L 24907-65   EWT(d)/EWT(1)/EEC(k)-2/EEC-4/EEC(t) Pn-4/Pg-4/Pt-10/P1-4   WS

ACCESSION NR: AP4045479   S/0109/64/009/009/1578/1580   50

AUTHOR: Kashin, V. A.; Merkulov, V. V.   B

TITLE: Problem of scattering of electromagnetic waves by a rough surface

SOURCE: Radiotekhnika i elektronika, v. 9, no. 9, 1964, 1578-1580

TOPIC TAGS: electromagnetic wave, radio wave scatter

ABSTRACT: A theoretical proof is offered that if a plane vertically polarized
electromagnetic wave strikes a rough perfect-conductance surface at a grazing
angle, the fringe effect associated with the Kirchhoff approximation (which was
usually neglected) may be essential. For a certain correlation function given in
the article, the angle may reach 30°. For a horizontally polarized wave, no
correction for the fringe effect is necessary. Orig. art. has: 2 figures and
17 formulas.

ASSOCIATION: none

SUBMITTED: 20Jun63   ENCL: 00

SUB CODE: EM   NO REF SOV: 001   OTHER: 000

Card 1/1

L 27220-65   EWT(1)/EEC-4/EEC(t)/EEC(b)-2/FCS(k)   Pac-4/Pae-2/Pi-4/Pj-4/Pl-4
                                            WR
ACCESSION NR: AP5002893   S/0109/65/010/001/0007/0013
                                                                      4 5
AUTHOR: Zakson, M. B.; Merkulov, V. V.   3 2

                                                                       8
TITLE: Nonequidistant antenna arrays with randomly deployed elements
                                        25B
SOURCE: Radiotekhnika i elektronika, v. 10, no. 1, 1965, 7-13

TOPIC TAGS: antenna, antenna array

ABSTRACT: Cophasal linear arrays with randomly arranged elements are
theoretically analyzed. The arrays are characterized by some statistical
parameters. Formulas for average and mean-square values of the directional
pattern are developed as a result of consideration of two sets of conditions:
(1) A nonequidistant array is built by placing an n-th element at a distance l_n of
the n-th element of the original equidistant array; the values l_n are randomly
independent and are characterized by a $W_n(l_n)$ law of distribution; (2) Radiators
are placed with equal probability into an interval $-a \dotplus a$. A formula (29) is also

Card 1/2

I. 27220-65

ACCESSION NR: AP5002893   ○

derived for the probability of antenna lobes having a specified level. The
theoretical results are in good agreement with those obtained by I. T. Lo (IEEE
Trans., Antennas and Propagation, 1963, 95). Orig. art. has: 4 figures and
34 formulas.

ASSOCIATION: none

SUBMITTED: 28Oct63   ENCL: 00   SUB CODE: EC

NO REF SOV: 001   OTHER: 001

Card 2/2

L 40366-66   EWT(1)/T__WR

ACC NR: AP6014247   SOURCE CODE: UR/0109/66/011/005/0928/0930

AUTHOR: Merkulov, V. V.

ORG: none

TITLE: Directive gain of antenna arrays having random-positioned radiators

SOURCE: Radiotekhnika i elektronika, v. 11, no. 5, 1966, 928-930

TOPIC TAGS: antenna array, antenna directivity

ABSTRACT: Linear cophased arrays with random-positioned radiating elements
are briefly considered. This approximate formula is developed for the average
value of the directive gain:

$$D = \frac{2d}{1 + 2d - \frac{2}{N}} \left[1 - \frac{2}{N\left(1 + 2d - \frac{2}{N}\right)} \right]$$

Here, N is the number of radiators in the array;
d is the average spacing between the radiators.
The mean-square deviation of the directive gain
from its average value is given by:

Card 1/2   UDC: 621.396.673.4

L 40366-66
ACC NR: AP6014247

$$\delta D = \frac{2\sqrt{d}}{\sqrt{N}(1+2d)} D.$$

The validity and accuracy of the above formulas were verified on a digital computer; directive gains of 250 arrays, each comprising 20 radiators, were computed. Orig. art. has: 13 formulas and 1 table.

