abs. 208437

AUTHOR: Lur'ye, Yu.; Karamysheva, L.

TITLE: Conference on methods for the analytical control of polymeric materials

CITED SOURCE: Vestn. tekhn. i ekon. inform. N.-1. in-t tekhn.-ekon. issled. Gos. kom-ta khim. prom-sti pri Gosplane SSSR, vyp. 3, 1964, 35-37

TOPIC TAGS: polymer chemistry, analytical chemistry, process control, polymer manufacture

TRANSLATION: The conference on methods for the analytical control of plastics, lacquers and dyes, synthetic fibers and rubber, held in November of 1963, heard 30 reports and communications. The conference noted that studies in the field of methods for the analytical control of polymeric materials have not yet received their ne-

15



lacquers and dyes, synthetic  
30 reports and communications. The conference noted that studies in the field  
of the analysis of synthetic polymeric materials have not yet received their ne-  
cessary development due to the absence of a coordinating scientific center, mass  
production of control and measuring devices and apparatus, and the training of the  
required specialists, as well as the unsatisfactory state of information and the

Card 1/2

L 38287-65

ACCESSION NR: AR5003011

exchange of experience in the area of contemporary analytical methods. The expansion of studies in the area of electrometric, optical and chromatographic methods of analysis in the scientific research institutes, the higher teaching institutions and industrial laboratories was considered to be essential. The need for the organization of scientific research institutes in the analytical chemistry of polymers, the publication of a journal called "Analytical chemistry of polymers",

"APPROVED FOR RELEASE: 03/13/2001

CIA-RDP86-00513R001030920005-1

and the introduction of sections on analytical chemistry into a number of existing journals was also pointed out, Z. Ivanova.

SUB CODE: MT, GC

ENCL: 00

Card

2/2 *MB*

APPROVED FOR RELEASE: 03/13/2001

CIA-RDP86-00513R001030920005-1"

L 10510-63

ACCESSION NR: AP3000196

S/0115/63/000/005/0044/0048

AUTHOR: Gertsenshteyn, M. Ye.; Lur'ye, Yu. A.; Smirnov, Yu. G. 45

TITLE: Measurement of sensitivity in regenerative circuits

SOURCE: Izmeritel'naya tekhnika, no. 5, 1963, 44-48

TOPIC TAGS: noise temperature, noise figure, receiver sensitivity, regenerative circuit

ABSTRACT: A variation of noise figure measurement at microwave frequencies is described which minimizes some of the usual difficulties, such as the need for high equipment stability during measurement and the problem of change in receiver gain caused by switching in of a noise source. A standard noise source, preferably a gas-discharge tube, and a standard reference signal generator are connected to the receiver in question via a directional coupler of at least 20-db directivity. The signal generator output is calibrated in accurate attenuation increments. Either AGC or a limiter-discriminator stage is added to the receiver, if not already built in, followed by a second detector, an LF amplifier and an output vacuum-tube voltmeter (VTVM). In operation, a reference signal is first applied to the receiver, giving a VTVM reading, then

Card 1/3

L 10510-63

ACCESSION NR: AP3000196

the noise source is switched in, raising the output reading. The meter reading is brought back to its initial level by raising the input reference signal amplitude, which by increased AGC bias reduces the amount of noise passed and maintains the output reference signal virtually constant. The resulting difference in reference signal attenuation settings  $M$  is used to calculate the noise figure  $F$  by the formula

$$F = Nu - 1 / M - 1$$

in db, where  $Nu$  is the ratio of noise source temperature to standard temperature. The accuracy of the method is determined by the resolution of the attenuator settings. It is shown that the output of the second detector, whether proportional to amplitude, phase, or frequency, is a direct function of signal-to-noise ratio, and that errors due to impedance mismatch or equipment instability are minimal. The method was verified experimentally using the variation of limited and frequency discriminator. Orig. art. has: 11 formulas and 3 figures.

