

KALLAY, K.

AGRICULTURE

PERIODICAL: MASYAR NEZOMAZDASAG. Vol. 10, no. 21, Nov. 1955

Kallay, K. Varieties of rice resistant to disease. p. 10.

Monthly list of East European Accessions (EEAI) LC. Vol. 3, no. 2,  
February 1959, Unclass.

TAKACS, L.; KALLAY, K.; NAGY, Z.; Technical assistance of: KARAI, A.;  
VAJDA, V.; ALBERT, K.

Pulmonary circulation in traumatic and ischaemic (tourniquet)  
shock. Acta physiol. hung. 20 no.1:71-76 '61.

1. 2nd Department of Medicine, Medical University, Budapest.  
(SHOCK physiology) (BLOOD CIRCULATION)

GOMORI, P.; KALLAY, K.; NAGY, Z.; SZABO, Z. Techn. assistance: VAJDA, V.;  
VERES, A.; KARAI, A.

The problem of the arterio-venous anastomoses in the kidney.  
II. Effect of human serum albumin and dihydralazine on the  
opening of renal shunts. Acta med. Acad. sci. Hung. 20 no.2:  
159-168 '64.

1. Second Department of Medicine (director: prof. P. Gomori)  
University Medical School, Budapest.

HUNGARY / General Problems of Pathology. Shock.

U-4

Abs Jour : Ref Zhur - Biol., No. 10, 1958, No. 46751

Author : Takacs, L.; Nagy, Z., Kallay, K.

Inst : Academy of Sciences People's Republic of Hungary.

Title : Pulmonary Circulation in Shock. A Preliminary Report.

Orig Pub : Acta Physiol. Acad. sci. hung., 1957, 11, No. 2, 233-234.

Abstract : A shock was produced in dogs by 200-300 blows with a hammer applied to their hind legs. The medial volume per minute fell to 39 percent of the initial magnitude, and the pressure of the carotid artery fell to 47 percent. The pressure in the pulmonary artery, however, fell to 91 percent only. Accordingly, the vessel resistance of the greater circulatory system increased only slightly, while its rise in the lesser system amounted to about 200 percent.

Card 1/1

GOMORI, Pal, dr.; KALLAY, Kalman, dr.

Hemodynamics and pathogenesis of collapse and shock. Orv. hetil.  
95 no.48:1305-1313 28 Nov 54.

1. A Budapesti Orvostudományi Egyetem III. sz. Belklinikájának  
(igazgató: Gomori, Pal, dr.) közleménye.

(SHOCK

hemodynamics & pathogen.)

(CARDIOVASCULAR SYSTEM

collapse, hemodynamics & pathogen.)

KALLAY, K.

✓ 4036. Role of the spleen in the haemoconcentration occurring with histamine. K. Kallay and W. Wiltner *Acta physiol. Acad. Sci. Hung.*, 1955, 8, 355-357 (3rd Dept. of Med., Med. Univ., Budapest, Hungary).—R.b.c. counts and haematocrit determinations were carried out in 15 splenectomized and 14 normal dogs before and after histamine injections causing shock. Haemoconcentration took place in both groups and is therefore not due to splenic contractions.

A. B. L. BREKID

GOMORI, Pal; TAKACS, Lajos; KALLAY, Kalman; DUDAS, Ginella; BOHANSZKY, Ferenc; HACKER, Peter

Effects of isolated cerebral anoxia on pulmonary circulation. Magy. Tudom. Akad. Biol. Orv. Oszt. Kozl. 8 no.3:269-275 1957.

1. A Budapesti Orvostudományi Egyetem III. sz. Belklinikája.

(CEREBRAL ANOXIA, exper.)

eff. of arterial anoxia on pulm. circ. in dogs (Hun))

(BLOOD CIRCULATION

pulm. eff. of exper. cerebral arterial anoxia in dogs (Hun))

KALLAY, Ferenc  
GOMORI, Pal; TAKACS, Lajos; KALLAY, Kalman; BOHANSZKY, Ferenc; VECSEY, Geza;  
KARAI, Antal

Effects of isolated cerebral anoxia on the mass of the spleen. Magy.  
Tudom. Akad. Biol. Orv. Oszt. Kozl. 8 no.3:277-279 1957.

1. Budapesti Orvostudományi Egyetem III. sz. Belklinikája.  
(CEREBRAL ANOXIA, exper.  
eff. of arterial anoxia on mass of spleen in  
dogs (Hun))  
(SPLEEN, physiol.  
eff. of exper. cerebral arterial anoxia on mass  
in dogs (Hun))



KALLAY, KALMAN

TAKACS, LAJOS; KALLAY KALMAN

Changes in renal circulation in exsiccosis, *Magy. belorv. arch*, 10  
no.2-3:71-74 Apr-June 57.

1. Budapesti Orvostudományi Egyetem III. sz Belklinikája. Igazgató:  
Gomori Pal dr. egyetemi tanár.

(DEHYDRATION, exper.

eff. on renal circ. in dogs (Hun))

(KIDNEYS, blood supply

eff. of exper. dehydration on circ. in dogs (Hun))

TAKACS, Iajos; KALLAY, Kalman

Renal circulation in traumatic shock. Magy. belorv. arch. 10 no.4:  
120-123 Aug 57.

1. Budapesti Orvostudományi Egyetem III. sz. Belklinika (Igazgató:  
dr Gomori Pal egyetemi tanár).

(KIDNEYS, blood supply  
circ. in traumatic shock in dogs (Hun))

(SHOCK, exper.  
renal circ. in traumatic shock in dogs (Hun))

KALLAY, K.

TAKACS, L.; KALLAY, K with the technical assistance of Mrs. F. Bohanszky,  
Mrs. D. Vajda, Mrs. G. Vecsey, A. Karai

Renal circulation in traumatic shock. Acta physiol. hung. 12 no.4:  
373-377 1957.

1. 3rd Department of Medicine, Medical University, Budapest.

(SHOCK, exper.

eff. on renal circ. in dogs)

(KIDNEYS, blood supply

eff. of exper. shock on renal circ. in dogs)

TAKACS, L.; KALIAY, K.; SKOLNIK, J.

Studies on the renal, cardiac and skin fraction of cardiac output in rats with  $^{86}\text{Rb}$  in ischemic shock and hemorrhage. Acta med. hung. 14 no. 4: 457-458 '59.

1. 2nd Department of Medicine, University, Budapest.  
(HEMORRHAGE exper.)  
(SHOCK exper.)  
(HEART physiol.)  
(KIDNEY physiol.)  
(SKIN physiol.)

GOMORI, Pal; MUNKACSI, Istvan; NAGY, Zoltan; TAKACS, Lajos; KALLAY, Kalman;  
Technikai munkatársak: VAJDA, Vera; CSAPO, Istvan; TAKACS, Lajos

Significance of the arteriovenose anastomoses of the kidney in  
haemorrhagic hypotonia in traumatic and ischemic shock, and in  
arterial hypoxia. Biol orv kozl MTA 11 no.1:41-60. (EEAI 10:1)

1. L. tab, Magyar Tudomanyos Akademia (for Gomori) . 2. A Budapesti  
Orvostudomanyi Egyetem II. sz. Belklinikaja es Anatomicai Intezete.  
(KIDNEYS) (ARTERIES)

GOMORI,P.; TAKACS,L.; KALLAY,K.

The effect of isolated cephalic (cerebral) hypoxia and hypotension on pulmonary circulation and spleen volume. Acta med. hung.16 no.1: 75-83 '60.

1. 3rd Department of Medicine (Director: P.Gomori), University Medical School, Budapest.

(CEREBRAL ANOXIA exper)

(INTRACRANIAL PRESSURE)

(LUNGS blood supply)

(SPLEEN blood supply)

KALLAY, Kalman, dr.

Pathological significance of the regulation of pulmonary circulation. Orv. hetil 101 no.17:583-588 24 Ap '60.