SUB CODE: 09 / SUBM DATE: 18Aug65 / ORIG REF: 001

Card 2/2 hs

PLYATSKIY, Vladimir Mikhaylovich; POLYANSKIY, A.P., inzhener, retsenzent;
    MERKULOV, V.V., inzhener, retsenzent; KRYLOV, V.I., inzhener,
    redaktor; PETROVA, I.A., izdatel'skiy redaktor; ROZHIN, V.P.,
    tekhnicheskiy redaktor

[Founding under pressure] Lit'e pod davleniem. Izd. 3-e, perer.
Moskva, Gos.izd-vo obor.promyshl., 1957. 462 p.   (MLRA 10:9)
        (Die casting)

MERKULOV, V.V., brigadir puti

  Need for consolidated track maintenance forces. Put' i put.khoz.
  5 no.12:21 D '61.   (MIRA 15:1)

  1. Sukhinichskaya distantsiya Moskovskoy dorogi.
        (Railroads--Maintenance and repair)

MERKULOV, V.Ye.

Ways of carrying out the over-all mechanization of coal mining.
Mekh. trud. rab. 10 no.8:6-9 Ag '56.   ('MLRA 9:10)

1. Nachal'nik Tekhnicheskogo upravleniya Ministerstva ugol'noy
promyshlennosti SSSR.
                    (Coal mining machinery)

MERKULOV, Viktor Yefimovich; ASTAKHOV, A.V., otvetstvennyy redaktor; NADELINSKAYA, A.A., tekhnicheskiy redaktor

[Technical progress in Soviet coal mines] Tekhnicheskii progress na ugol'nykh shakhtakh SSSR. Moskva, Ugletekhizdat, 1957. 32 p.
   (Coal mining machinery)   (MLRA 10:9)

MERKULOV, V.Ye.

Completion results of the plan for introduction and use of
new coal mining equipment in 1956. Ugol' 32 no.5:2-6 My '57.
(MLRA 10:5)

1. Machal'nik Tekhnicheskogo upravleniya Ministerstva ugol'noy
promyshlennosti SSSR.
               (Coal mining machinery)

BUCHNEV, V.K., prof., doktor tekhn. nauk; KALININ, R.A., dotsent; KORABLEV,
A.A., kand. tekhn. nauk; MONIN, G.I., inzh.; BELYAYEV, V.S., kand.
tekhn. nauk; MERKULOV, V.Ye., inzh.; ALEKSEYENKO, V.D., inzh.;
IL'SHTEYN, A.M., kand. tekhn.nauk; GELESKUL, M.N., kand. tekhn.nauk;
KOBISHCHANOV, M.A., kand. tekhn.nauk; DOBROVOL'SKIY, V.V., kand.
tekhn. nauk; MALYSHEV, A.G., inzh.; VOROPAYEV, A.F., prof., doktor
tekhn. nauk; LIDIN, G.D., prof., doktor tekhn.nauk; TOPCHIYEV, A.V.,
prof.; VEDERNIKOV, V.I., kand. tekhn.nauk; KUZ'MICH, I.A., kand.
tekhn. nauk; LEYTES, Z.M., inzh.; SYSOYEVA, V.A., kand. tekhn. nauk;
MELAMED, Z.M., kand. tekhn.nauk; CHERNAVKIN, N.N., inzh.;
KARPILOVICH, M.Sh., inzh.; MEL'NUMOV, L.G., inzh.; BOGOPOL'SKIY,
B.Kh., inzh.; FROLOV, A.G., doktor tekhn.nauk; KHVOSTOV, F.K.,
inzh.; BAGASHEV, M.K., kand. tekhn. nauk; KAMINSKIY, I.N., inzh.;
PETROVICH, T.I., inzh.; ZHUKOV, V.V., red. izd-va; LOMILINA, L.N.,
tekhn. red.; PROZOROVSKAYA, V.L., tekhn. red.

[Mining engineers' handbook]Spravochnik gornogo inzhenera.
Moskva, Gos.nauchno-tekhn. izd-vo lit-ry po gornomu delu, 1960.
(MIRA 14:1)
(Mining engineering--Handbooks, manuals, etc.)

ALEKSEYEV, Ye.T.; APENCHENKO, S.S.; BASOV, A.P.; BAUSIN, A.F.; BERSHADSKIY, L.S.;
VELLER, M.A.; GINZBURG L. N.; GUSEV, S.A.; DANILOV, G.V.; DOLGIKH, M.S.;
DRUZHININ, N.N.; YEFIMOV,V.S.; ZAVADSKIY, N.V.; IVASHECHKIN, N.V.;
KARAKIN, F.F.; KUZHMAN, G.I.; LOBANOV, S.P.; MERKULOV, Ya.V.;NIKODIMOV,
P.I.; PANKRATOV, N.S.; PYATAKOV, L.V.; RODICHEV, A.F.; SMIRNOV, M.S.;
STRUKOV, B.I.; SAVOCHKIN, S.M.; SAMSONOV, N.N.; SINITSYN, N.A.;SOKOLOV,
A.A.; SOLOPOV, S.G.; CHELYSHEV, S.G.; SHCHEPKIN, A.Ye.

