YERMAKOV, V.S.; SPIRIN, S.A.; CHIZHOV, D.G.; UGORETS, I.I.; LAVRENENKO, K.D.;
SMIRNOV, G.V.; CHUPRAKOV, N.M.; MKHITARYAN, S.G.; ASMOLOV, G.L.;
KOTILEVSKIY, A.M.; MOLOKANOV, S.I.; SYROMYATNIKOV, I.A.; FAYERMAN, S.Ts.;
SOKOLOV, B.M.; KOMISSAROV, Yu.P.; MALYUTIN, I.P.; POBEGAYLO, K.M.;
MORYAKOV, A.V.; MELAMED, M.F.; KUMSIASHVILI, P.G.; GARKAVAYA, L.A.;
LIVSHITS, E.M.; NEKRASOV, A.N.

Moisei Vul'fovich Safro; obituary. Elek.sta. 24 no.11:60 N '53.
(MLRA 6:11)

(Safro, Moisei Vul'fovich, ?-1953)

VARSHURIN, A.A., inzh.; KHLEBNIKOV, N.I., inzh.; SIBAROV,Yu.G.,
inzh.; FOMICHEV, V.A., inzh.; MELAMED, M.F., inzh.;
POTAPOVA, T.I., inzh.; KOLYUZHNYY, G.G., inzh.; TAGIROVA,
M.I., inzh.; SHIFMAN, O.I., inzh.; STORTS, A.A., inzh.;
VASHURIN, A.A., inzh., otv. za vypusk; KHITROV, P.A., tekhn.
red.

[Safety engineering regulations for operating traction substa-
tions and sectionalization posts of electrified railroads]Pra-
vila tekhniki bezopasnosti pri ekspluatatsii tiagovykh pod-
stantsii i postov sektsionirovaniia elektrifitsirovannykh zhe-
leznykh dorog. Moskva, Transzheldorizdat, 1962. 202 p.
(MIRA 15:8)

1. Russia (1923- U.S.S.R.)Glavnoye upravleniye elektrifika-
tsii i energeticheskogo khozyaystva. 2. TsE Ministerstva pu-
tey soobshcheniya (for Khlebnikov). 3. TSentral'nyy komitet
profsoyuza (for Fomichev). 4. Moskovskaya zheleznaya doroga
(for Kolyuzhnyy). 5. Sverdlovskaya zheleznaya doroga (for
Tagirova). 6. Yuzhno-Ural'skaya zheleznaya doroga (for
Shifman). 7. Zapadno-Sibirskaya zheleznaya doroga (for
Storts).
(Electric railroads--Safety regulations)

MELAMED, M,KR,

6

Melamed, M. Kh., and Turutanov, L. M.: Dobycha i obogashchenie kaolina (Production and Concentration of Kaolin). Moscow: Gosudarst. Izdatel'stvo Lit. po Stroitel'nym Materialam. 1952. 60 pp.

MELAMED, M.Kh.

      Technical advice. TSement 28 no.2:23 Mr-Ap '62.   (MIRA 15:8)

1. Yuzhgiprotsement.
      (Cement industries--Transportation)

MELAMED, M.N., kand.tekhn.nauk

Garageless storage of tractors and agricultural machinery.
Trakt.i sel'khozmash. no.10:26 O '59.   (MIRA 13:2)
                    (Tractors)
              (Agricultural machinery)

MELAMED, M.N.

Reducing losses connected with the storage of machines on collective and state farms. Sbor. rab. GOSNITI no.17:29-33 '62.

(MIRA 17:9)

MELAMED, M.P., vrach

Past improvement in the health of the people of Tashauz Province
with reference to skin and venereal diseases. Zdrav. Turk. 3 no.4:
32-35 Jl-Ag '59.   (MIRA 13:2)
                 (TASHAUZ PROVINCE--VENEREAL DISEASES)

MELAMED, M. P., Cand Med Sci -- (diss) "Development of public health
in the Tashauzskaya oblast'. (1924-1955)." Moscow, 1960. 15 pp; (Acad-
emy of Medical Sciences USSR); 250 copies; price not given; (KL, 28-60,
165)

NIKOL'SKIY, A.A., inzh.; MELAMED, M.S., inzh.

Mechanization of auxiliary operations in textile plants of the Ivanovo Economic Council. Mekh.i avtom.proizv. 16 no.12:18-22 D '62.
(MIRA 16:1)

(Ivanovo Province—Textile industry)
(Automation)

KOSOY, S.N.; MELAMED, M.Z.

        Standardization of means of automation. Standartizatsiia 26
        no.6:41-43 Je '62.   (MIRA 15:7)
                    (Automatic control--Standards)

BOYKO, A.A., inzh.; DRUKOVANYY, M.F., kand. tekhn. nauk; BABOKIN,
I.A., inzh.; ZAYTSEV, A.P., inzh.; POLESIN, Ya.L., inzh.;
SOBOLEV, G.G., inzh.; ZHUKOV, V.V., kand. tekhn. nauk;
TOPCHIYEV, A.V., prof.; VEDERNIKOV, V.I., kand. tekhn.
nauk; OKHRIMENKO, V.A., kand. tekhn. nauk; MELAMED, M.Z.,
kand.tekhn. nauk; KUZNETSOV, K.K., inzh.; RABINOVICH, I.A.;
YASNYY, V.K., inzh.; LIVSHITS, I.I., kand. tekhn. nauk,
rersenzent; BARANOV, A.I., inzh., retsenzent; LOMILINA,
L.N., tekhn. red.

[Brief handbook of a coal mining engineer] Kratkii spra-
vochnik gornogo inzhenera ugol'noi shakhty. Moskva, Gos-
gortekhizdat, 1963. 639 p.   (MIRA 17:3)

MELAMED, R. 1

6

3

2168. Rapid determination of nitrogen in un-
refined anthracene and its refining products. L. D.
Gluzman, R. I. Slobodoi and D. S. Khinkis (Ural
Inst. for the Chemistry of Coal). Zavod. Lab.,
1955, 21 (12), 1433-1435.—The anthracene material
(0-1 g) in a 50-ml Kjeldahl flask is heated to com-
plete dissolution with 10 ml of conc. H_2SO_4 (about
3 to 5 min.) and then small portions of finely divided
$K_2Cr_2O_7$ (2-4 g in all) are added with stirring during
the continued heating of the flask (about 5 to 7 min.).
The heating is continued further (5 to 7 min.) until
a bright-green paste is obtained. The temperature
throughout should be 250° to 260° C. After being
cooled, the contents are transferred to a distillation
flask and the NH_3 is determined by the usual
method. The time taken is 15 to 20 min. for
decomposition and 30 min. for distillation.
                                  G. S. SMITH

137-58-6-11358

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 6, p 15 (USSR)

AUTHORS: Labutin, G.V., Ivanov, N.A., Melamed, R.I.

TITLE: Development of a Method of Granulating "Damp" Limestone-nepheline Mix (Razrabotka metoda granulyatsii "mokroy" izvestnyakovo-nefelinovoy shikhty)

PERIODICAL: Tr. Vses. n.-i. alyumin.-mfgn. in-ta, 1957, Nr 40, pp 132-137

ABSTRACT: With the object of producing granules, a "damp" limestone-nepheline mix (pulp) having a molecular ratio of CaO/SiO_2 2 and Na_2O/Al_2O_3 1 was prepared. The chemical composition of the mix is presented. The "damp" nepheline mix proved capable of granulation. To do this the pulp (cake), pressed out on a filter, is granulated in a drum mixer with the return dust (~15%). The filtrability of the pulp heated to 60°C is quite high, coming to 1.1 t/m^2 hr. In granulometric composition, the resultant nepheline granules are suitable for sintering both in rotary furnaces and in furnaces employing the FluoSolids process. 1. Sinters--Development 2. Calcite--Applications

Card 1/1   Nepheline--Applications   A.Sh.

137-58-6-11921

Translation from: Referativnyy zhurnal. Metallurgiya, 1958, Nr 6, p 106 (USSR)

AUTHORS   Labutin G.V., Melamed, R.L.

TITLE: New Findings on the Behavior of Potassium in the Production
of Alumina (Novoye o povedenii kaliya v glinozemnom proiz-
vodstve)

PERIODICAL   Tr. Vses. r.-i. alyumin.-magr. in-ta, 1957, Nr 40, pp
144-150

ABSTRACT·   The preliminary data of experimental studies performed to
clarify the behavior of K and Na caustic in the hydrochemical
treatment of alumina containing ores and the conditions of
formation of the corresponding aluminosilicates (A) are set
forth. The experiments were run with kaolin and kaolinized
specimens of alunite and bauxite. It is established that   1)
pure-potassium caustic solutions. i.e. solutions containing no
reflux alumina, behave in a fashion analogous to Na caustic
solutions when siliceous alumina-bearing rock is processed
2. when the same rocks are treated under moderate conditions
(95-98°C ∿1-2 hours; potassium aluminate solutions form
virtually no A in the precipitate, while Na solutions, under the

Card 1/2

137-58-6-11921

. New Findings on the Behavior of Potassium in the Production of Alumina

same conditions form it in quantities approximating the theoretical. 3) as treatment time increases, the difference in the degree of formation of K and Na A starts to vanish this permits the conclusion that K A come down more slowly in the precipitate and thus explains the peculiarity of its behavior, 4) an increase in temperature speeds the precipitation of K A, but the kinetics of its precipitation remains slowed, since under these conditions Na A come down considerably more rapidly. This makes it possible to assume that by proper selection of leaching time (reduction of this time) it would be possible to attain low losses of K caustic 5) the foregoing permits the conclusion it is possible to carry out potassium-caustic hydrochemical production of Al_2O_3 from readily-decomposed siliceous forms of ore without significant losses of caustic. The K content in the working solutions under these conditions should constitute $\geq 50\%$ of the total caustics (calculated on Na_2O).