1. Budapesti Orvostudományi Egyetem II. sz. Belklinika.  
(LUNGS blood supply)

KALLAY, Kalman; TAKACS, Lajos; NAGY, Zoltan; Technikai munkatársak: Vajda  
Dezső, Karai Antal, Albert Karola

Pulmonary circulation in the states of oligoemia (in bleeding, hemor-  
rhagic, traumatic and ischemic shock and exsiccosis). Biol orv kozl  
MTA 12 no.1/2:127-139 '61.

1. Budapesti Orvostudományi Egyetem II.sz.Belklinikája.

+



TAKACS, Lajos, az orvostudományok kandidátusa; KALLAY, Kálmán; SKOLNIK, Józsa;  
Technikai munkatársak: Vajda Dezső, Turcsányi Sándor, Albert Karola,  
Karái Antal

Effect of ischemic shock and acute bleeding on the blood circulation  
in the rat's organs. Biol orv kozl MTA 12 no.1/2:149-155 '61.

1. Budapesti Orvostudományi Egyetem II.sz.Belklinika.

KALLAY, K.; TAKACS, L.; with the technical assistance of V. Vajda,  
A. Turesanyi, K. Albert and A. Karai

Organ blood flow in unanaesthetized rats and in rats anaesthetized  
with pentobarbital, urethane and chloralose. Acta physiol. hung. 18  
no.4:323-328 '61.

1. Department of Medicine No.2., Medical University, Budapest.

(BLOOD CIRCULATION pharmacol)  
(HYPNOTICS AND SEDATIVES pharmacol)  
(URETHANE pharmacol)  
(PENTOBARBITAL pharmacol)

KALLAY, K.; TAKACS, L.; FENYVESI, T.; with the technical assistance of  
V. Vajda and A. Karai

The effect of epinephrine and nor-epinephrine on pulmonary and systemic circulation in the dog, before and after extirpation of the thoracic spinal cord. *Acta physiol. hung.* 18 no.4:329-336 '61.

1. Department of Medicine No.2, Medical University, Budapest.

(EPINEPHRINE pharmacol)  
(NOREPINEPHRINE pharmacol)  
(BLOOD CIRCULATION pharmacol)  
(SPINAL CORD physiol)

KALLAY, Kalman (Budapest VIII., Szentkiralyi u.46); TAKACS, Kajos (Budapest VIII., Szentkiralyi u.46); NAGY, Zoltan (Budapest VIII., Szentkiralyi u.46) With the technical assistance of V. Vajda, A. Karai, K. Albert.

Pulmonary circulation in haemorrhage and haemorrhagic shock. Acta  
physiol Hung 20 no.2:155-164 '61.

1. 2nd Department of Medicine, Medical University, Budapest.

+

TAKACS, Lajos, dr.; KALLAY, Kalman, dr.; GOMORI, Pal, dr., technikai munkatársak: VAJDA, V.; KUKUCSKA, J.; ALBERT, K.

Effect of synthetic angiotensin on the redistribution of circulating blood in rats. Orv. hetil. 102 no.48:2272-2275 26 N '61.

1. Budapesti Orvostudományi Egyetem, II Belklinika.

(BLOOD CIRCULATION pharmacol)  
(HYPERTENSIN pharmacol)

TAKACS, L.; KALLAY, K.; with the technical assistance of VAJDA, V.;  
KARAI, A.; ALBERT, K.

Pulmonary circulation in dehydration. Acta med.hung. 17 no.1:53-  
56 '61.

1. Department of Medicine No.2, University Medical School, Budapest  
(director: prof. P.Gomori).  
(DEHYDRATION exper.) (LUNG blood supply)

KALLAY, K.; TAKACS, L.; NAGY, Z.; with the technical assistance of: VAJDA, V.;  
KARAI, A.; ALBERT, K.

Pulmonary circulation in haemorrhage and haemorrhagic shock. Acta  
Physiol. Acad. Sci. Hung. 20 no.2:155-164 '61.

1. 2nd Department of Medicine, Medical University, Budapest.

(BLOOD CIRCULATION) (SHOCK exper)  
(HEMORRHAGE exper)

KALLAY, K.; TAKACS, L.; with the technical assistance of VAJDA, Vera; KARAI, A.

Effect of the irritation of the bronchial mucosa on pulmonary and systemic circulation. I. Description of the phenomenon. Acta med. acad. sci. Hung. 18 no.1:35-40 '62.

1. Second Department of Medicine (Director: P. Gomori), University Medical School, Budapest.

(BRONCHI physiol) (VASOMOTOR SYSTEM physiol)



TAKACS, L.; KALLAY, K.; KEREKES, E.; with the technical assistance of:  
KARAI, A.; VAJDA, Vera

Effect of the irritation of the bronchial mucosa on pulmonary and systemic circulation. II. Experiments on the underlying mechanism. Acta med. acad. sci. Hung. 18 no.1:41-47 '62.

1. Second Department of Medicine (Director: P. Gemori), University Medical School, Budapest.

(BRONCHI physiol) (VASOMOTOR SYSTEM physiol)

TAKACS, L.; KALLAY, K.; VAJDA, Vera; with the technical assistance of ALBERT, K.;  
KARAI, A.

The effect of acute arterial hypoxia on the organ blood flow in rats.  
Acta physiol. akad. sci. hung. 21 no.1:87-91 '62.

1. II Department of Medicine, Medical University, Budapest.

(BLOOD CIRCULATION) (ANOXIA experimental)

GOMORI, P.; MUNKACSI, S.; NAGY, Z.; TAKACS, L.; KALLAY, K.

Ischaemia and arteriovenous anastomoses of the kidney in shock, haemorrhage, dehydration and arterial hypoxia in dogs. Acta med. acad. sci. Hung. 18 no.1:119-125 '62.

1. Second Department of Medicine (Director prof. P. Gomori) and Institute of Anatomy (Director prof. F. Kiss), University Medical School, Budapest.

(KIDNEYS blood supply) (HEMORRHAGE exper)  
(DEHYDRATION exper) (ANOXIA exper)  
(SHOCK exper)

TAKACS, Eajos; KALLAY, Kalman, dr.

Studies on circulation with Rb-86. Magy. radiol. 14 no.4:223-226 J1 '62.

1. Budapesti Orvostudományi Egyetem II. sz. Belklinika közleménye.  
(Igazgató: Gomori Pál dr., egyetemi tanár).  
(RUBIDIUM radioactive) (BLOOD CIRCULATION physiol)

KALLAY, K.; TAKACS; L.; KEREKES, E.; with the technical assistance of VAJDA, Vera; ALBERT, Karola; KARAI, A.

Effect of the irradiation of the bronchial mucosa on the pulmonary and systemic circulation. III. Analysis of the mechanism. Acta med. Hung. 18 no.2:175-187 '62.

1. Second Department of Medicine (Director: Prof. G. Gomori). University Medical School, Budapest.

(BRONCHI radiation effects)  
(BLOOD CIRCULATION radiation effects)

HUNGARY

TEKACS, Lejos, and KALLAY, Kalman, of the Second Department for Medicine at the Medical University (Orvostudományi Egyetem II. sz. Belklinika) in Budapest.

"Effect of Carbon Dioxide Inhalation on the Circulation of the Anesthetized Rat"

Budapest, Acta Physiologica Academiae Scientiarum Hungaricae, Vol 23, No 1, 1963, pp. 13-19.

Abstract: [English article; authors' English summary] By using the isotope fractionation method it has been shown that in rats anesthetized with sodium pentobarbital the inhalation of 3% carbon dioxide from 4 to 10 minutes had no influence on the circulation. In response to 20% carbon dioxide in 4-6 minutes so severe a peripheral vasodilatation developed that blood pressure decreased in spite of the increased cardiac output. The vasodilatation was most marked in the liver and intestines (splanchnic area) and least marked in the kidney

1/2

**TAKACS, L.; KALLAY, K.;** with the technical assistance of ALBERT, K.; VAJDA, V.

Effect of carbon dioxide inhalation on the circulation of the anaesthetized rat. Acta physiol. acad. sci. hung. 23 no.1:13-19 '63.

1. Second Department of Medicine, Medical University, Budapest.  
(CARBON DIOXIDE) (BLOOD CIRCULATION)

GOMORI, P.; KOVACH, A.G.B.; TAKACS, I.; FOLDI, M.; SZABO, Gy.; NAGY, Z.;  
WILTNER, W.; KALLAY, K.