Fedor Nikolaevich Krylov; obituary. Torf. prom. 35 no.6:32 '58.
                                                      (MIRA 11:10)
                (Krylov, Fedor Nikolaevich, 1903-1958)

MERKULOV, Yevgeniy; BRUSNICHKIN, N.S., kand. tekhn. nauk, retsenzent; YURKEVICH, M.P., inzh., red.; SHCHETININA, L.V., tekhn. red.

[Antifriction porous alloys]Antifriktsionnye poristye splavy. 2., izd. ispr. i dop. Moskva, Mashgiz, 1962. 68 p.
(MIRA 16:2)

(Bearing metals)

MERKULOV, Ye. A.

STRAMENTOV, A.Ye., professor, doktor tekhnichesikh nauk; MERKULOV, Ye.A.,
dotsent, kandidat tekhnicheskikh nauk; BABKOV, V.F., redaktor;
PETROVSKAYA, Ye., tekhnicheskiy redaktor

[Planning city streets] Proektirovanie gorodskikh dorog. Moskva,
Izd-vo Ministerstva kommunal'nogo khoziaistva RSFSR, 1952. 495 p.
[Microfilm]   (MLRA 7:10)
          (Streets)

MERKULOV, Ye. A _ (Author)

BOGATSKIY, G., kandidat tekhnicheskikh nauk; KUCHERENKO, K., starshiy
prepodavatel'; DENISENKO, L.

authors:

"Planning city streets". Reviewed by A.E.Stramentov, E.A.Merkulov;
G.Bogatskii, K.Kucherenko, L.Denisenko. Zhil.-kom.khoz. 4 no.3:30-31
'54.   (MLRA 7:6)

1. Nachal'nik Tekhnicheskogo otdela Kiyevskogo tramvayno-trolleybus-
nogo upravleniya (for Denisenko)

MERKULOV, Yefim Afanas'yevich; PETROV, Vyacheslav Konstantinovich [deceased]; SOSYANTS, Vasiliy Georgiyevich; YUDIN, Vasiliy Aleksandrovich. Prinimali uchastiye: DUBROVIN, Ye.N.; SLAVUTSKIY, A.K.; BARKOVA, Ye.A.; BLATNOV, M.D.; KUDRYAVTSEV, O.K.; SAMOYLOV, D.S.; FRIDLYAND, A.G., BRONSHTEYN, L.A., red.; RACHEVSKAYA, M.I., red.izd-va; LELYUKHIN, A.A., tekhn.red.

[Urban transportation and street construction] Gorodskoi transport i dorozhno-mostovoe khoziaistvo. Moskva, Izd-vo M-va kommun.khoz. RSFSR, 1959. 473 p. (MIRA 12:8)

1. Sotrudniki Akademii kommunal'nogo khozyaystva im. K.D.Pamfilova (for Barkova, Blatnov, Kudryavtsev, Samoylov, Fridlyand).
(Transportation)   (Streets)

SAVIDOV, M.A.; MEREULOV, Ya.A.

Method of preparing cast gating system parts in graphite molds.
Lit. proizv. no.10:41 O '60.   (MIRA 13:10)
                        (Founding)

DUBROVIN, Ye., dotsent; MERKULOV, Ye., dotsent; TURCHIKHIN, E., dotsent

Precast reinforced concrete city pavements. Zhil.-kom.khoz.
10 no.9:27-29 '60.   (MIRA 13:9)

1. Kafedra dorog Vsesoyuznogo zaochnogo inzhenerno-stroitel'nogo
instituta.
                    (Pavements, Concrete)

MERKULOV, Yefim Afanas'yevich, dots., kand. tekhn. nauk; DUBROVIN,
Yevgeniy Nikolayevich, dots., kand. tekhn. nauk; TURCHIKHIN,
Emmanuil Yakovlevich, dots., kand. tekhn. nauk; YUDIN, Vasiliy
Aleksandrovich, dots., kand. tekhn. nauk; Prinimali uchastiye:
SLAVUTSKIY, A.K., dots., kand. tekhn. nauk; ZAYTSEV, L.K., inzh.;
ZAMAKHAYEV, M.S., red.; OVSYANNIKOVA, Z.G., red. izd-va