Card 2/3

L 10510-63

ACCESSION NR: AP3000196

ASSOCIATION: none

SUBMITTED: 00

DATE ACQ: 12Jun63

ENCL: 00

SUB CODE: SD

NO REF SOV: 010

OTHER: 000

88/04  
Card 3/3

ACC NR: AP7000136

SOURCE CODE: UR/0115/66/000/011/0093/0094

AUTHOR: Lur'ye, Yu. A.; Rozanov, N. A.

ORG: none

TITLE: A set-up for measurement of varactor diode capacitances at liquid nitrogen and helium temperatures

SOURCE: Izmeritel'naya tekhnika, no. 11, 1966, 93-94

TOPIC TAGS: varactor diode, semiconductor diode, electric capacitance, electronic measurement

ABSTRACT: A method of measuring varactor diode capacitances at liquid nitrogen and helium temperatures using a capacitive-ohmic divider (see Fig. 1.) proposed by...

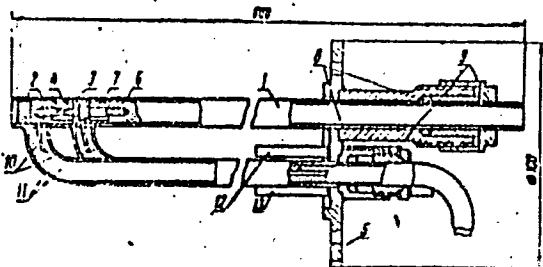


Fig. 1. Block diagram of circuit for measuring varactor diode capacitance.

1 - High-frequency oscillator with modulation; 2 - diode chamber; 3 - capacitive-ohmic divider; 4 - amplifier with an indicator; 5 - a constant d-c voltage supply.

Card 1/2

UDC: 621.317.335:621.382.222

ACC NR: AP7000136

V. A. Aranov is described. In order to avoid changes in resistance caused by low temperature of the components in the capacitive-ohmic divider, only the diode is cooled. The diode chamber is connected to the capacitive-ohmic divider with a matched-impedance coaxial cable half a wavelength long. It was shown that changes of  $\pm 30\%$  in the cable length did not effect measurements. Error due to the cable did not exceed 10% and could be significantly reduced. Measurements were made a frequency of 70 Mc. The above method can be used for measurements at high temperatures if a coaxial cable with a temperature-stable dielectric is used. Orig. art. has: 2 figures.