The regulation of cardiac output in hypoxia. Acta med. hung. 16  
no.1:93-98 '60.

1. 3rd Department of Medicine (Director: P.Gomori), Institute of  
Physiology (Director: P.Balint), and 1st Department of Medicine  
(Director: I.Rusznayk), University Medical School, Budapest.  
(ANOXIA exper)  
(HEART physiol)



TAKACS, I.; KALLAY, K.; KARAI, A.

Methodological remarks on Hapirstein's isotope indicator fractionation technique. Acta physiol. Acad. sci. Hung. 25 no.4: 389-398 '64

I. Second Department of Medicine, University Medical School, Budapest.

KALLAY, L.; KRALOVANSZKY, P.; PAL, M.

"Hungarian Products Containing Cobalamine for Feeding Hogs and Poultry",  
P. 206, (ELEMZESI IPAR, Vol. 8, No. 7, July 1954, Budapest, Hungary)

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 3, No. 12,  
Dec. 1954, Uncl.

KALAY, L.

Streptomycin resistance of *Serratia marcescens*

I. 319 (ACTA MICROBIOLOGICA) Vol. 4, no. 3, 1957, in English  
Budapest, Hungary

SO: Monthly Index of East European Accessions (IEAE) LC. Vol. 7, no. 3  
March 1958

KALLAY, V.

Machine-tractor stations are helping private farmers. p. 106.  
MECHANISACE ZEMEDELSTVI. Vol. 5, No. 6, Mar. 1955

SO: Monthly East European Accession, (EEAL), LC, Vol. 4, No. 9, Sept. 1955 Uncl.

KALLAY, V.

"Helping collective farms in the preparation of yearly production plans."

MECHANISACE ZEMEDELSTVI, Praha, Czechoslovakia, Vol. 5, No. 21, November 1955.

Monthly List of East European Accessions (EEAI), LC, Vol. 8, No. 9, September 1959.

Unclassified.

KALLAY, V.

KALLAY, V. Future prospects of planting in checkrows. p. 110; New machine for scalding potatoes: success of Slovak workers. p. 113.

Vol. 6, no. 6, Mar. 1956  
MACHANISACE ZEMĚDELSTVI  
AGRICULTURE  
Czechoslovakia

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

KUNOS, Istvan, dr.; KALLDOR, György, dr.

Significance of ECG in the diagnosis of mitral stenosis and in the evaluation of its surgery. Orv. hetil. 97 no.5:118-121  
29 Jan 56.

1. A Budapesti Orvostudományi Egyetem Seveszt. Klin. (igas. Littman Imre dr. egyet. tanar) kosl.

(MITRAL STENOSIS

ECG in diag. & evaluation of results of commissurotomy.  
(Hun))

(ELECTROCARDIOGRAPHY, in various dis.  
mitral stenosis, diag. & evaluation of results of  
commissurotomy. (Hun))

*KALLEE, E*  
MIHALY, Foldi, Dr.; KALLEE, Ekehard, Dr.

Radioautographic examination of the lymphatic vessels of the thyroid gland. Orv. hetil. 98 no.37:1019 15 Sept 57.

1. A Magyar Tudományos Akademia Kiserleti Orvostudományi Kutató Intézet  
Korleltani Osztálya és a Tübingeni Belgyógyászati Klinika közleménye,

(LYMPHATIC VESSELS, radiography  
thyroid, radioautography in rabbits (Hun))  
(THYROID GLAND, radiography  
lymphatic vessels, radioautography in rabbits (Hun))  
(RADIOAUTOGRAPHY  
of lymphatic vessels in rabbit thyroid (Hun))



KALLEMAA, K. (UR2BU), master radiooperator

UR2-UAI on 144 mc. Radio no.2:16 F '62.  
(Radio operators)

(MIRA 15:1)

KALLEMAA, K. (UR2BU)

Tropospheric passage of radio waves with 144 mc. frequency.  
Radio no.3:28-29 Mr '63. (MIRA 16:2)  
(Radio, Shortwave) (Radio operators)  
(Amateur radio stations)

KALLEMAA, K. (UR2BU)

Ultrashort radio waves. Radio no.12:16 D '64.

(MIRA 18:3)

ZHMOV, Yu. (UA3FG); TISHCHENKO, M. (UB5ACH); KALLEMAA, K. (UR2EU)

Short and ultrashort radio waves. Radio no.4:16-17 Ap '65.  
(MIRA 18:5)

KALLENBRUN, Jerzy, inż. (Lodz)

Quality contest of geodetic works in the Voivodship Office  
of Geodesy and Development of Agricultural Territories in  
Lodz. Przegl geod 35 no.7:310 JI'63.

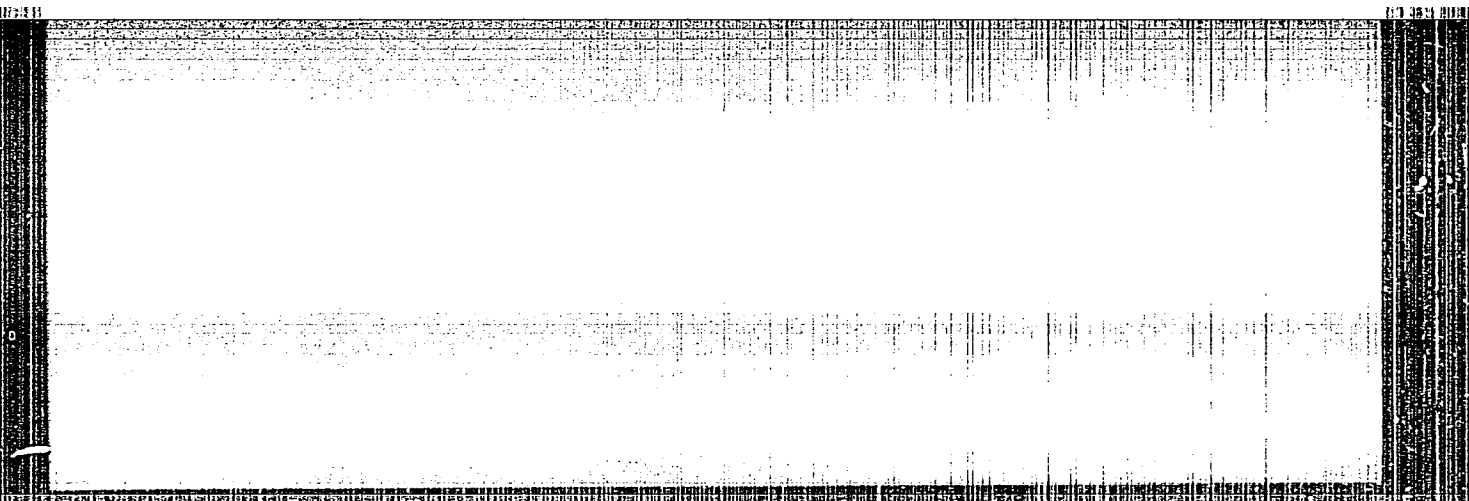
KALLER, A.

"Economic results and prospects of glass and ceramic industries in 1959."  
P. 144.

SKLAR A KERAMIK. (Ministerstvo lehkeho prumyslu). Praha, Czechoslovakia,  
Vol. 9, No. 5, May 1959.

Monthly list of East European Accessions (EEAI), LC, Vol. 8, No. 8,  
August 1959.  
Uncla.

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**APPROVED FOR RELEASE: 08/10/2001      CIA-RDP86-00513R000620120016-3"**

RODZEVICH, V.I.; KALLER, I.B.

Studying the composition of sugars in grain and potato molasses beer  
by paper chromatography. Trudy TSNIISP no.6:172-179 '58.  
(MIRA 14:12)

(Paper chromatography) (Sugars)



ROKHLYADEVA, A.P.; KALIBR, I.B.; SEMEVSKEYA, V.Ye.

Alcohol vapor content in the air of distillery production shops.  
Trudy TSNIISP no.7:57-62 '59. (MIRA 13:9)  
(Air--Analysis) (Alcohol)

RODZEVICH, V.I.; KALLER, I.B.