[Examples of the design of roads and public transportation systems
in cities]Primery proektirovaniia dorog i setei passazhirskogo
transporta v gorodakh. [By] E.A.Merkulov i dr. Moskva, Gos. izd-
vo "Vysshaia shkola," 1962. 265 p.   (MIRA 16:2)
    (Road construction)   (Rapid transit)

DUBROVIN, Ye.N. dotsent; MERKULOV, Ye.A., dotsent; TURCHIKHIN, E.Ya.
dotsent

Use precast reinforced concrete in road construction.
Gor. khoz. Mosk. 36 no.9:17-20 S '62   (MIRA 15:10)

1. Vsesoyuznyy zaochnyy inzhenerno-stroitel'nyy institut.
(Prestressed concrete construction) (Moscow—Road construction)

L 22715-66   EWT(d)/FSS-2/EWP(1)   IJP(c)   BB/GG

ACC NR: AP6002935   (A)   SOURCE CODE: UR/0286/65/000/024/0103/0103

AUTHORS: Timoshkevich, P. P.; Markulov, Yu. S.

ORG: none

TITLE: A device for the conversion of pulse information. Class 42, No. 177162

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 24, 1965, 103

TOPIC TAGS: information processing, reliability, pulse coding, phase coding, circuit reliability

ABSTRACT: This Author Certificate presents a device for the conversion of pulse information to phase information and of phase information to pulse information. The design, using ferrite cores, simplifies the device and increases its reliability. The excitation windings and the windings of the two-frequency recording of the two ferrite cores are connected in opposition (see Fig. 1). The windings of the single frequency readout are connected in harmony.
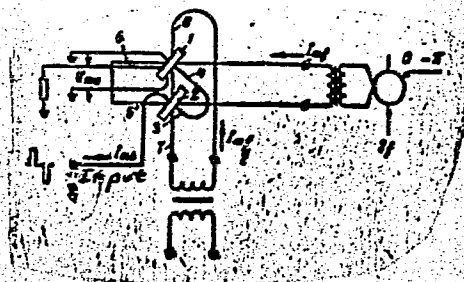
UDC: 681.142--523.8

Card 1/2

L 22715-66

ACC NR: AP6002935

Fig. 1. 1 and 2 - Ferrite cores;
3 and 4 - excitation windings;
5 and 6 - windings of the two-
frequency recording;
7 and 8 - windings of the single-
frequency readout.

Orig. art. has: 1 figure.

SUB CODE: 09/ SUBM DATE: 01Jun64

Card 2/2

Merkulov, E. F.

Low-friction alloy. E. F. Merkulov, U.S.S.R. 108,711, May 25, 1957. The alloy contains Al 84-3, Cu 5.0-5.0, Fe 0.5-0.6, Si 0.4-0.5, and Pb 1.0-1.5%.   M. Hoseh.

Merkulov, Ye F.

135-4-12/15

SUBJECT: USSR/Welding

AUTHOR: Merkulov, Ye.F., Professor.

TITLE: Repairing Automobile Cylinder Blocks by Cold Welding.
             (Method kholodnoy savarki blokov avtodvigateley).

PERIODICAL: "Svarochnoye Proizvodstvo", 1957 # 4, p 27.

ABSTRACT: The method described has been developed by the author in co-
             operation with engineers Polyushkin, Zhuykov and Stadniychuk.
             It consists of following operations:

             Dirt is removed from cracks by washing the block in a sodium
             hydroxide solution at room temperature under 3.5 - 4 atm pres-
             sure; the cracks are chiseled out at an angle of 45° and the
             resulting grooves must not be (if possible) over 5 mm wide
             and deep; the grooves must be carefully cleaned by file and
             brush. Only a nickel electrode of 3.5-4 mm diameter may be
             used for this repair (all other materials have proved to be
             not suitable.) It must be coated by a compound of 75-80 % chalk
             or tooth powder and 20-25 % water glass; the coating must be
             0.2 mm thick.