N.P.

1 Aluminum ores--Processing 2. Potassium--Chemical reactions

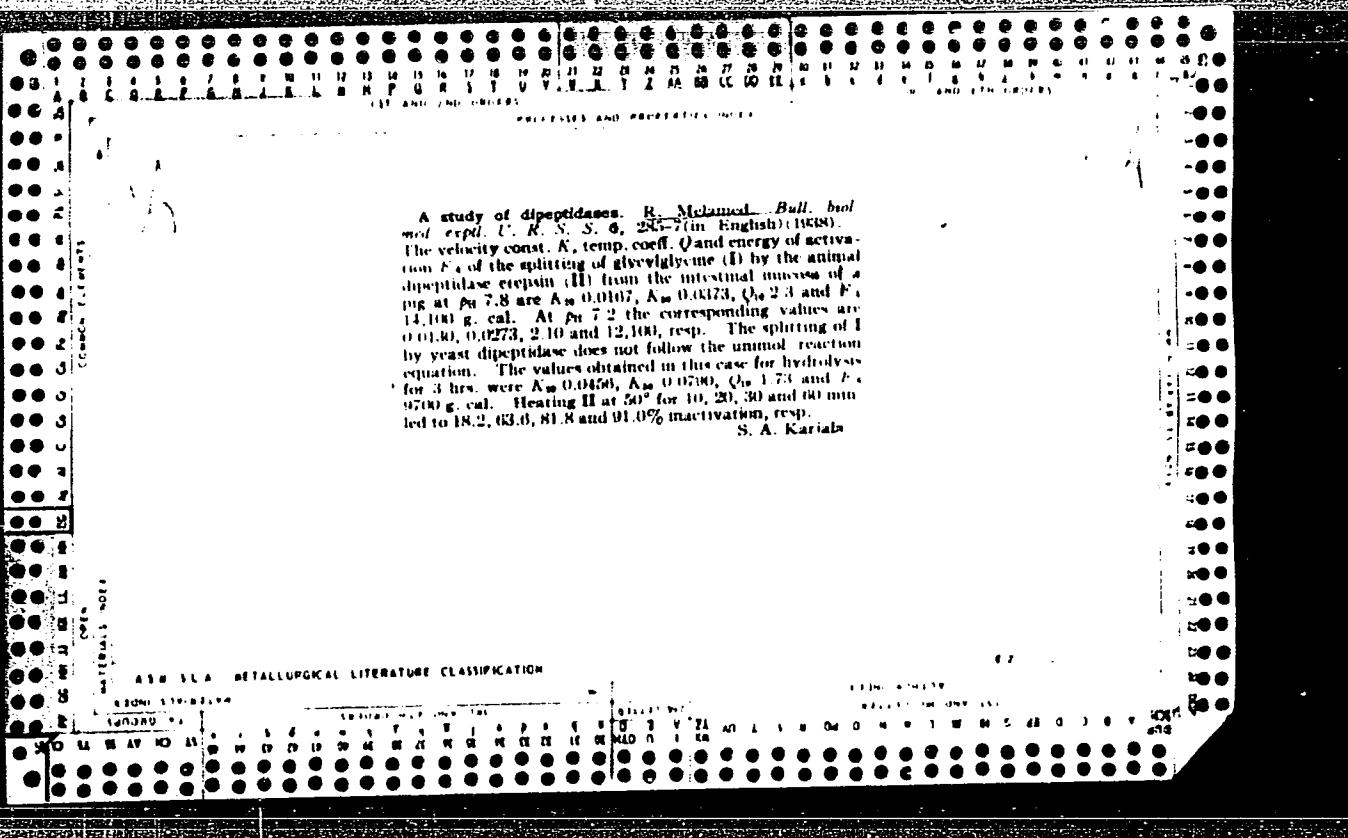Card 2/2

FINKEL', M.Ya.; TOLOCHKO, A.I.; MELAMED, R.I.

Improve the quality of ammonium sulfate. Standartizatsiia 25
no.11:38 N '61.   (MIRA 14:11)
                     (Ammonium sulfate)

BELETSKIY, M.S.; VERESHCHAGIN, F.P.; LEONENKOVA, T.A.; MELAMED, R.I.

X-ray diffraction examination of alunite during heating. Zhur.prikl khim. 36 no.3:475-480 My '63.   (.IRA 16:5)
   (Alunite—Thermal properties)   (X-ray diffraction examination)

A study of dipeptidases. R. Mohamed. Bull. biol.
med. exptl. U. R. S. S. 6, 283-7(in English)(1938).
The velocity const. K, temp. coeff. Q and energy of activa-
tion F, of the splitting of glycylglycine (I) by the animal
dipeptidase erepsin (II) from the intestinal mucosa of a
pig at pH 7.8 are A = 0.0107, A = 0.0173, Q 2.3 and F
14,100 g. cal. At pH 7.2 the corresponding values are
0.0180, 0.0273, 2.10 and 12,100, resp. The splitting of I
by yeast dipeptidase does not follow the unimol. reaction
equation. The values obtained in this case for hydrolysis
for 3 hrs. were A = 0.0456, A = 0.0730, Q 1.73 and F
9700 g. cal. Heating II at 50° for 10, 20, 30 and 60 min.
led to 18.2, 63.6, 81.8 and 91.0% inactivation, resp.

S. A. Karjala

MELAMED, R. I.

USSR/Medicine - Novocain Block   Nov/Dec 51

"Experimental Treatment of Hypertension by Intra-
arterial Injection of 0.5% Novocain Solution,
(Intraarterial Novocain Block), Prof M. A.
Khazanov and R. I. Melamed, Clinic of Nervous
Diseases, Minsk Med Inst and Inst of Theoret Med

Nevropat i Psikh, Vol 20, No 6, pp 56-61

Intraarterial injection of 0.5% novocain solution
has significance in the treatment of hypertension
only as a method of pathogenci therapy. It af-
fects the interoreceptors of blood vessels in the
entire nervous system and the cerebral cortex.

253T5

(1)

In functional forms of hypertension single or
twice repeated injections increase the well-being,
normalize the level of the blood pressure, and
equalize the asymmetric arterial and venous pres-
sure in 94% of the cases. Intraarterial in-
jection of novocain is effective also in the org
phase of the cerebral form of hypertension.
Arterial pressure is quickly lowered, the general
condition is improved, and symptoms of the org
affection of the nervous system decrease. In the
"preinsultus" stage the novocain injection pre-
vents an attack. In the org phase of the cerebal
form of hypertension the effect is not always
lasting, however. Relapses were observed after

(2)

1 to 4 months but a repeated injection again
normalized the blood pressure. In nephrosclerosis
the effect is short and not effective enough.
The technique of the intraarterial injection is
not without danger and no sign of its ef-
fectiveness could be noted.

(3)

MELAMED, R.I.

0257. Efficacy of intra-arterial novocaine injections in the treatment of hypertonic cases. M. A. Khazanov, E. G. Turatakaia, and R. I. Melamed Sborn. Nauch. Rabot. Minsk. med. Inst., 1955, 18, 98—101. Referat. Zh. biol. Khim., 1956, Abstr. No. 68302.—257 patients suffering from hypertonic diseases were injected with 10—15 ml. of 0.5% novocaine (I) soln. (physiol.) in the femoral artery. The course of treatment consisted of 1—5 injections. If the curative action was positive, the course was repeated after 3—6 months, and in some cases after 1—2 years, if the blood pressure rose again. The result of the second course of injections proved more effective in a number of cases. The vascular, biochemical, and cortical processes (e.c.g., plethysmogram, vascular reactions, speed of blood flow, arterial and venous pressures, sugar and pyroracemic acid content) were quickly and permanently reduced to a normal level in patients in the first and second stages by the administration of I; in patients in the third stage the changes were not brought back to normal completely, but were improved. After the injection of I the fast-progressing form of hypertonic disease in patients in the third stage was slowed down. A frequent repetition of the injection of I led to a decrease in efficacy. (Russian)

E. L. Parke.

MEIAMED, R.I., ordinator

Case of dysfunction of the cortical layer of the adrenal cortex in
a seventeen-year-old girl. Zdrav. Belor. 5 no.3:58 Mr '59. (MIRA 12:7)

1. Klinika nervnykh bolezney (zaveduyushchiy kafedroy - prof. M. A.
Khazanov).
(ADRENAL GIANDS--DISEASES)

KHAZANOV, M.A., prof.; KAYDANOVSKAYA, R.S., ordinator; AHMED, R.I., ordinator

Clinical course and genesis of intermittent claudication (thrombo-
angiitis of the brain blood vessels) (Buerger's disease). Zdrav.
Belor. 5 no.9:37-39 S '59.   (MIRA 12:12)

1. Iz kliniki nervnykh bolezney Minskogo meditsinskogo instituta.
                        (BRAIN--DISEASES)

MELAMED, R.I.; GAYEVSKIY, Ye.V.