Testing new *Aspergillus niger* strain S - 10-10-3 under different  
conditions. Trudy TSNIISP no. 8:23-25 '59. (MIRA 14:1)  
(*Aspergillus niger*)

S/183/60/000/02/19/025  
B004/B005

AUTHOR: Kaller, L. G.

TITLE: Work Done by the KEM

PERIODICAL: Khimicheskiye volokna, 1960, No. 2, pp. 57 - 60

TEXT: This is a report on the working program of the Kiyevskiy eksperimental'nyye masterskiye (Kiyev Experimental Workshops). In cooperation with the VNIIV (All-Union Scientific Research Institute of Synthetic Fibers) and the GIPROIV (State Institute for the Design and Planning of Synthetic Fiber Industry Establishments), the construction of spinning frame of the type PNSh-180-I2 (Figs. 1,2) for continuous production of viscose rayon with number 60-150 is being developed. This frame is to replace the spinning frames, finishers, driers, and twisting frames hitherto used. A table compares the efficiency of the PNSh-180-I2 with the machines of the type Nelson and PTs-250-I. The unit of the type ANPK-2 (Fig. 3) for continuous polymerization of caprolactam is being developed in cooperation with the Kiyevskiy kombinat iskusstvennogo volokna (Kiyev Kombinat of Synthetic Fibers). There are 3 figures and 1 table.

ASSOCIATION: Kiyevskiy eksperimental'nyye masterskiye (Kiyev Experimental Workshops)

Card 1/1

KALLER, Ludovic, prof. (Lipova)

Physics circles. Gaz mat B 14 no.12:722-723 D '63.

MONIN, Docent A. F.; KALLER, Docent M. YA.

MONIN, Docent A. F.; KALLER, Docent. M YA.

Railroads - Electric Equipment

Determining the parameters of transmission lines with relays connected in parallel in a centralized dispatching system with tonal frequencies. Sbor. nauch. rab. LETIIS, No. 3, 1949.

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

KALLER, M. YA., Docent.

KALLER, M. YA., Docent.

Electric Lines

Application of the four-pole theory in calculating and modeling a line with longitudinal asymmetry. Sbor. mauch. rab. LETIIS No. 3, 1949.

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

KALLER, M. YA.

27714. IMYANITOV, I. M. — Pribory dlya izmereniya napryazhennosti elektricheskogo pol'ya i ikh prime-neniye. Zhurnal tekhn. Fiziki 1949, vyp c, S. 1020-31. — Bibliogr: 11 Nazv. KALLER, M. YA. Primeneniye teorii chetyrskhpolyusnika k raschetu i modelirovaniyu liniy s prodol'noy asimetriyey. — Sm. 27870.

RAMLAU, P. N. Priblizhennoe vychisleniye formy toka v kontse Li Wii. — Sm. 27876.

SO: Letopis' Zhurnal'nykh Statey, Vol 37, 1949

KALLER, M.Ya., dots., kand. tekhn. nauk.

Applying Fourier transforms in analyzing temporary multiplex  
transmissions. Sbor. nauch. trud. LETIIZHT no.5:152-158 '53.  
(Transformations (Mathematics)) (MIRA 11:3)  
(Railroads--Communication systems)



KALLER, M. Ya., dotsent, kandidat tekhnicheskikh nauk.

On the possible increase in use of electric communication channels.  
Sbor.nauch.trud.LSTIIZHT no.6:101-112 '54. (MLRA 9:1 )  
(Telecommunications)

**KALLER, H.Ya., dotsent, doktor tekhnicheskikh nauk.**

**Narrowing the transmitted band in telephone lines. Sbor.nauch.  
trud.LETIZHT no.6:113-130 '54. (MLBA 9:1)  
(Telephone lines)**

~~KALLER~~, Moisey Yakovlevich, kandidat tekhnicheskikh nauk; KLIMOV, V.F.,  
kandidat tekhnicheskikh nauk, redaktor; KHITROV, P.A., tekhnicheskii  
redaktor

[The theory of electric circuits] Teoriia elektricheskikh tsepei.  
Moskva, Gos. transp.zhel-dor. izd-vo, 1956. 254 p. (MLRA 9:9)  
(Electric circuits)

112-57-7-15889

Translation from: Referativnyy zhurnal, Elektrotehnika, 1957, Nr 7, p 294 (USSR)

AUTHOR: Kaller, M. Ya., *Cand. Tech. Sci., Docent*

TITLE: On the Classification of Multiple-Signal Transmission Methods  
(K voprosu o klassifikatsii sposobov mnogokratnoy peredachi signalov)

PERIODICAL: Sb. Leningrad. in-ta inzh. sh-d. transp., 1956, Nr 151, pp 152-158

ABSTRACT: Classification of methods of multiple transmission over electric-communication links is considered. A connection is indicated between the methods of multiplexing and the geometrical representation of the signal volume and the channel capacity. The importance of segregating the modulation, filtration, and synchronization operations in the analysis of characteristics of various multiple-transmission systems is noted. It is pointed out that all methods of simultaneously transmitting a great number of signals over a common link are, in fact, varieties and combinations of two basic methods -- frequency and time methods. In principle, each of the methods permits the same amount of multiplexing; however, for maximum multiplexing, certain physically realizable characteristics of the transmission system are necessary. Bibliography: 6 items.

N. Ye. L.

Card 1/1

KALININ, M. Ya., kand. tekhn. nauk, dots.

Some basic premises relating to frequency spectrum compression  
of communication signals. Sbor. LIIZHT no. 161:114-123 '58.  
(MIRA 11:12)

(Telecommunication)

*RUSSIA, U.S.S.R.*

PHASE I BOOK EXPLOITATION

SOV/4426

Leningrad. Institut inzhenerov zheleznodorozhnogo transporta

Avtomatika, telemekhanika i svyaz' (Automation, Telemechanics,  
and Communications) Moscow, Transzheldorizdat, 1960. 230 p.  
(Series: Its: Sbornik, vyp. 169) 1,000 copies printed.

General Ed.: V. N. Listov, Professor; Ed.: G. I. Marenkova,  
Engineer; Tech. Ed.: Ye. N. Bobrova.

**PURPOSE:** This book is intended for technical personnel and  
scientists engaged in the fields of automation, telemechanics,  
and communications.

**COVERAGE:** This collection of articles presents various methods  
of analysis and synthesis of electric circuits. New designs  
are described and ways of improving technical and economic  
indices of communication instruments investigated. The  
articles contain computations for individual types of communi-  
cation and telemechanical systems. No personalities are  
mentioned. Some of the articles are accompanied by references.

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Automation, Telemechanics (Cont.)

SOV/4426

The author attempts to demonstrate that a much fuller correspondence exists between the methods of network theories used in the analysis of communications systems and the concepts of linear operator theory. He indicates the possibility of a much wider utilization in the communications theory of a series of new mathematical forms for standard communications circuit components. The introduction of such mathematical forms, characteristics representing properties of idealized components of complex communications circuits (filters, modulators, and others), extends the methods of network theory and permits their use in the analysis of communications block diagrams and also narrows the gap existing between the methods of the network and information theories. The author defines linear space and subspace of signals and gives a general definition and examples of linear operators, and of their eigenfunctions and eigenvalues. Definition and properties of projection operators, functions of self-coupled operators, definition and properties of unitary operators, and the expansion of an arbitrary linear operator are also discussed. There are 6 references; 5 Soviet and 1 English.