SUB CODE: 09/ SUBM DATE: 21Jul65/ ATD PRESS: 5107



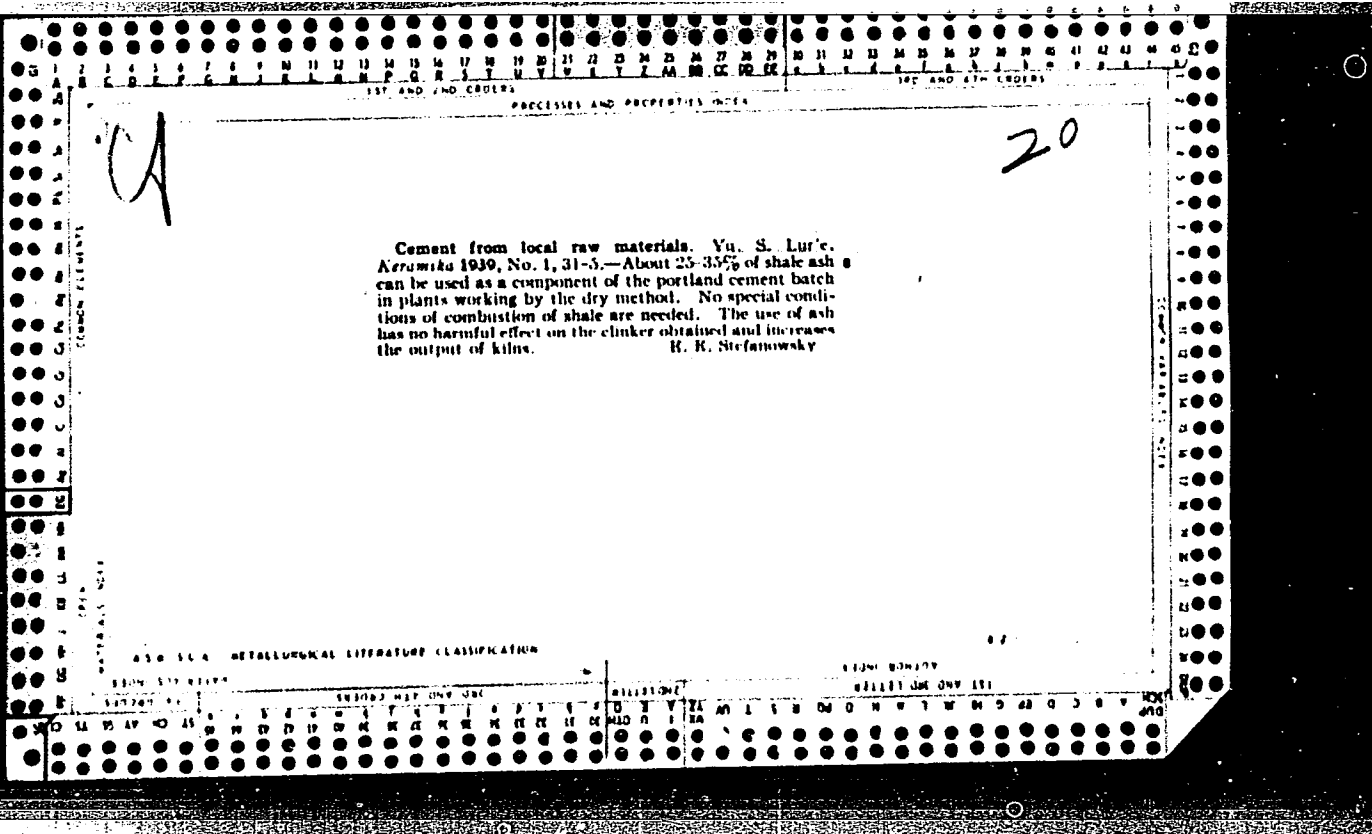
LUR'YE, Yu.G.

Case of acute leukemia in stomatological practice. Stomatolo-  
giia 43 no.1:88-89 Ja-F'64 (MIRA 17:4)

1. Stomatologicheskoye otdeleniye (zav. Z.D. Shufutinskiy)  
polikliniki No.32 (glavnyy vrach B.I.Opol'skiy), Moskva.









CA

20

Water cooling of the sintering zone of rotary kilns. Yu. S. Luz's. *Tsiment* 17, No. 4, 11-15(1961).—Tests were run on cooling the sintering zone by spraying water and by enclosing it in a water jacket. The results were compared with those of an unprotected kiln. The purpose was to det. the effect of cooling on the durability of the refractory lining (chrome magnesite). Water cooling greatly reduced the temp. of the kiln shell. It promoted the formation of a lining of fused material upon the refractory. In spraying, this lining was 80-100 and in the water jacket 100-110 mm. thick compared with 8-10 mm. without cooling. The fuel consumption per unit product was reduced by the cooling by approx. 10%. The water consumption for spraying was 300 and for jacketing 380 l./hr./sq.m. of cooled area.  
M. Hosen

1. KHCDORCV, YE. I.: LUR'YE, YU. S.: DOBE VOL'SKIY, A. YE.: GLADKOV, V. F.
2. USSR (600)
4. Kilns, Rotary; Cement Kilns
7. Further improvement on rotary kilns. Tsement, 18, No. 1, 1952.
9. Monthly List of Russian Accessions, Library of Congress, June 1952. Unclassified.

LUR'YE, YU.S.