Treatment of respiratory distrubances in poliomeylitis. Zdrav. Belor.
5 no.10:10-13 0 '59. (MIRA 13:2)

1. Iz respiratornogo tsentra BSSR pri infektsionnoy bol'nitse g.
Minska (nauchnyy rukovoditel' - prof. D.A. Markov).
        (POLIOMYELITIS)   (RESPIRATION)

MELAMED, R.I.; TEST, R.I.; GAYEVSKIY, Ye.V.

Dynamics of respiratory disorders in patients with poliomyelitis.
Zhur.nevr.i psikh. 61 no.3:329-334 '61.   (MIRA 14:7)

1. Nauchno-issledovatel'skiy institut nevrologii, neyrokhirurgii i
fizioterapii (dir. Ye.F.Kalitovskiy, nauchnyy rukovoditel' - prof.
D.A.Markov) i Institut okhrany materinstva i detstva (dir. G.A.
Kalyuzhin) Ministerstva zdravookhraneniya BSSR, Minsk.
          (POLIOMYELITIS)   (RESPIRATION)

PROTAS, I.I., MELAMED, R.I.

Diagnosis of acute poliomyelitis in adults.   Zdrav.Bel. 8 no.5:20-23
My '62.   (MIRA 15:10)

1. Belorusskiy nauchno-issledovatel'skiy institut nevrologii,
neyrokhirurgii i fizioterapii (nauchnyy rukovoditel' - akademik
AN BSSR D.A.Markov, direktor Ye.F.Kalitovskiy).
                    (POLIOMYELITIS--DIAGNOSIS)

MELAMED, R.I.; SLEPYAN, Yu.Ya.; KISELEV, M.P.; GAYEVSKIY, Ye.V.

Indications for the use of artificial respiration apparatus.
Zdrav. Bel. 9 no.8:58-62   Ag'63   (MIRA 17:3)

1. Iz respiratornogo tsentra (nauchnyy rukovoditel' - prof.
N.S. Misyuk) 4-y klinicheskoy bol'nitsy Minska (glavnyy vrach -
Ye.M. Sel'dimirova).

MELAMED F. YA

AGROSKIN, A.A., doktor tekhnicheskikh nauk, professor; MELAMED, R.Ya.;
MIRINGOF, M.S.

Determining the ratio of thermal conductivity of coal in heating.
Podzem.gaz.ugl. no.2:92-96 '57.   (MIRA 10:7)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut Podzemgaz.
                (Heat--Conduction)   (Coal--Testing)

MELAMED, S.

What did the auditing of reports show? Fin. SSSR 37 no.7:88
Jl '63.   (MIRA 16:8)

1. Nachal'nik inspektsii gosudarstvennykh dokhodov Sovetskogo
rayonnogo finansovogo otdela Minska.
                          (Minsk—Auditing and inspection)

MELAMED, S. E. Cand Med Sci -- (diss, "Modern methods of function diagnostics

and their importance for the labor medical expertise in cases of chronic

diseases of the kidneys." Mos, 1957. 15 pp (Min of Health RSFSR. Ryazan'

Med Inst im Academician I. P. Pavlov), 300 copies (KL, 11-58, 121)

-126-

MELAMED, S.B., kand.med.nauk (Moskva)

Renal function in amyloid nephrosis. Vrach.delo no.1:1287-1288
D '58.   (MIRA 12:3)

1. Terapevticheskaya klinika (zav. - prof. L.I. Fogel'son) TSentral'-
nogo nauchno-issledovatel'skogo instituta ekspertizy trudosposobno-
sti i organizatsii truda invalidov.
                          (KIDNEYS--DISEASES)

MEIAMED, S.B. (Moskva)

Functional state of polycystic kidneys. Urologiia 23 no.6:9-13 N-D '58.
(MIRA 11:12)

1. Iz terapevticheskoy kliniki (zav. - prof. L.I. Fogel'son) TSentral'-
nogo nauchno-issledovatel'skogo instituta ekspertizy trudosposobnosti
i organizatsii truda invalidov (dir. - prof. O.I. Sokol'nikov).
(KIDNEYS, cysts
polycystic dis., eff. on kidney funct. (Rus))

MELAMED, S.B.

Functional diagnosis in chronic nephritis. Terap. arkh. 30 no.7:56-66
Jl '58   (MIRA 11:8)

1. Iz terapevticheskoy kliniki (zav. - prof. L.I. Fogel'son)
TSentral'nogo nauchno-issledovatel'skogo instituta eksperitizy
trudosposobnosti i organizatsii truda invalidov.
          (NEHPRITIS, diagnosis,
              funct. tests (Rus))

Melamed, Sh. G.

3695. **Spectrometric analysis of titanium.** Sh. G. Melamed, M. A. Notkina and S. M. Solodovnik. *Izv. Akad. Nauk SSSR, Ser. Fiz.*, 1955, 19 [2], 173–180; *Ref. Zhur., Khim.*, 1956, Abstr. No. 10,140.—Admixtures of P, Si, Mg and Ca in titanium are determined spectrographically. The sample of titanium under analysis is converted into TiO_2, and standards are prepared by mechanical mixing of pure TiO_2 with oxides of contaminants, excluding P, which is introduced as $Mg_4P_2O_7$. (i) Phosphorus is determined in a constant-current arc by volatilisation in a deep crater of a carbon electrode by means of the line P I 2553·28 A. The sensitivity is 0·01 per cent. (ii) Silicon and Mg are determined in a constant-current arc by using a mixture of 15 mg of TiO_2, 7·5 mg of carbon and 7·5 mg of Ni oxide. The sensitivity for Si was 0·01 per cent. from the lines Si I 2516·12 - Ni I 2540·02 A. Magnesium is determined from the lines Mg II 2795·53 - Ti II 2784·64 A for a content of 0·001 to 0·03 per cent. and from the lines Mg 2779·83 - Ti II 2784·64 A when the content is > 0·03 per cent. Relative errors for single determinations of Si and Mg are ± 8 per cent. and ± 9 per cent. respectively. (iii) The determination of Si, Mg and Ca is carried out by briquetting a mixture of TiO_2 with copper dust in a ratio of 1:8. Magnesium was determined from the relative intensities of lines Mg II 2795·53 - Ti II 2805·01 A, and Ca from the lines Ca II 2068·47 - Ti I 3958·21 A. The sensitivity for Si was 0·1 per cent., for Mg 0·005 per cent. and for Ca 0·01 per cent. The relative error of a single determination was ± 5 per cent.   R. Lord

LFH

Melamed, Sh. G.

Spectrographic analysis of impurities in titanium. Sh.
G. Melamed. Zavodskaya Lab. 21, 1066-70 (1955).
Sb, Sn, and Bi exhibit selectivity in evapn. In a d.c.
arc (260 v., 0 amp.), the P 2553.23 A. line stops at the end
of 90 sec., whereas those of Ti and Si, appearing simul-
taneously, continue after 4 min. The analysis was carried
out by 2 methods of excitation. TiO_2 contg. small amts. of
impurities was analyzed in a d.c. arc and arc samples contg.
higher proportions of the less volatile elements were analyzed
with a spark. In the first method, mix 10 mg. TiO_2 to be
analyzed with 10 mg. of a mixt. contg. 5 parts (wt.) of C
and 1 part NiO and place in the hollow of a C anode for the
detn. of Fe and Al against Ni as internal standard. Ca,
Mg, V, and Ne were detd. by their spark lines against de
those of Ti. Ni, Cr, Co, Cu, Zr, Mo, Ta, and Mn were
detd. semiquantitatively without an internal standard.
In the 2nd method mixts. of 160 mg. TiO_2 and 500 mg. C

acid, semiquantitatively, without an internal standard. In the 2nd method mixts. of 100 mg. TiO₂ and 600 mg. CuO were compressed and sparked against a conical C electrode. For the best sensibility a suitable spark should be found since compressed TiO₂ obtained from Ti metal and from TiCl₄ gave different spark spectra. Reproducible results were obtained with a spark of 220 v., 0.8 amp., 0.5 milli-henries, and 0.005 millifarads. The relative intensities of the blackening curves of pairs Mg-Ti and Ca-Ti in mixts. contg. 0.1% Cu and 0.1% Mg did not change.   I. D.

Melamed, Sh. G.

Spectrographic determination of tin, lead, antimony, bismuth, and cadmium in titanium, zirconium, tantalum, and niobium. Sh. G. Melamed and A. M. Saltykova. Zavodskaya Lab. 23, 673-6(1957).—Methods were developed for a systematic spectrum analysis for metallic Ta, Nb, Zr, and Ti, and the intermediate products in their manuf. The Sn and Pb spectrographic detns. were compared with results obtained by polarography, and the agreement was satisfactory; Bi, Sb, Cd and Ti results were not compared with analytical results. The results obtained were sufficiently reproducible to meet production requirements.

W. M. Sternberg

24(7)   PHASE I BOOK EXPLOITATION   307/1700

Lvov University

Materialy X Vsesoyuznogo soveshchaniya po spektroskopii, 1956.
t. II: Atomnaya spektroskopiya (Materials of the 10th All-Union
Conference on Spectroscopy, 1956. Vol 2: Atomic Spectroscopy) Its:
Prof Izd-vo L'vovskogo univ, 1958. 568 p. (Series: Its:
Vidikheskiy sbornik, vyp.4(9)) 3,000 copies printed.

Additional Sponsoring Agency: Akademiya nauk SSSR. Komissiya po
spektroskopii.