Card 1/2

Antifrictional porous cast iron. E. F. Merkulov. Liteinoe Proizvodstvo 1937, No. 6, 28.—This iron can be used for bearing linings to replace bronze when loads do not exceed 400-50 kg./sq. cm. at 0.25 m./sec. and are not more than 100-20 kg./sq. cm. at speeds of 1-3 m./sec. The iron is made by adding P 0.5-1.0% and Pb 0.5-1.0% to cupola iron with C 2.2-2.8, Si 3-4, Mn 0.2-0.4, S 0.12% max. and then treating it with 1 kg./ton of K_2CO_3 placed into the ladle with a bell. Castings poured at 1250° had sp. gr. 7.1-7.15, tensile strength of 40-50 kg./sq. mm., elongation of 10-15%, Brinell hardness of 100-20 and a coeff. of friction (with lubrication) of 0.004-0.005.   J. D. Cat—

ᴍᴇʀᴋᴜʟᴏᴠ Yᴇ.F.

136-6-14/26

AUTHOR: Merkulov, Ye.F.

TITLE: Antifriction Aluminium-lead Bronze (Antifriktsionnaya alyuminiyevo-svintsovaya bronza).

PERIODICAL: Tsvetnyye Metally, 1957, No.6, pp. 67 - 69 (USSR)

ABSTRACT: At present, only small quantities of aluminium-lead bronzes are being made in the USSR. The author who has had considerable experience in this field, deals with the production, properties and uses of this material. The present product has the composition 92.93% Al, 5.5 - 5% Cu, 0.6 - 0.5% Fe, 0.4 - 0.5% Si, 1.5 - 1% Pb; its cost and consumption are only about 1/11 and 1/2, respectively, of those of tin bronzes. In the author's experience the best charge for smelting in a Kaliman-type furnace is 87% Al, 5% Cu, 2% FeSi (68-72%) and 6% Pb, 1% of the charge weight of potash being added and charcoal being used to prevent oxidation. Careful charge preparation and a final crucible temperature of 940 - 950 °C are desirable. The alloy is cast at 710 - 750 °C with precautions to prevent cracking. Examination of micro-structures has shown that the lead forms a solid eutectic solution with the copper and aluminium; lubricant penetrates the pores of the alloy. The alloys have been successfully used to replace 7 - 11% tin bronze in various machines. The mechanical properties, lubricated friction

Card 1/2

Antifriction Aluminium-lead Bronze.

136-6-14/26

coefficient and density are tabulated together with values for bronzes Бр010, Бр010-2 and Бр010-4.

AVAILABLE: Library of Congress

Card 2/2

Merkulov, Ye. F

SUKHOPAROV, Aleksandr Aleksandrovich; USTINOV, Yuriy Timofeyevich; KONDRATENKO, N.G., inzh., retsenzent; PARFENT'YEV, G.A., inzh., retsenzent; MERKULOV, Ye.F., inzh., red.; VASIL'YEVA, V.P., red. izd-va; SPERANSKAIA, O.V., tekhn. red.

[Assembling industrial equipment] Montazh promyshlennogo oborudovaniia. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry, 1958. 316 p. (Machinery—Erecting work)   (MIRA 11:7)

PHASE I BOOK EXPLOITATION   SOV/4119

Merkulov, Yevgeniy Fedorovich

Antifriktsionnyye poristyye splavy (Porous Bearing Alloys) Moscow, Mashgiz, 1960.
   51 p. 4,000 copies printed.

Reviewer: N.A. Filin, Doctor of Technical Sciences, Professor; Ed,: I.M. Slitskaya;
   Ed. of Publishing House: I.A. Borodulina; Tech. Ed.: O.V. Speranskaya; Manag-
   ing Ed. for Literature on the Design and Operation of Machinery (Leningrad
   Division, Mashgiz): F.I. Fetisov, Engineer.

PURPOSE: This booklet is intended for technical personnel in the machine, auto-
   mobile, tractor, instrument, and ship-building industries.

COVERAGE: The booklet deals with recently developed porous bearing alloys, their
   physicochemical compositions, metallographic properties, manufacturing methods,
   and uses. The porous aluminum-lead-copper babbitt alloy, "Al'kusip" (85.5—95.5
   Al, 1.5—5.5 Cu, 0.1—0.2 Si, 2.5—8.5 Pb, 0.3—0.4 Fe), patented in the Soviet
   Union in 1950, is described, as are also porous aluminum-lead bronze and porous
   cast iron, used for making parts with sliding surfaces. Emphasis is given to

Card 1/4

Porous Bearing Alloys   SOV/4119

the mechanical and economic advantages of porous aluminum-or iron-base alloys over tin-base alloys in the manufacture of bearings, bushings, and other parts. The fact that porosity facilitates lubrication through oil impregnation and reduces friction and wear is pointed out. No personalities are mentioned. There are 5 references: 4 Soviet and 1 English.