~~Gard 3/11~~

Generalized Operational Characteristics of  
Filters and Modulators

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SOV/108-15-2-5/19

(1) multiplication by a number  $x$ ; (2) differentiation  $D$ ; (3) integration  $D^{-1}$ . These operators are mathematical images or characteristics of the network elements  $r$ ,  $L$ , and  $C$ . Thus three types of concepts are used: (1) the network element as, for example, an induction coil; (2) the parameter  $L$  which is the symbol of the idealized element; (3) the mathematical image, i.e., the operator  $D$ . Signals passing through a linear system undergo changes which may be determined by resolving the signal into components in accordance with proper functions of some simple operators, and by considering changes in each component. The operator characterizing the system is then represented as a function of a simple operator. Using the concept of unity resolving (N. I. Akhiezer, I. M. Glazman, Teoriya lineynykh operatorov, GIII, 1950) a generalized representation in form of integrals may be given to the operator, the function and the function transformal by the operator. An operator  $A$  which defines a multiplication by  $\lambda$  may be written as

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Generalized Operational Characteristics of Filters and Modulators

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$$A = \int \lambda dE_\lambda, \tag{3}$$

where  $E_\lambda$  is the unity development. The expression for  $u(t)$  is:

$$u(t) = Eu(t) = \int dE_\lambda u(t). \tag{4}$$

This expression indicates that each vector is the sum of its projections. The function transformed by the operator A is then given as:

$$Au(t) = \int \lambda dE_\lambda u(t). \tag{5}$$

Expressions (3), (4), and (5) are skeleton equations from which expressions may be obtained defining the properties of converters or the input and output signals of communication systems. This is illustrated by two examples. The first considers an operator of the form  $A = (1/\lambda) \cdot d/dt$  meaning a multiplication by the factor  $\omega$ . In the second example, the operator A is a multiplication by an independent variable:  $A = Q = K\omega$ .

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Generalized Operational Characteristics of  
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More complex operators may be obtained as functions of simple operators. When  $\varphi(\lambda)$  is an arbitrary complex function, the operator  $\varphi(A)$  is determined from Eq. (15):

$$\varphi(A)u = \int_{-\infty}^{\infty} \varphi(\lambda) dE_{\lambda} u(t), \quad (15)$$

which represents the output signal of a converter with the characteristic  $\varphi(\lambda)$ . The operator itself is given as:

$$\varphi(A) = \int_{-\infty}^{\infty} \varphi(\lambda) dE_{\lambda}. \quad (16)$$

For the case  $A = (1/t) \cdot d/dt$  and  $E_{\lambda} = E(t)$ , the output signal is:

$$\varphi(A)u = \int_{-\infty}^{\infty} \varphi(\omega) dE_{\omega} u = \int_{-\infty}^{\infty} \varphi(\omega) U(\omega) e^{i\omega t} d\omega, \quad (17)$$

where  $\varphi(\omega) = Y(\omega)$  is the frequency characteristic of the transmission function of the converter. For the case  $A = Q$ ,  $E_{\lambda} = E_{\tau}$ , the output is:

$$\varphi(A)u = \int \varphi(t) dE_{\tau} u = \int_0^{\infty} u(\tau) K(t-\tau) d\tau, \quad (18)$$

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Generalized Operational Characteristics of  
Filters and Modulators

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where  $K(t)$  is the transient characteristic of the converter. In the case of a filter, the general expression for the operational characteristic is given as:

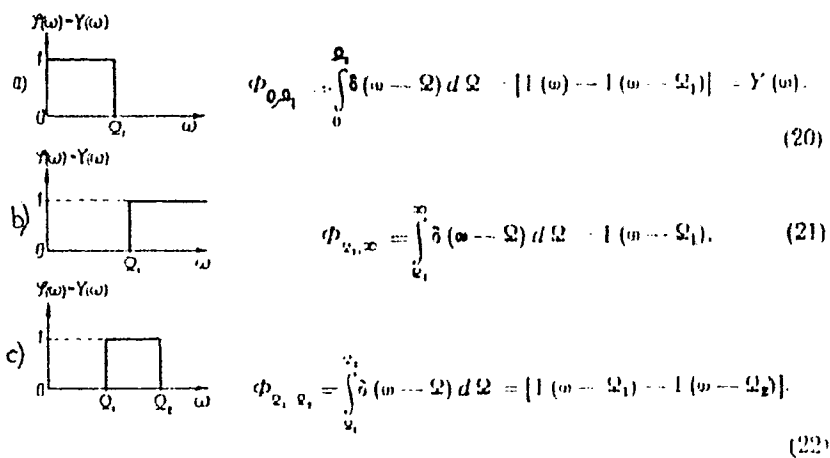
$$\Phi_{\lambda} = \int_{\Lambda} \varphi(\lambda) dE_{\lambda}, \quad (19)$$

where  $\varphi(\lambda)$  is the characteristic function of the set  $\Lambda$ ,  $\Lambda$  being the "passband" of the filter. Equation (19) may be considered as a mathematical image of the concept filter. In the case of frequency filters, if  $A$  is an operator of differentiation,  $E \lambda = E \omega$ ; and  $\lambda = i\omega$ . For the most important filter types, i.e.: low-pass filter (Fig. 1a), high-pass filter (Fig. 1b), and band-pass filter (Fig. 1c), the operators are given by Eqs. (20), (21), and (22), respectively. An expression is given also for a filter separating an arbitrary number of points on the axis  $\omega$ . A contact closing or opening at certain moments is called a time filter. In this case, if  $A$  is a multiplication

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Fig. 1.

Generalized Operational Characteristics of  
Filters and Modulators

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by an independent variable operator,  $E_{\lambda} = E_t$ ,  
 $\lambda = t$ . Figure 3a shows a contact which closes at  
 $t = 0$  and opens at  $t = \tau_1$ ; Fig. 3b represents a  
 contact closing at  $\tau_1$  and opening at  $\tau_2$ .

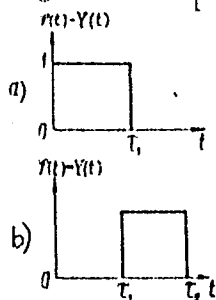


Fig. 3

The operators corresponding to Figs. 1a and 1b are  
 defined by Eqs. (29) and (30), respectively:

Generalized Operational Characteristics of  
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$$\phi_{0, \tau_1} = \int_0^{\tau_1} \delta(t - \tau) d\tau = [1(t) - 1(t - \tau_1)]. \quad (29)$$

$$\phi_{\tau_1, \tau_2} = \int_{\tau_1}^{\tau_2} \delta(t - \tau) d\tau = [1(t - \tau_1) - 1(t - \tau_2)]. \quad (30)$$

An expression is also given for an operator representing a periodically closing commutator contact. For operational characteristics of modulators rotation and shift operators must be considered. These operators should not change the signal power. A generalized operator with these features is the unit operator defined as:

$$U_t = \int_{-\infty}^{\infty} e^{i\lambda t} dE_\lambda. \quad (36)$$

This expression is analogous to  $A = \int \lambda dE_\lambda$  in which  $\lambda = e^{i\lambda T}$ ; and  $E_\lambda$  is an arbitrary unity development.

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Generalized Operational Characteristics of Filters and Modulators

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The function transformed by the above operator is:

$$U, u(t) = \int_{-\infty}^{\infty} e^{t \cdot E} dE, u(t). \tag{37}$$

Equations (36) and (37), as well as Eqs. (5), (5), (15), and (16), are skeleton equations. Exact expressions may be obtained by substituting  $E_s$  with specific unity developments. The modulation is defined as a  $\lambda$  parameter shift which in particular cases is a shift of the frequency characteristic, or a shift of the time interval of the signal. The modulation is a reversible operation and should be represented by an operator for which must exist an inverse operator. Operator (36) satisfies these conditions. It may be considered as a generalized operational characteristic of the modulator and may be written in the form

$$M_\lambda = \int_{-\infty}^{\infty} e^{t \cdot E} dE, \tag{38}$$

Generalized Operational Characteristics of  
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where  $\lambda$  is the shift of the signal spectrum and  $E_s$  is a development caused by an operator which is a Fourier transform of the operator causing the development.  $E_\lambda$ . For a case of frequency modulator  $E_s = E_t$ ,  $dE_t u = u(\tau) \delta(t - \tau)$  and  $\lambda = \Omega$ . Then

$$U_\Omega u(t) = M_\Omega u(t) = \int_{-\infty}^{\infty} e^{i\Omega \tau} dE_t u(t) = \\ = \int_{-\infty}^{\infty} e^{i\Omega \tau} u(\tau) \delta(t - \tau) d\tau = u(t) e^{i\Omega t} \quad (39)$$

Here,  $U_\Omega$  modulates the function  $u(t)$  at frequency  $\Omega$ . It corresponds to a shift of the spectrum of  $u(t)$  along the axis  $\omega$ , the shift equalizing  $\Omega$ . For a time modulator, represented by a delay line,

$E_s = E_\omega$ ,  $dE_\omega u = U(\omega) e^{i\omega t_d} d\omega$  and  $\lambda = \tau$ .