Editorial Board: O.S. Landsberg, Academician, (Resp. Ed.);
M.M. Beporent, Doctor of Physical and Mathematical Sciences;
I.I. Pahelinskiy, Doctor of Physical and Mathematical Sciences;
V.A. Fabrikant, Doctor of Physical and Mathematical Sciences;
V.G. Koritskiy, Candidate of Technical Sciences; S.M. Rayskiy,
Candidate of Physical and Technical Sciences; L.K. Klimovskaya,
Candidate of Physical and Mathematical Sciences; V.I. Miliyanchuk,
(Deceased), Doctor of Physical and Mathematical Sciences; A.Ye.
Glauberman, Doctor of Physical and Mathematical Sciences;
M.I. B.L. Gasel; Tech. Ed.: T.V. Saranyuk.

PURPOSE: This book is intended for scientists and researchers in
the field of spectroscopy, as well as for technical personnel
using spectrum analysis in various industries.

COVERAGE: This volume contains 177 scientific and technical studies
of atomic spectrography presented at the 10th All-Union Confer-
ence on spectroscopy in 1956. The studies were carried out by
members of scientific and technical institutes and include
extensive bibliographies of Soviet and other sources. The
studies cover many phases of spectroscopy: spectra of rare earths,
electromagnetic radiation, physicochemical methods for controlling
uranium production, physics and technology of gas discharge,
optics and spectroscopy, abnormal dispersion in metal vapors,
spectroscopy and the combustion theory, spectrum analysis of ores
and minerals, photographic methods for quantitative spectrum
analysis of metals and alloys, spectral determination of the
hydrogen content of metals by means of isotopes, tables, and
atlases of spectral lines, spark spectrographic analysis,
statistical study of variation in the parameters of calibration
curves, determination of traces of metals, spectrum analysis in
metallurgy, thermochemistry in metallurgy, and principles and
practice of spectrochemical analysis.

Card 2/31

Materials of the 10th All-Union Conference (Cont.)   307/1700

Salmand, Sh.G., and A.M. Saltykova. Spectrographic
    Determination of Tin, Lead, Antimony, and Cadmium in
    Titanium, Zirconium, Tantalum, and Niobium   181

Rubinshteyn, R.M., and M.G. Karpel'. Spectral Determination
    of Organic Impurities on the Surface of Metal Parts   182

Rusanov, A.K., and N.V. Il'yasova. Atlas for the Identification
    of Flame Spectra of Elements of 2,800-9,000 Å Wavelengths   184

Alekseyev, A.I., I.G. Grinman, S.K. Kalinin, Yu. A. Rudnikov,
    and V.L. Marzuvanov. First Edition of the Spectral Atlas
    of Elements: The Mercury Spectrum   185

Gurevich, I.M. The UIP-1 Pulse Photometer for Measuring
    Instantaneous Luminous Flux   187

Shcherbakov, Yu. A., and N.M. Bsakov. Photoelectric Method
    for Recording Contours of Spectral Lines in a D-C Arc   188

Sorf, O.P., A.I. Rymov, and D.A. Sholover. Spectral Charac-
    teristics of Ultraviolet Radiation Sources and Receivers   190

Card 12/31

MELAMED, Sh.G.; SALTYKOVA, A.M.

Spectrographic determination of tin, lead, antimony, and
cadmium in titanium, zirconium, tantalum, and niobium. Fiz.
sbor.   no.4:181-182   '58.   (MIRA 12:5)

1. Gosudarstvennyy nauchno-issledovatel'skiy institut redkikh
i malykh metallov "Giredmet."
                      (Spectrum analysis)

AUTHORS: Mislavskaya, P.F., Melamed, Sh.G.   32-24-4-29/67

TITLE: The Determination of Small Barium Sulfate Quantities in the Paste
             for Lead Accumulator Plates (Opredeleniye malykh kolichestv
             sernokislogo bariya v paste dlya plastin svintsovogo
             akkumulyatora)

PERIODICAL: Zavodskaya Laboratoriya, 1958, Vol. 24, Nr 4, pp. 453-454 (USSR)

ABSTRACT: It was found that in the presence of $1.10^{-4}\%$ barium sulfate the
             operation of lead accumulators is reduced to 25-30%. Experiments
             showed that barium can accumulate after a selective evaporation of
             lead in the deposit during the first burning stage of the electric
             arc. The mass to be investigated had a composition of 90% PbO_2,
             7% PbO and 3% $PbSO_4$. X-ray analyses carried out by K.F.Gusev
             showed that in the crater of the carbon cathode a complete reduc-
             tion of oxides to metal took place after 70 seconds. This is in
             agreement with the vaporization curves given, which were obtained
             according to the spectrographic method for lead and barium; the
             rules governing barium vaporization were confirmed also according
             to other methods. Analysis was carried out on a ISP-spectrograph.
Card 1/2   As a basic standard a paste prepared from spectrally pure PbO,

The Determination of Small Barium Sulfate Quantities   32-24-4-29/67
in the Paste for Lead Accumulator Plates

Pb_3O_4 and sulfuric acid in water, which was then dried, was used. Sensitivity of determination is given as $1.10^{-4}\%$ barium sulfate and $6.10^{-5}\%$ barium. Besides this semi-quantitative method, another and more precise method of determination is mentioned. In the case of the latter the sample is introduced into the radiation source by vaporization from the surface of a revolving alternating current arc electrode. The paste to be investigated is mixed with soda (4:1), moistened with water, and dried on the lower electrode plate. The electrode revolves with a speed of 2 revs./min. The spectrograph mentioned above is used, and lead is used as an element for comparison. Under the conditions described the addition of $1.10^{-4}\%$ barium sulfate to the pure paste is recorded. The mean error resulting from three determinations is estimated at $\pm 15\%$. There is 1 figure.

ASSOCIATION: Filial Nauchno-issledovatel'skogo akkumilyatornogo instituta
             (Branch of the Scientific Research Institute for Accumulators)

             1. Accumalators--Equipment   2. Barium sulfate--Determination
             3. Oxides--Reduction   4. Oxides--X-ray analysis

Card 2/2

AUTHORS: Chernikhov Yu.A., Melamed, Sh.G., Dobkina, B.M.   32-24-6-5/44

TITLE: The Determination of Microquantities of Titanium on a Niobium
             Background (Opredeleniye mikrokolichestv titana na fone niobiya)

PERIODICAL: Zavodskaya Laboratoriya, 1958, Vol 24, Nr 6, pp 677-679 (USSR)

ABSTRACT: As niobium forms a colored complex with hydrogen peroxide in a
             highly acid medium, whereas the titanium complex is formed in a
             weakly acid medium, suitable methods of determination were devel-
             oped by Schoeller (Ref 2) as well as by Palilla, Adler and Hiskey
             (Ref 3). It is proved in the course of the present paper that if
             the ratio between Nb_2O_5 : TiO_2 exceeds 100 : 1, it is not possible
             to determine titanium. The experiments carried out together with
             Ye.I.Petrova showed that much too high a value is obtained for ti-
             tanium, which is explained as being due to the absorption of
             niobium; different wavelengths are used in this connection, and
             thus the peroxide method is described as being unsuited for the
             determination of small quantities of titanium in niobium. For the
             determination of titanium beside niobium also the application of
             chromotropic acid is recommended; in view of existing discrepan-
Card 1/2   cies in the instructions, experiments were duly carried out.

The Determination of Microquantities of Titanium
on a Niobium Background   32-24-6-5/44

It was found that by evaporation-fractionation of titanium on
carbon in the light arc sensitivity is increased but reproduci-
bility is diminished; it is possible to use different wavelengths.
This spectral method was worked out with mechanically mixed
standard samples, and it may be seen from the diagram of calibra-
tion given that the error limit is ± 15% with a degree of sensi-
tivity of 0.002%. There are 2 figures, and 5 references, 0 of
which are Soviet.

ASSOCIATION: Gosudarstvennyy institut malykh i redkikh metallov (State
Institute of Tracer and Rare Metals)

1. Titanium--Determination   2. Niobium--Chemical effects
3. Titanium--Spectra

Card 2/2

MELAMED, Sh.G.; RUSANOV, A.K.; ZEMSKOVA, M.G.

Determining tantalum and niobium in the sum of their pentoxides.
Trudy Kom. anal. khim. 12:65-70 '60.   (MIRA 13:8)
        (Tantalum oxide)   (Niobium oxide)

MELAMED, Sh.G.; SOLODOVNIK, S.M.

Analysis of bismuth for impurities. Trudy Kom. anal. khim. 12:172-174 '60.   (MIRA 13:8)

(Bismuth--Analysis)

MELAMED, Sh.G., POLYAKOV, S.M., ZMESKOVA, M.G.

Spectrum analysis of the reare earths. Zav.Lab 26 no.5:554-556
'60.   (MIRA 13:7)

1. Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy
institut redkometallicheskoy promyshlennosti.
          (Rare earths--Spectra)

MELAMED, Sh.G.

N.S. Poluektov's "Flame photometry methods of analysis."
Reviewed by Sh.G. Melamed. Zav.lab. 26 no.5:650 '60.
(MIRA 13:7)
(Chemistry, Analytical) (Flame--Spectra)
(Poluektov, N.S.)

MELAMED, S.G.; ZEMSKOVA, M.G.

Atlas of spectral lines of rare earth elements (for DFS-3 and
DFS-13 spectrographs). Izv. AN SSSR. Ser. fiz. 26 no.7:970-
971 Jl '62.   (MIRA 15:8)
                          (Rare earths—Spectra)

S/0032/64/030/002/0183/0185

ACCESSION NR: AP4013302

AUTHORS: Shiryayeva, O. A.; Melamed, Sh. G.