Journal of the American  
Ceramic Society  
Vol. 47 No. 5  
May 1, 1954  
Cements, Limes, and Plasters.

*Reject*

*② make*

Cement plant with automatic process. YU. S. LUR'YE AND A. N. BOKOV. *Tsiment*, 16 [6] 4-8 (1953).—Methods of making all operations of a cement plant automatic are proposed for consideration by the industry. The entire technological process is broken down into unit operations of (1) grinding, (2) storage and adjustment of slurry, (3) preparation of coal and firing, and (4) grinding of clinker, packaging, and storage. The proposals cannot be carried out without the design of new grinders, pumps, and feeders not now in existence in the Soviet Union. Flow sheets are included. B.Z.K.



LUR'YE, Yu.S., kandidat tekhnicheskikh nauk; KONOVALOV, P.F., kandidat tekhnicheskikh nauk; LEVIN, N.I., kandidat tekhnicheskikh nauk.

Two-way feeding of rotary kilns with raw material mixture. TSement  
21 no.1:15-19 Ja '55. (MIRA 8:4)  
(Cement kilns)

LUR'YE, YU. S.

MT

✓ Rapid-hardening portland cement by controlling its grain size. Yu. S. Lur'e, N. P. Sitelert, and Yu. N. Ginzburg. Tsement 21, No. 3, 19-23 (1955).—It is possible to obtain rapid-hardening portland cement of 200 kg./sq. cm. in 24 hrs. by mixing cement of ordinary grain size with cement dust trapped in dust collectors. B. Z. Kamich

(2)

LUR'YE, YU. S.

Notes

✓ Increase of productivity of rotary cement kilas by use of industrial waste products. Yu. S. Luk'v. *Silikattech.*, 7 [10] 428-31 (1958).—Possibilities of increasing furnace capacity and reducing fuel consumption in the manufacture of Portland cement were investigated by using industrial waste products as the raw slurry; these waste products were obtained from alumina production, nepheline rocks (belite slurry), the coking of oil shale, and granulated blast furnace slags. Practical tests led to the following conclusions: When using acid granulated blast furnace slag in the wet process, the water content should be as low as possible to reduce the tendency of the slag to settle. Additions of sulfite waste liquor prevent the thickening of the slurry and assure good fluidity; the best addition is about 0.4% with a water content of 28%. An addition of 2% Portland cement was advantageous in increasing the grindability of the slurry. Compositions of the slurries, working conditions, and Russian practices are described. M. H. A. c |

LUR'YE, Yu. S.

Produktivitätssteigerung der Zementdrehöfen  
durch Verwendung von Industrieabfallprodukten

Silikat Technik, No 10, p 428, 1956

NIKULIN, K.V.; LUR'YE, Yu.S.

New technological equipment for cement mills. TSement 22  
no.2:4-11 Mr-Ap '56. (MLRA 9:9)  
(Cement industries--Equipment and supplies)

LUR'YE, YU. S.

USSR/General Topics, Methodology, History, Scientific  
Institutions and Conferences, Instruction, Problems  
Concerning Bibliography and Scientific Documentation.

A-1

- Abs Jour : Referat Zhur - Khimiya, No 1, 1958, 17.
- Author : Yu.S. Lur'ye.
- Inst : State Institute of Cement Industry.
- Title : "Giprotsement" Institute and Development of Cement Industry  
in USSR.
- Orig Pub : in symposium Stroit. materialy. L. Gos. izd-vo lit. po  
str-vu i arkhitekt., 1957, 153-159.
- Abstract : Abridged information concerning the fundamental work of  
the Institute in the field of the technology of the ce-  
ment industry since its foundation.

Card 1/1

LUR'YE Yu. S

AUTHOR: Lur'ye, Yu.S.