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Then

$$\begin{aligned}
 U_{\tau} u(t) &= M_{\tau} u(t) = \int_{-\infty}^{\infty} e^{i\omega\tau} dE, \\
 &= \int_{-\infty}^{\infty} e^{i\omega\tau} U(\omega) e^{i\omega t} d\omega = u(t + \tau). \quad (40)
 \end{aligned}$$

Here the unit operator  $U_{\tau}$  causes the vector  $U(\omega) e^{i\omega t}$  to rotate at an angle  $\omega\tau$ . It corresponds to a shift  $\tau$  of  $u(t)$  along the axis  $t$ . The author concludes that operational characteristics may contribute to a more correct evaluation of functions performed by various blocks of a communication system. There are 7 figures; and 3 references, 2 Soviet, 1 U.S. The U.S. reference is: L. A. Zadeh, A General Theory of Linear Signal Transmission Systems, Journal of the Franklin Institute, April 1952. October 15, 1959

SUBMITTED:  
Card 11/11

KALLER, M.YA., kand.tekhn.nauk, dotsent

Application and interpretation of some concepts of the theory of  
linear operators in communication problems. Sbor. LIIZHT  
no.169:24-50 '60. (MIRA 13:11)

(Information theory)

KALLER, Moisey Yakovlavich; SNARSKIY, A.A., kand. tekhn. nauk, re-  
tsenzent; SOKOLOV, A.G., inzh., red.; KHITROVA, N.A., tekhn.  
red.

[Theory of electrical networks] Teoriia elektricheskikh tsepei.  
Izd.2., perer. i dop. Moskva, Transzheldorizdat, 1962. 494 p.  
(MIRA 15:12)

(Electric networks)

KALLER, M.Ya., kand.tekhn.nauk, dotsent; IYEVLEVA, L.S., kand.tekhn.nauk

Methods for taking into account the natural asymmetry of a  
two-wire circuit on the magnitude of noise induced in it.  
Sbor. trud. LIIZHT no.179:61-80 '61. (MIRA 16:11)

KALIFA, N.

TECHNOLOGY

Periodical *TEKHNIKA*. Vol. 5, no. 4, July/Aug. 1958.

KALIFA, N. Increasing the capacity of gas furnaces for drying seeds. p. 13.

Monthly List of East European Accessions (EEAI) LC, Vol. 8, no. 3, March, 1959. Uncl.

GAMAN, V.I.; PERKAL'SKIY, V.A.; KALLESTINOV, G.V.

Effect of a strong field in germanium p-n junctions. *Izv.vys.ucheb.  
zav.;fiz. no.2:3-9 '60.* (MIRA 13:8)

1. Sibirskiy fiziko-tekhnicheskiy institut pri Tomskom gosuniversitete  
im. V.V. Kuybysheva. (Semiconductors) (Electric fields)

KALLIANDUR, G.

✓ Kallianpur, G. On a limit theorem for dependent random variables. Dokl. Akad. Nauk SSSR (N.S.) 101, 13-16 (1955). (Russian)

Let  $X_1, X_2, \dots$  be a sequence of  $m$ -dependent random variables, that is,  $(X_1, \dots, X_i)$  and  $(X_{i+1}, \dots, X_n)$  are independent if  $i - r > m$ . Suppose that  $EX_i = 0$ ,  $\sup_i E\{X_i^2\} < \infty$ , and that  $\lim_{n \rightarrow \infty} n^{-1} \sum_{i=1}^n A_{i,p} = A \neq 0$  uniformly as  $i$  varies, where  $A_i = E\{X_{i+1}^2\} + 2 \sum_{j=1}^m E\{X_{i+m-j} X_{i+1}\}$ . Then it is proved that  $\sum_{i=1}^n X_i / n^{1/2}$  is asymptotically normal, with mean 0 and variance  $A$  if, for every  $\epsilon > 0$ ,

$$\lim_{n \rightarrow \infty} \frac{1}{n} \sum_{i=1}^n \int_{|x| > \epsilon n^{1/2}} x^2 dF_i(x) = 0,$$

where  $F_i$  is the distribution function of  $X_i$ . This result generalizes theorems of Hoeffding and Robbins [Duke Math. J. 13, 773-780 (1948); MR 10, 200] and of Diaconis [Proc. Cambridge Philos. Soc. 49, 239-246 (1953); 50, 287-292 (1954); MR 14, 771; 15, 635] on  $m$  dependent random variables. J. L. Doob (Urbana, Ill.).

KALLIG, G. P. ENGINEER

Cand Tech Sci

Dissertation: "Deformation of Refractories Under Load At High Temperatures  
Depending on the Content of Alumina and Certain Fluxes."

6 June 49

Moscow Order of Lenin Chemicotechnological Inst  
imeni D. I. Mendeleev.

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Sum 71

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KALLIGA, G. P.

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Deformation under load at high temperatures of alumina-silicate refractories with high content of aluminum. *I. S. Ponomarev and G. P. Kalliga (Mendeleev Chem. Tech. Inst., Moscow). *Ogneupory* 16, 272-80 (1951); *C.A.* 44, 7503f. Plastic molded shapes having 39, 55, 70, 80, 90, and > 99%  $Al_2O_3$  and contg., resp., 4.7, 3.8, 3.0, 2.5, 2.0, and 0.5% fluxes were fired, resp., at 1420, 1520, 1650, 1700, 1700, and 1750°. Detns. were made of the temps. of initial softening and of deformations corresponding to 4, 10, 20, and 40% compression under a load of 2 kg./sq. cm. With increasing  $Al_2O_3$ , there was a rise in temp. of deformation related to changes in phase compn. during firing at temps. at which the processes of crystn. were completed. An increase in the solid phase in the body and a corresponding decrease in the amorphous substance governs the rise in temp. of deformation. This regularity in rise of temp. of deformation was noted fully in shapes only up to the compn. of mullite. A pure mullite body had the highest softening temp.; for 3% fluxes, initial softening was at 1600-1620° and 40% compression at 1800-1820°. Further increase of  $Al_2O_3$  in refractories of the mullite-corundum type (70-90%  $Al_2O_3$ ) did not cause a noticeable rise in the temp. of deformation. This may be explained by the fact that deformation of such refractories is due to the softening of the mullite portion of the body. The corundum phase of the body, disconnected by the mullite and the corresponding amt. of amorphous substance, cannot raise the softening temp. of the material as a whole. Max. approximation and changeover to a pure corundum, completely cryst. body was accompanied by a sharp rise in initial softening temps. up to 1900° and higher. B. Z. Kamich*

KALLIGA, G. P.

USSR/Engineering - Refractories, Aluminosilicates  
Dec 52

"Effect of Certain Fluxes on the Deformation Temperature of Aluminosilicate Refractories Under Load at High Temperatures," D. N. Poluboyarinov, G. P. Kalliga, Moscow Chemical-technology Inst

Ogneupory, No 12, pp 543-551

Studies deformation of refractories under load depending on concn in initial raw materials of fluxes contg Na, K, Ca, Mg, Fe, and Mn. In manufacture of high-alumina refractories with

267767

Al<sub>2</sub>O<sub>3</sub> content from 55% to mullite compn, CaO was found to be the most harmful admix. Mineralizing action of Na<sub>2</sub>K or Mn and positive effect of these admix on temp of deformation at initial stages also discussed.

KALLIGA, G. P.

USSR/Chemical Technology - Chemical Products and Their Application. Silicates.  
Glass. Ceramics. Binders, I-9

Abst Journal: Referat Zhur - Khimiya, No 19, 1956, 62338

Author: Alekseyev, N. S., Kalliga, G. P.