TITLE: The effect of solution composition on the radiation intensity of rare earth elements in a hydrogen-oxygen flame

SOURCE: Zavodskaya laboratoriya, v. 30, no. 2, 1964, 183-185

TOPIC TAGS: rare earth element, yttrium, europium, lanthanum, gadolinium, dysprosium, samarium, hydrogen oxygen flame, perchloric acid, ethanol, radiation, radiation intensity

ABSTRACT: A 250-mg sample of Y_2O_3-Gd_2O_3 was dissolved in 5 ml of $HClO_4$, diluted with water to 25 ml, and subjected to spectrographic examination on a ISP-51 apparatus with a photoelectric attachment FEP-1 against standard solutions of yttrium and gadolinium. The hydrogen-oxygen flame device was constructed by M. E. Britske. Mixtures of yttrium-dysprosium oxides, and of europium-samarium oxides were also analyzed in a similar way. It was found that while the amount of yttrium in standard mixtures dissolved in hydrochloric acid was estimated as 45%, 55%, and 35%, the same samples, when dissolved in perchloric acid, yielded 48%, 56%, and 33.8% respectively. When an aqueous solution of perchlorates of rare earth metals

Card 1/2

ACCESSION NR: AP4013302

was evaporated to a syrupy consistency and then dissolved in ethanol, such solutions showed a still higher radiation intensity. Ammonium chloride had an enhancing effect on the intensity of radiation, while aluminum trichloride inhibited it. The sensitivity of europium determination (in admixtures with samarium) amounted to 0.01%, with an average quadratic error of 3%. Orig. art. has: 2 tables and 1 chart.

ASSOCIATION: Gosudarstvenny*y nauchno-issledovatel'skiy i proyektny*y institut redkometallicheskoy promy*shlennosti (State Scientific Research and Project Institute of Rare Earth Industry)

SUBMITTED: 00   DATE ACQ: 26Feb64   ENCL: 00

SUB CODE: CH   NO REF SOV: 002   OTHER: 004

Card   2/2

L 12410-65   S-T(m)/E-P(b)   JD/JG

AUTHOR: Melamed, Sh. G.; Kosty*gov, A. S.; Lishchenko, T. V.

TITLE: Spectrochemical determination of rare-earth impurities in rare-earth oxides

SOURCE: Zavodskaya laboratoriya, v. 30, no. 11, 1964, 1339-1343

TOPIC TAGS: rare earth oxide, yttrium oxide, neodymium oxide, praseodymium oxide, lanthanum oxide, rare earth oxide analysis, spectrochemical analysis, rare earth impurity determination, impurity concentration, ion exchange chromatographic concentration

ABSTRACT: A combined chemical and spectroscopic method has been developed for analyzing rare-earth impurities in high-purity yttrium, neodymium, praseodymium, and lanthanum oxides. The impurities concentration technique—a preliminary step to their spectroscopic determination—was perfected to increase the sensitivity of the spectroscopic analysis. Chromatographic ion exchange in a column packed with KU-2 cationic resin was described for concentrating Ho, Dy, Tb, and Gd in yttrium oxide; Sm, Pr, Ce, and La in neodymium oxide; Nd, Ce, and La in praseodymium oxide; and Nd, Pr, and Ce in lanthanum

Card 1/3

L 12410-65
ACCESSION NR: AP4048364   O

oxide. Sorption of the rare-earth elements was effected from solutions containing rare-earth chlorides, and the elution of rare-earth impurities with a solution of complexone. Rare-earth complex compounds in each fraction of eluate were decomposed with oxalic acid and rare-earth oxalate precipitate converted to oxides, which were analyzed spectroscopically for impurities. Additions of coprecipitating impurities, either inactive or radioactive (isotopes), were necessary in the cases of fractions with impurity-content below the sensitivity limit $(10^{-3}-10^{-1}\%)$ of direct spectroscopic analysis. The increase in sensitivity measured by the maximum enrichment factor was 10—250, depending on impurity and base material. The recovery of rare-earth impurities determined from the total γ-radioactivity in the eluate was in the 90—104% range. The ion-exchange method of separating rare-earth impurities can be employed for concentrating as low as $10^{-4}-10^{-3}\%$ impurities. Spectroscopic analysis for one element may be limited to one eluate fraction only, if radioactive tracers are introduced into the original solution before sorption. The formula for calculating the content of an element in the sample is given. The spectral excitation source was a d-c arc between carbon electrodes. The spectra were produced on a DFS-3 spectrograph with diffraction grating and were recorded photographically. Analytical pairs of spectral lines and the formula for calculating impurity concentration in the sample are given. Orig. art. has: 3 figures, 3 tables, and 2 formulas.

Card 2/3

L 12410-6

ACCESSION NR: AP4048364

ASSOCIATION: Gosudarstvenny*y nauchno-issledovatel'sky i proektny*y institut redkometallicheskoy promy*shlennosti (State Design and Planning Scientific Research Institute of the Rare Metals Industry)

SUBMITTED: 00   ENCL: 00   SUB CODE: GC

NO REF SOV: 001   OTHER: 003   ATD PRESS: 3126

Card 3/3

DRIVOTINOV, B.V., kand.med.nauk; SIDORENKO, G.I., kand.med.nauk; MELAMED,
    S.I., kand.med.nauk; DOVGYALLO. O.G., aspirant; CHERNUKHO, V.L,
    vrach; BUTSEL', A.M., vrach; VERZUHOVA, G.I., vrach; MUL'CHEVSKAYA,
    Ye.S., vrach

Some peculiarities in the clinical course of grippe in 1959. Zdrav.
Belor. 5 no.1:40-42 Ja '60.   (MIRA 13:5)

1. Iz II klinicheskoy bol'nitsy Minska.
              (MINSK--INFLUENZA)

MELAMED, S.I., kand.meditsinskikh nauk; DOVGYALLO, O.G., aspirant

Treatment of duodenal and gastric ulcer with hexonium.
Zdrav. Belor. 6 no. 7:11-13 Je '60.   (MIRA 13:8)

1. Iz fakul'tetskoy terapevticheskoy kliniki (zaveduyushchiy -
akademi AN BSSR professor B.I. Trusevich) Minskogo
meditsinskogo instituta.
                    (PEPTIC ULCER)   (AMMONIUM COMPOUNDS)

CA

12

Preparation of potassium periodate. S. L. Melamed *Zavodskaya Lab.* **15,** 1003(1949).—Product assaying 99.7% and free of alkali and Mn is reportedly made at Sverdlovsk plant for chem. reagents.   G. M. K.

C. A

Use of periodates in volumetric analysis. I. Acid-base equilibrium in its effect on the potential of the system. IO. IO. V. S. Syrokomskii and S. I. Melamed. (Ural State Univ.) Zavodskaya Lab. 16, 131-3(1950). The potential of the system in $N\ H_2SO_4$ is 1.675 v. Increase of H^+ concn. lowers it to 0.874 v. at pH 9.2, followed by a rapid drop to 0.708 v. at pH 9.5. The system can be used as an electrode for pH detns. II. Preparation of standard solutions of periodate and methods of direct determination of a reducing agent. Ibid. 273-7. The best soln. is 0.02 N KIO_4 in $N\ H_2SO_4$; the soln. is stable even on boiling and it keeps well. Ph_2NH, its sulfonic acid, or phenylanthranilic acid can be used as indicators; no acid soln. Ph_2NH is especially useful in the presence of Fe. Titrations of Fe, Sb, As, are readily performed. In As titration the use of Ph_2NH methyl orange combined indicator is advised, the end point is the appearance of a blue color.

G. M. Kosolapoff

Use of periodates in volumetric analysis. III. Indirect determination of zinc and cadmium. V. S. Syrokomskii and S. I. Melamed (Uralsk State Univ.). *Zavodskaya Lab.* 16, 398–401 (1950), cf. C.A. 44, 8759g. Pptn. of $Zn_3(IO_5)_2$ and $Cd_3(IO_5)_2$ is quant. and may be used for the indirect detn. of Zn and Cd by titration of the periodate bound in these salts or by detn. of unused excess of the periodate. For Zn in the cold the pptn. is best at pH 4.2–6.0, but is incomplete; by using p-nitrophenol indicator (pH 5–6) in NH_4Cl soln. in the presence of NH_4OH the pptn. is complete in hot soln.; it is best done by using urea as the source of NH_3. For Cd the conditions are analogous.

G. M. Kosolapoff

MELAMED, S.I., kand.khimicheskikh nauk, dotsent

Improving the quality of water for engine cooling.
Uch. zap. Mord. gos. un. no.13:213-217 '60.   (MIRA 15:11)

1. Kafedra khimii Mordovskogo gosudarstvennogo universiteta.
                    (Engines--Cooling)
                (Saline waters--Demineralization)

MELAMED, S.I.

Seminar of workers in the furniture industry of the Ukrainian S.S.R.
Bum. i der. prom. no.2:55 ap-Je '63.   (MIRA 17:2)

MELAMED, S.M.

Mechanism for hoisting ceramic pipes. Stek. i ker. 13 no.10:32 O '56.
      (Shchekino--Ceramic industries)   (MLRA 9:12)
        (Hoisting machinery)

MELANED, S.M., inzh.

Automatic grips. Bet.i zhel.-bet. no.4:161-165 Ap '60.
(MIRA 13:8)
(Hoisting machinery)

MELAMED, S.M., inzh.