101-58-2-1/8

TITLE: On Methods of Producing Portland Cement Clinker  
(O sposobakh proizvodstva portlandtsementnogo klinkera)

PERIODICAL: Tsement, 1958, Nr 2, pp 1-9 (USSR)

ABSTRACT: In 1956, 70% of the world production of portland cement (230 million tons) was processed by the wet method. The use of the dry or wet method mainly depends on the resources and facilities of the respective plant. To handle the problem of stepping up cement production, as directed by the Supreme Soviet, over 30 new cement plants will have to be constructed in various parts of the USSR over the next 15 years and the most suitable production method will have to be chosen. The author points out the advantages and disadvantages of the wet and dry processing methods with respect to the consumption of electricity, fuel, man-power etc. The production costs for both methods are almost the same. Only the reserves of raw material decide the method to be applied. A combination of both technological processes is a promising method, which was experimentally used in the Thermotechnical Laboratory of Giprotsement in 1955/56. Experiments on a larger scale were conducted at

Card 1/2

On Methods of Producing Portland Cement Clinker

101-58-2-1/8

the Volkhovskiy alyuminiyevyy zavod (Volkhov Aluminum Plant) in a shop especially constructed for industrial testing of the combined method. Granulation of the raw material mixture prepared by the wet method is expected to be possible soon on a commercial scale.

There are 3 maps, 2 tables and 6 graphs.

AVAILABLE: Library of Congress

Card 2/2 1. Cement-Production



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(Cement plants) (Automatic control)

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(Portland cement)  
(Cement clinkers)

~~LUBITSKY, I.S.~~ Prinimali uchastiye: DRABKIN, G.S., inzh.; KOCHAEVA,  
Ye.V., inzh., OKOROKOV, S.D., dotsent, kand.tekhn.nauk, retsenzent,  
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[Rules for the technical operation of SN 103-60 cement plants] Pravila tekhnicheskoi ekspluatatsii tsementnykh zavodov SN 103-60. Moskva, Gos.izd-vo lit-ry po stroit., arkhit. i stroit. materialam, 1960. 354 p. (MIRA 14:6)

1. Russia(1923- U.S.S.R.) Gosudarstvennyi komitet po delam stroitel'stva.

(Cement plants)

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Present state of the cement industry and the techniques  
employed for its automation. Zhur. VKHO 5 no. 2:202-208  
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KACHANOVA, Ye.B.; KUDRYAVTSEV, A.S.; LUR'YE, Yu.S., kand. tekhn. nauk,  
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[Cement-production techniques in the United States] Tekhno-  
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Removal of chromium from plating plant waste water, using ion  
exchange. Ochs. stoch. vod. no.3:39-49 '62. (MIRA 16:5)  
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Electrochemical purification of plating plant waste water. Ozhis.  
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Analysis of waste waters of the sulfate pulp industry. Zav.lab.  
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kanalizatsii, gidrotekhnicheskikh sooruzheniy i inzhenernoy  
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(Woodpulp) (Sewage—Analysis)

PETROV, M.A.; LUR'YE, Yu.Yu.

Determination dithiophosphates in industrial waste waters. *Zav.lab.*  
29 no.4:416-418 '63. (MIRA 16:5)

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mekhanicheskoy obrabotki poleznykh iskopayemykh.  
(Sewage--Analysis) (Thiophosphates)

PROCESSES AND PROPERTIES INDEX

7

(P)

Method for the complete analysis of chrome iron ores.  
 Yu. Yu. Lur'e, *Zavodskaya Lab.* 1932, No. 3, 21-5;  
*Chem. Zvezd.* 1934, II, 3149. — The decompn. method is  
 based upon that of Cunningham and McNeill (cf. C. A. 23,  
 2702) a 0.5-g. sample in a porcelain or Pt crucible is  
 treated with 25 cc. H<sub>2</sub>SO<sub>4</sub> (1:1) and 5 cc. HClO<sub>4</sub> (d. 1.54)  
 and heated on the sand bath until persistent fumes of SO<sub>3</sub>  
 are evolved. After cooling, it is dild. with water, filtered,  
 the ppt. washed with dil. H<sub>2</sub>SO<sub>4</sub> and hot water, and ignited  
 in a Pt crucible. The SiO<sub>2</sub> contaminated with metallic  
 oxides is weighed. The SiO<sub>2</sub> content is the loss in wt. upon  
 treatment of the residue with H<sub>2</sub>SO<sub>4</sub> and HF. After the  
 removal of SiO<sub>2</sub> the residue is fused with K<sub>2</sub>SO<sub>4</sub>, dissolved  
 in H<sub>2</sub>SO<sub>4</sub>, added to the first filtrate, and Cr, Mn, Fe, Al,  
 Ca and Mg are detd. upon the combined solns.  
 W. A. Moore