Institution: None

Title: Increasing the Thermal Stability of Acid-Resistant Ceramic Pastes

Original

Periodical: Steklo i keramika, 1956, No 3, 16-19

Abstract: Investigation of the effect of a number of factors on thermal stability (T) of pastes, approximating in composition acid-resistant and acid-heat resistant. It was found that an increase of the chamotte content of the paste (from 20 to 60%) results in an increased porosity (from 2.1 to 12.3%) and decreased elasticity modulus (from 9 to 6.2 thousand kg/cm<sup>2</sup>), and notwithstanding a certain lowering of compression strength (from 840 to 660 kg/cm<sup>2</sup>), enhances the T of the paste (from 53 to 82 heating periods). Larger size of granular components either by the use of larger grains of

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USSR/Chemical Technology - Chemical Products and Their Application. Silicates.  
Glass. Ceramics. Binders, I-9

Abst Journal: Referat Zhur - Khimiya, No 19, 1956, 62338

Abstract: chamotte (from 0.5 to 2 mm) or by decreasing the content of pulverulent fractions (<0.12 mm) greatly enhances T of the material (from 60 to 116 heating periods). Higher T was also observed on inclusion of kaolin (up to 20%) and talc additions (up to 24%). It is shown that with increased porosity and lowering of elasticity modulus T of the samples increases. The elasticity modulus can serve to a certain extent as a criterion in evaluation of T.

Card 2/2

*Изучение*

BUTT, T.S.; KALLIGA, G.P.; POLUBOYARINOV, D.N.

Changes in the physical and mechanical properties of clay in the process of heating. Ogneupory 21 no.7:318-321 '56. (MLRA 10:1)

1. Nauchno-issledovatel'skiy institut stroykeramiki.  
(Clay--Testing) (Kaolin--Testing)

KISELEV, Vasilii Stepanovich; SHCHEGLOV, Lev Mikhaylovich; ARKHANGEL'SKIY, N.A., prof., red.; KALLIGA, G.P., dotsent, retsenzent; YEGORKIN, N.I., prof., retsenzent; DAVANKOV, A.V., dotsent, retsenzent; NOVODEREZHKIN, P.I., dotsent, retsenzent; KUTYANIN, G.I., prof., retsenzent; BULGAKOV, N.V., prof., retsenzent; BORISOVA, G.A., red.; MEDRISH, D.M., tekhn.red.

[Articles made from silicates, plastics and chemical industry products] Tovary silikatnye, iz plasticheskikh mass i khimiko-moskatel'nye. Pod red. N.A. Arkhangel'skogo. Moskva, Gos. izd-vo torg. lit-ry, 1958. 320 p. (MIRA 12:2)

1. Kafedra tovarovedeniya promptovarov Vsesoyuznogo nauchnogo instituta sovetskoy trgovli (for Bulgakov).  
(Glassware) (Plastics) (Pottery)

15(2)

## AUTHORS:

Kalliga, G. P., Kolbasova, V. A.

SOV/156-59-2-43/48

## TITLE:

On the Problem of the Technology of Zirconium Products by Means of the Method of Casting From Aqueous Suspensions (K voprosu tekhnologii tsirkoniyevykh izdeliy metodom lit'ya iz vodnykh suspenziy)

## PERIODICAL:

Nauchnyye doklady vysshey shkoly. Khimiya i khimicheskaya tekhnologiya, 1959, Nr 2, pp 386-389 (USSR)

## ABSTRACT:

This work was carried out in co-operation with the Podoliya Works for Refractories (Podol'skiy zavod ognepornykh izdeliy) and the Leningrad Institute for Physical Chemistry of Silicates of the AS USSR (Leningradskiy institut fizicheskoy khimii silikatov AN SSSR). The institute mentioned under Association systematically investigated the technology named in the title. Technical zirconium-oxide (analysis in Table 1) was used and MgO, Ca(OH)<sub>2</sub> or CaCO<sub>3</sub> served as stabilizers. The raw material was wet-ground in a ball-mill, the ZrO<sub>2</sub> freed from iron through hydrochloric acid. The distribution of the grain-sizes in the ground zirconium-oxide is shown in table 2. The optimal composition of the raw-material under variation of the humidity content

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On the Problem of the Technology of Zirconium Products SOV/156-59-2-43/48  
by Means of the Method of Casting From Aqueous Suspensions

(52-60%) and the pH-value (8.0 - 9.7) of the surroundings was determined through casting tests. Specific gravity, water absorption, porosity, and shrinkage were determined after the burning (at 1720 - 1738 degrees). The results are listed in table 3. The specific gravity was 5.26-5.29 g/cm<sup>3</sup>, the water absorption 0.2 - 0.6%. The optimal humidity content was 60% at a stabilization through MgO, 42% with CaCO<sub>3</sub> as stabilizer. The shrinkage was approximately 25% when CaCO<sub>3</sub> was used, and was by 7% lower than with MgO. The bigger stability, smaller humidity of the raw-material and smaller shrinkage by adding CaCO<sub>3</sub> indicate its being the most suitable stabilizer in comparison with MgO. There are 1 figure, 4 tables, and 8 references, 3 of which are Soviet.

PRESENTED BY: Kafedra tekhnologii keramiki i ognuporov Moskovskogo khimiko-  
tekhnologicheskogo instituta im. D. I. Mendeleeva (Chair for  
Technology of Ceramics and Refractories Moscow Institute for  
Chemical Technology imeni D. I. Mendeleev)

SUBMITTED: November 18, 1958  
Card 2/2



KALLIGA, G.P.; KOLBASOVA, V.A.; POLUBOYARINOV, D.H.

Using calcium zirconate as a stabilizer in manufacturing zirconia products. Ogneupory 25 no.7:324-329 '60. (MIRA 13:8)

1. Khimiko-tekhnologicheskii institut im.Mendeleyeva.  
(Refractory materials)

21.2110

15.2230

24739

S/131/61/000/007/001/003  
B105/B206

AUTHORS: Rutman, D.S., Vinogradova, L.V., Makarova, T.S., Kalliga, G.P.,  
Kolbasova, V.A., Shal'nov, Ye.I. X

TITLE: Improvement of the technology of zirconium products for  
casting from aqueous suspensions of the pre-stabilized  $ZrO_2$

PERIODICAL: Ogneupory, no. 7, 1961, 301-302

TEXT: Experiments are described here which were conducted at the Podol'skiy zavod ogneupornykh izdeliy (Podol'sk Plant of Refractory Products) to investigate the possibility of avoiding the previous grinding of zirconium dioxide and, thus, shorten the technology of zirconium products. Industrial zirconium dioxide with a content of 97.5%  $ZrO_2 + HfO_2$  and chemically pure calcium carbonate were used for the experiment. A mixture of 93%  $ZrO_2$  and 7% CaO was prepared. Briquets were pressed from it at a pressure of 500 kg/cm<sup>2</sup> and burned at temperatures of 1600°C and 1700°C respectively. The microscopic and X-ray structural analysis showed a stabilization degree of 93-95% of  $ZrO_2$  in the briquets. The effect of the pH of the  
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S/131/61/000/007/001/003

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Improvement of the technology ...

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medium on the viscosity index of the crude zirconium mass was also tested. The particles are characterized by high values of the  $\zeta$  potential, which cause the stability of the crude mass. With the parameters mentioned, an experimental batch of crucibles with a content up to 300 cm<sup>3</sup> was cast. The characteristic values of the blanks and of the products burned for 9 hr at 1600°C are compared in the table with the characteristic values for previous grinding of ZrO<sub>2</sub> and rinsing before stabilization. The duration of the production cycle is shortened by about ten days and grinding and rinsing of ZrO<sub>2</sub> previous to preparation for stabilization are omitted. The use of stabilized ZrO<sub>2</sub> without previous grinding showed that the sintering ability of the material was slightly improved. There are 1 figure and 1 table.

ASSOCIATION: Podol'skiy zavod ognepornyykh izdeliy (Podol'sk Plant of Refractory Products) D.S. Rutman, L.V. Vinogradova, T.S. Makarova; Khimiko-tekhnologicheskii institut im. Mendeleyeva (Chemical-technological Institute imeni Mendeleev) G.P. Kalliga, V.A. Kolbasova, Ye.I. Shal'nov.