        Automatic catches for cranes.　Bezop.truda v prom. 4 no.9:29-
        30 S '60.　　　　　　　　　　　　　　　　(MIRA 13:9)
               (Cranes, derricks,etc)

MELAMED, S.M.

Review of the work carried out by the "Ukrainian State Institute of Design and Planning of Furniture Industry Enterprises." Bum.i der.prom. no.4:54-55 O-D '62.   (MIRA 15:12)

1. Ukrgipromebel'.

(Furniture industry)

MELAMED, S.M., inzh.; SIDOROV, V.V., inzh.

Machine for casting ventilation "blocks." Mekh. stroi. 19
no.4:23-24 Ap '62.   (MIRA 15:9)
         (Precast concrete) (Ventilation—Equipment and supplies)

MELAMED, S.M.; RUDENKO, N.F., doktor tekhn. nauk, prof.,
retsenzent

[Automatic gripping devices for piece freight] Avtoma-
ticheskie zakhvaty dlia shtuchnykh gruzov. Moskva, Ma-
shinostroenie, 1965. 130 p.   (MIRA 18:4)

BENTSIANOVA, I.Ya.; VEKSLER, G.M.; MARKOV, L.R.; MELAMED, S.N.;
PETRIYENKO, P.M.

Use of hemp tow for the manufacture of particle boards. Der.
prom. 11 no.4:9-10 Ap '62.
(MIRA 15:4)

1. Ukrgipromebel'.
(Hardboard)   (Hemp)

PETRIYENKO, P.M.; LEVANDOSVKIY Ya.S.; MELAMED, S.N.

New furniture models recommended for production. Buz. i den, prom.
no.1:26-28 Ja-Mr '55.

(MIRA 18:10)

BUDKFR, S.B.; BUTAYEV, O.A.; LEYDERMAN, M.I.; MELAMED, S.S.

Using gear pumps for transporting liquefied petroleum gases.
Gaz. prom. 10 no.9:19-22 '65.   (MIRA 18:11)

S/138/60/0⁰⁰/006/⁰⁰?/⁰⁰ᵘ
A051/A029

AUTHORS: Koshelev, F.F., Fedyukina, L.P., Melamed, T.I , Kamenskiy,
            B.Z., Vostroknutov, Ye.G.

TITLE: On the Development of Self-Vulcanizing Materials for the Re-
            pair of Pneumatic Tires

PERIODICAL: Kauchuk i Rezina, 1960, No. 6, pp. 27 - 29.

TEXT: The recent development and application of self-vulcanizing
materials in tire repair and the cold vulcanization method is pointed out.
Due to the introduction of tubeless tires in the last few years, the in-
terest in self-vulcanizing materials has grown, as well as research work
in this field. The principles of production of Soviet self-vulcanizing
rubbers, pastes and cements based on natural rubber and Soviet ingredients
for use in tire repairs by the cold vulcanization method are outlined.
The production of these materials began in 1959 by the MITKhT im. Lomono-
sov in cooperation with the NIIShP. These principles are also applicable
to synthetic rubbers butadiene-nitrile CKH-26 (SKN-26) and CKH-4C (SKN-4C),
carboxylic CKC-30-1 (SKS-30-1) rubbers, etc. Thus, the composition of a

Card 1/3

On the Development of Self-Vulcanizing Materials for the Repair of Pneu-
matic Tires

S/138/60/000/006/003/008
A051/A029

cement was developed for use in the cold repair of rubber articles with a
sufficiently high adhesiveness and a satisfactory thermostability at 100°C.
In order to avoid gelatination during the production and storage of the
pastes and cements, two solutions of the cement and the paste were develop-
ed which are mixed together prior to their application. In order to find
the most active ultra-accelerators of vulcanization at low temperatures,
Zn, Pb, Al, Bi, Cd and Sb salts of dialkyldithiocarbamine acids were stud-
ied. It was found that the zinc salt has a higher level of vulcanization.
Various epoxide resins were tested for the purpose of increasing the ad-
hesiveness of the cements to vulcanized rubber and fabrics. It was estab-
lished that the partial replacement of the epoxide resin with phenolfor-
maldehyde increases the stability of the cement during storage. Gas chan-
nel carbon black, and mineral fillers (colloidal silica УК-333 (UK-333) and
УС-170 (US-170), powered silica gel; the silicates of calcium, zinc, etc.),
were tested as fillers for increasing the mechanical resistance of the lay-
ers of the adhesive. Tests were performed on the tube and casing rubbers.

Card 2/3

S/138/60/000/006/00?/??
A051/A029

On the Development of Self-Vulcanizing Materials for the Repair of Pneuma-
tic Tires

It was established that liquid cement, which is part of the cement compo-
sition, can be applied independently during the joining of non-vulcanized
articles of complex profile with subsequent vulcanization. The authors
recommend these cements, pastes and rubber mixtures for the repair of tubes,
casings, tubeless tires, belts, sleeves, various rubber footwear and the
rubberizing of various chemical apparatus, as well as the cementing of
leather to rubber and a number of other materials. There are 3 tables and
15 references: 6 Soviet, 7 English and 2 German.

ASSOCIATION: Moskovskiy institut tonkoy khimicheskoy tekhnologii im. M.V
               Lomonosova i nauchno-issledovatel'skiy institut shinnoy
               promyshlennosti, (The Moscow Institute of Fine Chemical Tech-
               nology imeni M.V. Lomonosov and the Scientific Research
               Institute of the Tire Industry)

Card 3/3

VODOLAZOVA, L.Kh.; MELAMED, S.P.

Use of hydrocylones and centrifuges for clarifying the process of hydrolyzate neutralization. Gidroliz. i lesokhim. prom. 18 no.5:7-9 '65. (MIRA 18:5)

1. Severnyy nauchno-issledovatel'skiy institut promyshlennosti.

MELAMED, V.; FEDOROV, D.

Raising the coefficient of efficiency. Mias. ind. SSSR 30 no.3:46 '59.
(MIRA 12:9)

1. Dnepropetrovskiy myasokombinat.
(Dnepropetrovsk—Meat industry—Equipment and supplies)

16(1)

AUTHOR: Melamed,V.B.   SOV/20-126-3-11/69

TITLE: Evaluation of the Index of the Stationary Point of a Completely
           Continuous Vector Field

PERIODICAL: Doklady Akademii nauk SSSR,1959,Vol 126,Nr 3,pp 501-504 (USSR)

ABSTRACT: Let A be a completely continuous operator in the real Banach
           space E; let A0 = 0 and let the Frechet-derivative of A in the
           origin of E be B. Let 1 be eigenvalue of B. E is the direct sum
           of a finite-dimensional E_1 corresponding to the eigenvalue 1 and
           an E_2 in which B has not the eigenvalue 1. Let E_1 consist only of
           the eigenvectors of B. For every $\varphi \in E$ it holds $\varphi = x+y$, where
           $x \in E_1$, $y \in E_2$. Let the operator P be defined by $P\varphi = x$. In the
           neighborhood of the zero of E let $A\varphi = B\varphi + C_n\varphi + C_n + \varphi + \ldots + C_{n+k}\varphi + D\varphi$,
           where c_i are operators of i-th order while

           $$\lim_{\|\varphi\| \to 0} \| D\varphi \| \cdot \| \varphi \|^{-n-k} = 0 .$$

           Let γ be the index of the zero solution of $\varphi = A\varphi$.
           Theorem: Let

Card 1/3

Evaluation of the Index of the Stationary Point of a   SOV/20-126-3-11/49
Completely Continuous Vector Field

$$PC_n x \equiv PC_{n+1} x \equiv \ldots \equiv PC_{n+k-1} x \equiv 0 \qquad (x \in E_1)$$

$$PC_{n+k} x \neq 0 \qquad (x \in E_1, \ x \neq 0)$$

and let $k < n-1$. Then zero is an isolated solution of $\varphi = A\varphi$, where

$$\gamma = (-1)^\beta \gamma_1 \ ,$$

where β is the sum of the multiplicities of those eigenvalues of B being greater than 1, while γ_1 is the rotation of the vector field $-PC_{n+k} x$ on the unit sphere of the E_1.

The theorem is applicable for the proof of convergence for approximate methods of the type of Galerkin, for the solution of non-linear equations, for spectral investigations of non-linear operators, for the investigation of the correctness of several problems with respect to the small perturbations, for the

Card 2/3

Evaluation of the Index of the Stationary Point   SOV/20-126-3-11/69
of a Completely Continuous Vector Field

        investigation of cases of bifurcation etc.
        Further four theorems contain the results of some of these
        applications. The author mentions M.A.Krasnosel'skiy.
        There are 3 references, 1 of which is Soviet, 1 Hungarian,
        and 1 English.

ASSOCIATION: Omskiy pedagogicheskiy institut (Omsk Pedagogical Institute)

PRESENTED: February 20, 1959, by P.S.Aleksandrov, Academician

SUBMITTED: February 19, 1959

Card 3/3

29003

16.4500

S/020/61/140/004/002/023
C111/C444

AUTHOR: Melamed, V. B.