METALLURGICAL LITERATURE CLASSIFICATION

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Determination of arsenic, antimony, tin and zinc in ores and alloys by titration with potassium iodate. Yu. Yu. Lva's. *Mineral. Sbir' 6*, 731-42(1932). The work is based on the methods of Andrews (*J. Am. Chem. Soc.* 25, 756(1903)) and Jamieson (*C. A.* 10, 1736; 12, 1033, 1534). Jamieson's method for detn. of Sn by reducing and alloys by titrating with  $KIO_3$  gives excellent results. The detn. of Sn by reducing to metal and subsequently titrating with  $KIO_3$  is unsatisfactory, while the method of reducing to  $SnCl_2$  and titrating the latter in a current of  $CO_2$  with  $KIO_3$  gives good results, but has no advantage over the method of titrating  $SnCl_2$  with  $I_2$ . The detn. of Zn by pptg. it as  $ZnHg(CNS)_2$  and weighing or titrating the ppt. gives in the absence of Fe excellent results, but in the presence of much Fe the preliminary reduction of Fe with  $SO_2$  (Jamieson) gives poor results. The following method gives excellent results. To an acid soln. of a mixt. of Zn and Fe are added 1-2 g. of tartaric acid and a few drops of  $KCNS$  soln., then a concd. soln. of  $Na_2CO_3$  is added drop by drop until the red color has changed to a lemon yellow; an addn. of a few drops of  $KCNS$  soln. should not cause a dark coloration of the liquid; then is added with stirring 15-20 cc. of the mixt. contg.

30 g. of  $NH_4CNS$  (or  $KCNS$ ) and 27 g. of  $HgCl_2$  in 1 l. of water; after 1 hr., the ppt. is filtered off and washed with water, and the  $HgZn(CNS)_2$  is weighed or titrated. The accuracy is  $\pm 0.0003$  g. of Zn in a mixt. of 0.0488 g. of Zn and 0.2 g. of Fe. C. B.

ASTM 3.1A METALLURGICAL LITERATURE CLASSIFICATION

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Rapid methods for the determination of vanadium in slags, ores and steel. Yu. Yu. Lur'e and V. M. Nekrasova. *Zenodichya Lab.* 1932, No. 879, 34-48; *Chem. Zentr.* 1934, II, 3293. — Tests with the methods of Hammer (cf. *C. A.* 11, 3000) and of Furman (cf. *C. A.* 10, 1233) showed that the 1st is suitable for ores, slags and metals which contain only slight amts. of Cr, while the 2nd may also be used in the presence of large amts. of Cr. The following method is recommended for the detn. of Cr and of V when they occur together: After both elements are brought into soln., 3 g.  $NH_4P$  and 3 drops of diphenylamine are added as indicator and the soln. is titrated with 0.1 N Mohr's salt soln., which reduces both Cr and V. The soln. is then boiled to decompose the indicator, cooled and 0.1 N  $KMnO_4$  added, which oxidizes only the V. The excess  $KMnO_4$  is decompd. by boiling with 1 drop HCl. After cooling the soln. is titrated again with  $FeSO_4$  soln. The last titration gives the V content, the difference the Cr.

W. A. Moore

ASB-51A METALLURGICAL LITERATURE CLASSIFICATION