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Improvement of the technology

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S/131/61/000/007/001/003  
B105/B206

Legend to Table 1: 1) Preparation method for zirconium products, 2) weight of unit volume of the blanks, g/cm<sup>3</sup>; 3) burned products; 4) weight of unit volume, g/cm<sup>3</sup>; 5) water absorption, %; 6) shrinkage, %;

a) casting from stabilized ZrO<sub>2</sub> without previous grinding of the initial materials; a) casting from stabilized ZrO<sub>2</sub> (usual process)

*1. Podolskiy zavod ogneupornykh izdeliy (for Rytman, Vinogradova, Muzakova). 2. Khimiko-tekhnologicheskiy institut im. Mendeleeva (for Kalliga, Kolbasova, Shal'nov).*

Table

Метод изготовления циркониевых изделий	Объемный вес сырья, г/см <sup>3</sup>	Обожженные изделия		
		Объемный вес, г/см <sup>3</sup>	Водопоглощение, %	Усадка, %
1	2	4	5	6
Литье из стабилизированной ZrO <sub>2</sub> без предварительного помола исходных материалов	3,1	5,3	0,3	16,0
Литье из стабилизированной ZrO <sub>2</sub> (обычная технология)	2,8-3,1*	5,4	0,0	17-20

Card 3/3

BUDNIKOV, P.P., akad.; BEREZHNOY, A.S.; BULAVIN, I.A.; KALLIGA, G.P.;  
KUKOLEV, G.V.; POLUBOYARINOV, D.N.; GOMOZOVA, N.A., red. izd-  
va; NAUMOVA, G.D., tekhn. red.

[Technology of ceramics and refractory materials] Tekhnologiya  
keramiki i ogneuporov. Izd.3., perer. i dop. Moskva, Gos-  
stroizdat, 1962. 707 p. (MIRA 15:6)

1. Akademiya nauk USSR, chlen-korrespondent Akademii nauk SSSR  
(for Budnikov).

(Ceramics) (Refractory materials)

32664

S/131/62/000/001/001/002  
B105/B110

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AUTHORS: Kalliga, G. P., Kolbasova, V. A., Poluboyarinov, D. N.

TITLE: Peculiarities of the casting technology for zirconium products

PERIODICAL: Ogneupory, no. 1, 1962, 28-34

TEXT: An investigation conducted jointly with the Podol'skiy zavod ogneupornykh izdeliy (Podol'sk Plant of Refractory Products) dealt with the following processes: (1) Dressing of the raw material, (2) its acid treatment and the casting process in various media. Experiments were conducted with zirconium dioxide (97.55%  $ZrO_2$ , 1.15%  $TiO_2$ ) which was stabilized by admixture of 6% CaO. Industrial  $ZrO_2$  and  $CaCO_3$  were used as initial materials. Zirconium dioxide was ground, washed with HCl, and brought to pH = 3 with water.  $CaCO_3$  was ground in a corundum mill. Briquettes were molded from these materials at 500 kg/cm<sup>2</sup>, and fired at 1750°C. Two types of initial dross were used: alkaline with pH = 10.5 and acid with pH = 1.5-1.7. The casting properties of alkaline and acid dross were determined. L. G. Markaryan, V. I. Markaryan, L. M. Privina,  
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Peculiarities of the casting ...

and M. I. Minkina assisted with this study. Alkaline dross has poor casting properties. When using acid dross, washing with HCl may improve casting properties, increase the density of the blanks, and reduce shrinkage during firing. A moisture of about 30% and pH = 1.5-2.0 were found to be most suitable for the casting of dross from stabilized  $ZrO_2$  washed with HCl, the density of the casting being  $2.8 \text{ g/cm}^3$  and that of the fired product  $5.45 \text{ g/cm}^3$ . 2-4 days' storage after washing increases the density of the blanks by up to  $0.2 \text{ g/cm}^3$ . There are 5 figures, 4 tables, and 11 references: 7 Soviet and 4 non-Soviet. The four references to English-language publications read as follows: C. E. Curtis, Journ. Am. Cer. Soc., 1947, 30, no. 6; St. Pierre, Trans. Brit. Cer. Soc., 1952, 51, 260; M. A. Schwartz, G. D. White, C. E. Curtis, Atomic Energy Comp. Inform. Service Oak Ridge. 1953, 1354, 28; B. C. Weber, P. E. Rempes, M. A. Schwartz, Journ. Am. Cer. Soc. 1958, 37, no. 7.

ASSOCIATION: Khimiko-tekhnologicheskii institut im. Mendeleyeva (Institute of Chemical Technology im. D. I. Mendeleyev)

Card 2/2

KALLIGA, G.P.

S/131/63/000/004/001/001  
A006/A101

**AUTHORS:** Poluboyarinov, D.N., Kalliga, G.P., Lyutsareva, L.A.

**TITLE:** On the problem of stabilizing and sintering high-purity zirconium dioxide

**PERIODICAL:** Ogneupory, no. 4, 1963, 175 - 179

**TEXT:** The material investigated was zirconium oxide containing 99.5% basic oxide, 0.1%  $\text{HfO}_2$  and 0.4% other admixtures.  $\text{MgO}$  and  $\text{CaO}$  were used for stabilization; to reveal the effect of the type of anion,  $\text{CaF}_2$  was employed. Twelve types of experimental substances were prepared with a gradually increasing content (from 4 to 15 mol%) of the stabilizing agent. Specimens were prepared by semi-dry pressing under  $450 \text{ kg/cm}^2$  pressure. The moisture of the pressed powders was 6%. The dried specimens were annealed at  $1,710^\circ\text{C}$  with 5 h holding and slowly cooled down. The following results are obtained. Under conditions of oxidizing annealing at  $1,710^\circ\text{C}$  during 5 h, substances with 10 mol% of stabilizing oxide are fully sintered. Stabilization is sufficient and the material acquires high strength and heat resistance as compared with other investigated substances. If

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On the problem of stabilizing and sintering ....

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A006/A101

the amount of the stabilizing agent is increased to 12 - 15% a well-sintered and fully stabilized product is obtained; however, the density of the material is reduced which appears particularly when CaO is added. Moreover, the strength and heat-resistance are sharply reduced. The relatively low density of an annealed substance with 10 mol% of a stabilizing admixture (for CaO 5.20 and for MgO 5.28 g/cm<sup>3</sup>), is mainly determined by the presence of pores, both inside and on the boundaries of the material crystals. A rise of the annealing temperature to 2,200°C has only a slight effect on the material density. A higher density of a material with 10 mol% CaO is attained a) by changing the type of anion introduced together with the stabilizer CO<sub>3</sub> to F<sup>-</sup>; the heat-resistance of the material is then strongly impaired; b) by preliminary sintering of the stabilized product; as a result specimens of 5.54 g/cm<sup>3</sup> volumetric weight are obtained. There are 3 tables and 5 figures.

ASSOCIATION: Khimiko-tehnologicheskii institut im. D.I. Mendeleeva (Chemical and Technological Institute imeni D.I. Mendeleev)

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~~G. P. Kalliga, G. P.~~

PHASE I BOOK EXPLOITATION

SOV/6202

Budnikov, P. P., Academician, Academy of Sciences UkrSSR, Corresponding Member, Academy of Sciences USSR, A. S. Berezhnoy, I. A. Bulavin, G. P. Kalliga, G. V. Kukolev, and D. N. Poluboyarinov.

Tekhnologiya keramiki i ogneporov (Technology of Ceramics and Refractory Materials), 3d ed., rev. and enl. Moscow, Gosstroyizdat, 1962. 707 p. Errata slip inserted. 15,000 copies printed.

Ed. (Title page): P. P. Budnikov; Ed. of Publishing House: N. A. Gomozova; Tech. Ed.: G. D. Naumova.

PURPOSE: This book is a textbook intended for students taking courses in the technology of silicates at institutions of higher education.

COVERAGE: The book describes the physicochemical and mechanical properties of various ceramic and refractory products, including cermets, pure refractory oxides, glazes, ceramic pigments, porcelain, and faience. The raw materials and methods of manufacturing ceramic

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Technology of Ceramics and Refractory Materials

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and refractory products are reviewed. There are 167 references, mostly Soviet.

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