TITLE: Analytic solutions to some non-linear integral equations

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 140, no. 4, 1961,
            759 - 762

TEXT: In the space of the complex-valued function, continuous
on (0,1) the equation

$$\varphi = \lambda \left[K_1 \varphi + K_n \varphi^n + K_{n+1} \varphi^{n+1} + \dots \right] \tag{1}$$

is considered, where λ is a complex parameter,

$$K_i \varphi^i = \int_0^1 K_i(x,s) \varphi^i(s) \, ds, \tag{2}$$

and where the series $K_1(x,s)z + K_n(x,s)z^n + K_{n+1}(x,s)z^{n+1} + \dots$ con-
verges for $0 \leqslant x, s \leqslant 1$, $|z| < R$ to the function $K(x,s,z)$ which is
continuous in x,s,z and analytic in z.
Under the supposition that 1 is eigenvalue of $K_1(x,s)$, the solution

of (1) is constructed by the method of Nekrasov-Nazarov, and several
Card 1/6

29003
S/020/61/140/004/002/023
Analytic solutions ...   C111/C444

conjectures on the indices of the solutions in the more general case
uttered by M. A. Krasnosel'skiy, are proved for the special case of
(1).

    Let $p_1(x), \ldots, p_1(x)$ be the eigenfunctions of $K_1\varphi$, corresponding
to 1; let $q_1(x), \ldots, q_1(x)$ be the adjoint functions. Let

$$(p_i, \ q_j) = \delta_{ij}. \tag{3}$$

The operator $P\varphi$ be defined by

$$P\varphi = \sum_{i=1}^{1} (\varphi, \ q_i) \ p_i \tag{4}$$

$P\varphi$ projects C on the subspace E_1 of the eigenfunctions of K_1. The
following conditions be satisfied:

$$PK_n \varphi^n \equiv PK_{n+1} \varphi^{n+1} \equiv \ldots \equiv PK_{r-1} \varphi^{r-1} \equiv 0 \ (\varphi \in E_1); \tag{5}$$

$$PK_r \varphi^r \neq 0 \ (\varphi \in E_1, \ \varphi \neq 0). \tag{6}$$

Card 2/6

29003

S/020/61/140/004/002/023
C111/C444

Analytic solutions...

where   (7)
$$n \leqslant r < 2n - 1$$
(if r = n, (5) falls out),

Theorem 1: Under the suppositions (5), (6), (7), 1 is bifurcation-point of   (8)
$$K\varphi = K_1\varphi + K_n\varphi^n + K_{n+1}\varphi^{n+1} + \ldots$$

From theorem 1 follows that for λ-values in the neighborhood of 1, the equation (1) possesses small non-vanishing solutions.

Let $(\lambda - 1)^{\overline{2r-2}} = \mu$; then (1) becomes

$$\varphi = (1 + \mu^{2r-2}) (K_1\varphi + K_n\varphi^n) + \ldots + K_r\varphi^r + \ldots)$$ (10)

Let $\varphi(x) = \mu^2 \varphi_2(x) + \mu^3 \varphi_3(x) + \ldots$ (11)

be the solution of (10).

The substitution of (11) into (10) and the comparison of the coefficients leads to a system of equations for the determination of the integration constants, being written down in the following form:

Card 3/6

29003
S/020/61/140/004/002/023
C111/C444

Analytic solutions...

$$\Phi(z) = 0 \tag{14}$$

where Φ is a non-linear transformation in the 1-dimensional complex Eucledean R_1, and z is a point of this R_1. If 1 is a simple eigen-value of $K_1(x,s)$, then the set M of the solutions of (14) consists merely of simple points , to each of these points corresponding a solution (11). If z_o is a multiple point of M, then

$$\Phi(z_o + h) = A_1 h + A_2 h^2 + \ldots + A_r h^r . \tag{15}$$

Let $R_m (m < 1)$ be the m-dimensional proper subspace of the operator A_1, corresponding to the eigenvalue 0. Let P_1 project the space R_1 on R_m, where a condition analogous to (3) is satisfied. Let

$$P_1 A_2 h^2 \neq 0 \quad (h \in R_m, \ h \neq 0), \tag{16}$$

a certain condition

$$P_1 A_2 hg \neq 0 \quad (g \in R_m, \ g \neq 0) \tag{18}$$

Card 4/6

29003
S/020/61/140/004/002/023
C111/C444

Analytic solutions...

being satisfied.
It is now settled (theorem 2) that if (1) satisfies the conditions (5),
(6), (7), and if for every multiple point of M the conditions (16)
(18) are satisfied, then the equation (1) possesses for λ-values in
the neighborhood of 1 r^1 -1 non-vanishing solutions, which may be ex-
panded in terms of positive fraction powers of λ - 1.
Theorem 3: The index of an arbitrary isolated solution $\varphi(\| \varphi \| < R)$
of (1) is positive.
Theorem 4: Let the conditions of theorem 2 be satisfied. For suffi-
ciently small $\mu \neq 0$ the index of each solution (11) of (10) is 1.
Theorem 5: The conditions of theorem 2 be satisfied. Let there
exist positive ε, δ such that for $|\lambda - 1| \leq \varepsilon$ all solutions φ of (1),
satisfying $\| \varphi \| \leq \delta$, are isolated. Then there exist positive ε_1
and δ_1 such that for $|\lambda - 1| \leq \varepsilon_1$, $\lambda \neq 1$, the equation in the sphere
$\| \varphi \| \leq \delta_1$ possesses exactly the described r^1 solutions and no others.

There are 7 Soviet-bloc and 3 non-Soviet-bloc references. The two
references to English-language publications read as follows: J. Cronin

Card 5/6

29003

S/020/61/140/004/002/02;

C111/C444

Analytic solutions.

Ann. of Math., 58, 175 (1953); W. Hodge   D Pedoe, Metody algebrai-cheskoy Geometrii, (Methods of Algebraic Geometry) 3. IL 1955.

ASSOCIATION: Omskiy pedagogicheskiy institut (Omsk Pedagogical In-stitute)

PRESENTED: May 12, 1961, by A. N. Kolmogorov Academician

SUBMITTED: February 10, 196:

Card 6/6

MELAMED, V.B.

Calculation of the rotation of a completely continous vector field
in the critical case. Sib. mat. zhur. 2 no.3:414-427 My-Je '61.
                                                    MIRA 14:7)
            (Vector analysis) (Algebraic topology)

MELAMED, V.B.

Problem of the branching of solutions to a nonlinear analytic
equation. Dokl.AN SSSR 145 no.3:531-533 Jl '62.   (MIRA 15:7)

1. Predstavleno akademikom S.L.Sobolevym.
   (Operators (Mathematics))   (Functional equations)

MELAMED, V.B.; PEROV, A.I.

Generalization of M.A.Krasnosel'skii's theorem on the complete
continuity of the Frechet derivative of a completely continuous
operator. Sib. mat. zhur. 4 no.3:702-704 My-Je '63. (MIRA 16:6)
                    (Operators (Mathematics))
                    (Krasnosel'skii, M.A.)

MELAMED, V.B.

Bifurcation points of a certain class of equations. Dokl. AN
SSR 152 no.4:821-822 O '63.   (MIRA 16:11)

1. Omskiy institut inzhenerov zheleznodorozhnogo transporta.
Predstavleno akademikom M.A. Lavrent'yevym.

MELAMED, V.B.

Formal solutions to some nonlinear equations. Sib. mat. zhur. 6
no.1:165-177 Ja-F '65.
(MIRA 18:4)

MELAMED, V. G., Cand Phys-Math Sci -- (diss) "Solution of Stefan's Problem by Reduction to the System of Ordinary Differential Equations." Mos, 1957. 7 pp with graphs(Min of Higher Education USSR, Mos State Univ im M. V. Lomonosov), 100 copies (KL, 48-57, 104)

- 4 -

Melamed / C

AUTHOR: Melamed, V. G.

2c-4-14/51

TITLE: A Note on the Solution of Stefan's Problem by the Reduction to a System of Ordinary Differential Equations (O reshenii zadachi Stefana svedeniyem k sisteme obyknovennykh differentsial'nykh uravneniy).

PERIODICAL: Doklady AN SSSR, 1957, Vol. 116, Nr 4, pp. 577-580 (USSR).

ABSTRACT: Stefan's problem is defined to consist of the problem of the interaction of two temperature fields, if special boundary conditions are given on the moving boundary. The corresponding differential equations and the boundary conditions are given. The particular difficulty of Stefan's problem consists in the fact, that it is non-linear because of a certain boundary condition (which is given here). Apart from many methods, which employ simplifications, a method leading to an exact solution (references 5,6,7) was proposed. The first section deals with the reduction of Stefan's problem to an infinite system of ordinary differential equations. In order to conduct a more convenient proof, only a zone $(0 \langle x \langle \xi)$ is investigated. The course of the computation is pursued. The second section deals with the limiting process towards an infinite system of differential equations, with the uniqueness of the solution and the fi-

Card 1/2

A Note on the Solution of Stefan's Problem by the Reduction   2o-4-14/51
to a System of Ordinary Differential Equations.

nally resulting system of differential equations. The sequences
of the approximate solutions show a practically sufficient conver-
gence from n = 2 onwards. This case can also be computed sufficient-
ly easily with manual computing machines.
There are 2 figures and 9 references, 6 of which are Slavic.

ASSOCIATION: Moscow State University imeni M. V. Lomonosov (Moskovskiy gosudarst-
vennyy universitet imeni M. V. Lomonosova).

PRESENTED: April 27, 1957, by S. L. Sobolev, Academician.

SUBMITTED: June 26, 1957.

AVAILABLE: Library of Congress.

Card 2/2

SOV/49-58-7-4/16

AUTHOR: Melamed, V.G.

TITLE: Reduction of Stefan's Problem to a System of Ordinary
            Differential Equations (Svedeniye zadachi Stefana k sisteme
            obyknovennykh differentsial'nykh uravneniy)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Seriya Geofizicheskaya,
              1958, nr 7, pp 848 - 869 (USSR)

ABSTRACT: The Stefan's problem relates to the division of temperature
            fields between the solid and liquid phases of matter, as
            expressed by Eqs.(1) and (2) with the limiting conditions
            (3) to (6). The notations indicate $u_1(x,t)$, $u_2(x,t)$-unknown
            a_1^2 a_2^2 – temperature transmission, λ_1, λ_2 – heat transmission
            Q – heat of crystallisation per m^3, t – time, x – depth
            co-ordinate, $\xi = \xi(t)$ – phase division.

            The above equations are difficult to solve due to the
            condition (3), which introduces a non-linear element. A
            method is described giving a practical solution by a
            reduction of the partial derivatives into a system of normal
            differential equations.
            1) Reducing the Problem to Infinite Ordinary
            Differential Equations.
Card1/10   The Eqs.(1) and (2) can be substituted into (7) and (8)

SOV/49-58-7-4/16

Reduction of Stefan's Problem to a System of Ordinary
Differential Equations

with the conditions (3) and (4). It is assumed that $v_1(x, t)$ and $v_2(x, t)$ can be expanded into Fourier series at $(0, \xi(t))$ and $(\xi(t), l)$ with t constant and that Eqs.(9) and (10) are obtained with the parameters (11) and (12).

Next, the infinite differential equations formed for A_k, B_k and ξ as follows: both parts of (1) are multiplied by $k\pi x/\xi$ and integrated from 0 to ξ in order to obtain Eqs.(13) and (14). To convert the left part of Eq.(13), the transformation (15) is performed. By substituting Eqs.(14) and (15) into the left and right parts of (13), a final equation (16) is obtained for A_k.

Similarly, by multiplying both parts of Eq.(2) by $\sin(k\pi(x-\xi)/l - \xi)$ and integrating from ξ to l, the final equation (17) for B_k is obtained.

Substituting Eqs.(7) and (8) into the Eq.(6), the final

Card2/10

Reduction of Stefan's Problem to a System of Ordinary Differential Equations

Eq.(18) for ξ is obtained. The Eqs.(16) to (18) can be solved through a limiting transition when $n \rightarrow \infty$ and the number of equations is equal to $2n + 1$. Thus, Eqs.(19) to (21) are obtained.
The initial values of A_k and B_k are calculated from Eqs.(22) to (24). The existence of the real values of Eqs.(19) to (21) results from the real partial derivations of the right parts of the equations.
Characteristics of the Abbreviated Form of the Eqs.(19) to (21)
The Eqs.(19) to (21) are changed into (25) to (27) by substituting:

$$A^{(n)}_k = 1/k^3 C_k \, , \quad B^{(n)}_k = 1/k^3 D_k \, .$$

Then the Eqs.(25) and (26) can be written as (28) and (29).
Introducing:

$$y' = - p(x)y + r(x), \quad p(x) > 0, \quad y(0) = y_0$$

Card3/10

Reduction of Stefan's Problem to a System of Ordinary Differential Equations

and assuming that $C_k(t)$ has a maximum at $t = t_1 (0 \leqslant t_1 \leqslant t)$, eventually Eqs.(30) and (31) are obtained. Similarly, D_k is calculated.

To prove the above, the following should be applied: when a real number $m \leqslant n$ is taken, the denotations (32) to (35) should be made and all the constants and their derivations denoted by M (the same applies to D_k).

The equations (36) and (37) are obtained by substituting Eq.(30) for $k \leqslant m$ and Eq.(31) for $k > m$ into Eqs.(25) and (26) with application of Eqs.(32) to (34). In order to obtain G_n the Eq.(38) is formed from Eq.(27) by substituting Eqs.(32) to(34). This equation is transformed into the final form (39). It should be noted that G_n has limits; therefore $\xi^{(n)}$ will lie between 0 and 1 and the result (40) will be limited by these two values. The right part of Eq.(40) represents a curve placed in the first quarter (Figure 1) with the asymptote at $z = 1/3$.

Card4/10

Reduction of Stefan's Problem to a System of Ordinary Divverential Equations

The left part represents a bisectrix.
The intersection of the straight line by the curve will depend on α and β (i.e. on m and t). There will be two points of intersection z_1 and z_2. Two possibilities may occur according to Eq.(40): $z < z_1$ or $z > z_2$.

However, at $t > 0$, $z \leqslant k$, z should always be smaller than z_1 otherwise Eq.(40) will not be true, i.e. z would like between z_1 and z_2 (Figure 1). Thus, when $0 \leqslant t \leqslant T$, z is limited at all $n(z < z_1)$ or E_n, F_n and G_n have an upper limit independent from n.

Limiting Transition into Infinite System of Differential Equations

The Eqs.(25) to (27) can be calculated for $n + p$. The calculation is performed as for n and the final equation(41) is obtained for A_k (similarly for B_k).

By limiting the Eqs.(19) to (21) by $n \rightarrow \infty$ in Eq.(41),

Card5/10

SOV/49-58-7-4/16

Reduction of Stefan's Problem to a System of Ordinary Differential Equations

the series $A_k^{(n)'}$, $B_k^{(n)'}$ and $\xi^{(n)'}$ will converge. This is evident from the converging character of the right parts of the equations which are independent of t. Therefore,

$$\lim_{n \to \infty} \left[A_k^{(n)'} \right] = A_k' \text{ , etc.}$$

and the solutions of the Eqs.(16) to (18) are found.
The functions $v_1(x, t)$ and $v_2(x, t)$ expressed by Eqs.(7) and (8) are continuous along x and t having a continuous derivative x (from Eq.(41)). Therefore, $u_1(x, t)$ and $u_2(x, t)$ are of the same character, thus satisfying the condition (6) at the boundary between two phases.
It can be shown that the solutions (42) obtained by this method are in agreement with the Eqs.(1) and (2). This is achieved by removing those parts from Eq.(16) which contain k .
Card6/10 By performing the evaluations of $\partial u_1/\partial t$ (substituting

Reduction of Stefan's Problem to a System of Ordinary Differential Equations

C_k' from (42)) and $\partial^2 u_1/\partial x^2$, it can be shown that the question of their real value and their continuity becomes associated with the converging of x at a constant t , (Eqs.(43) to (46) . Similarly, the same can be said of $\partial u_2/\partial t$ and $\partial^2 u_2/\partial x^2$. The results obtained are in agreement with Eqs.(1) and (2) for $k(k = 1, 2, 3...12)$.

Uniqueness of the Solution

There is no other solution of Eqs.(1) to (6) due to both the limiting conditions and the continuous derivative x . This can be proved by assuming an existence of a second solution and by carrying out the method of transformation as shown above. As a result, the Eqs.(47) and (48) are obtained. These show that when $\beta < 1$ (as before), $\delta C_k = 0$. It follows, then, that only **one** real solution can be found for the problem.

Evaluation of the Equations

The final forms of the equations describing the dynamics of the temperature field in the case of the two adjoining phases Card7/10are shown as Eqs.(49) to (51). The evaluation of these

SOV/49-58-7-4/16

Reduction-of Stefan's Problem to a System of Ordinary Differential Equations

equations can be carried out by means of Euler formula. The coefficients of A_k and B_k of the right parts are negative; therefore, the Eqs.(49) and (50) can be changed into $A_k(t_{n+1}) = \ldots$ and $B_k(t_{n+1}) = \ldots$ The functions $u_1(x, 0)$ and $u_2(x, 0)$ can be evaluated numerically or graphically. Similarly, $A_i(0)$ and $B_i(0)$ can be represented by both the Simpson method or the harmonic analysis. Knowing the right part of Eq.(51) at $t = 0$, $\eta'(0)$ and $\eta(0 + h)$ are found, which are substituted into Eqs.(49) and (50) in order to obtain A_k, B_k at $t = 0 + h$. Then, substituting A_k, B_k and η into $u_1(x, t)$ and $u_2(x, t)$, the temperature field for $t = 0 + h$ is found. In the case of a numerical evaluation of $\phi_1(t)$ and $\phi_2(t)$ in Eqs.(49) and (50), the new denotations should be introduced for Z and Y.

Card8/10

Reduction of Stefan's Problem to a System of Ordinary Differential
Equations

As an example, a solution was found by means of an elec-
tronic ccomputer ' "Strela". The condition of thawing of
a frozen soil was calculated with the following data given:

$$u_1(0, t) = -3 - 7.5 \sin \frac{2\pi}{T} t; \quad T = 8760 \text{ hours}$$

$$u_2(l, t) = -3, \text{ etc.}$$

The results of the calculation are shown in the Figures 2-7
and in the tabulation. It can be seen from Figures 2 and
3 that the positioning of the phase division is sufficiently
accurate also for a small n. The temperature field
(Figures 4 - 6) is determined less exactly in this case,
the mean error, however, being insignificant. Similarly,
the flow of heat through the surface $x = 0$ (Figure 7)

Card9/10

SOV/49-58-7-4/16

Reduction of Stefan's Problem to a System of Ordinary Differential Equations

was caomputed.. It was found that the computation could be simplified by an application of n = 2 . In this case, the computation can be performed by hand machine.
There are 7 figures, 1 table and 9 references, 7 of which are Soviet, 1 French and 1 German.

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

SUBMITTED: April 18, 1957

Card 10/10   1. Materials--Phase studies   2. Solids--Thermodynamics
              3. Liquids--Thermodynamics   4. Differential equations--
              Applications