TABLE OF CONTENTS:

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LAPINSKIY, L.G., inzh.; MERKULOV, Ye.Ye., inzh.; PASHCHENKO, I.N.,
inzh.; YAKUNIN, V.I., inzh.; GOLUBEVA, I.A., red.; POLE-
SITSKAYA, S.M., tekhn. red.

[Structural cementing materials] Stroitel'nye rastvory.
Moskva, 1959.   22 p.   (MIRA 14:5)

1. Russia (1923-   U.S.S.R.) Ministerstvo sel'skogo kho-
zyaystva. Normativno-issledovatel'skaya stantsiya.
            (Plaster)   (Mortar)

MERKULOVA, A.I.

Foreign bodies discovered in mental patients. Trudy Gos.nauch.-issl.
inst.psikh. 27:389-392 '61.   (MIRA 15:10)

1. Permskaya psikhonevrologicheskaya bol'nitsa. Glavnyy vrach -
N.S. Ivanov.
          (FOREIGN BODIES (SURGERY)) (MENTALLY ILL)

MERKULOVA,A.I., inzhener

Effect of the design and shape of wooden crates on the quantity
of wood used. Standartizatsiia no.3:64-68 My-Je '55.
(MIRA 8:10)

1. Moskovskiy lesotekhnicheskiy institut
(Wood-using industries)

MERKUIOVA, A.I.

Strength of nail joints of wooden parts in the manufacturing of boxes. Trudy NILtary no.2:96-103 '58.   (MIRA 13:12)
(Boxes)

MERKULOVA, A.I., assistant

Tangential stresses along the area of effective contact caused by external friction of wood and metal. Nauch. trudy MLTI no.8:57-62
'58.   (MIRA 13:3)

(Wood) (Metals) (Friction)

KUZ'MINA, G.V.; MERKULOVA, A.I.; KUTYANIN, G.I., red.

[Artificial fur; a textbook] Iskusstvennye mekha; uchebnoe
posobie. Moskva, Zaochnyi in-t sovetskoi torgovli, 1963.
35 p.   (MIRA 18:3)

1. Zaveduyushchiy kafedroy tovarovedeniya promyshlennykh
tovarov Zaochnogo instituta sovetskoy torgovli (for Kutyanin).

MERKULOVA, A.I.; TSEREVITINOV, B.F.

Determining the content of loose pile fibers in fur fabrics. Kozh.-
obuv.prom. 6 no.10:23-27 O '64.   (MIRA 18:1)

MERKULOVA, F. M.

"Chronaxy of the Skeletal Muscles of Sheep Affected With Haemonchosis." Cand Vet Sci, Kazan' State Zooveterinary Inst imeni N. E. Bauman, Min Agriculture and Procurement, Ul'yanovsk, 1953. (KL, No 5, Jan 55)

Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (12)
SO: Sum. No. 556, 24 Jun 55

MERKULOV, D.M., inzh.; MERKULOVA, G.M., inzh.

Assembly of precast reinforced concrete arches from the ice.
Transp.stroi. 12 no.10:20-21 O '62.   (MIRA 15:12)
                  (Krasnoyarsk--Bridge construction)
                       (Bridges, Concrete)

BOGOMOLOVA, F.A.; MATANGINA, G.P.; TUTKEVICH, V.H.; MERKULOVA, G.P.

Abdominal reflexes in diphtheria in children. Pediatriia 37 no.9:88
(MIRA 13:2)
S '59.

1. Iz II Moskovskogo meditsinskogo instituta imeni N.I. Pirogova.
          (REFLEXES)   (DIPHTHERIA)

MERKULOVA, I.A.; TITKOV, A.N.

Annealing electrical resistance alloys in a hydrogen atmosphere.
Biul.tekh.ekon.inform.Gos.nauch.-issl.inst.nauch.i tekh.inform.
No.10:8-9 O '64.   (MIRA 18:4.

MERKULOVA, I. P., and BRADSKAYA, I. A.

"Concerning Delayed Changes of the Brain After X-Ray Irradia-
tion," by I. A. Bradskaya and I. P. Merkulova, Division of
Pathomorphology (head, Prof B. S. Khominskiy) and Division of
Roentgenology (head, Prof Ya. I. Geynisman), Scientific Research
Institute of Neurosurgery, Ministry of Health Ukrainian SSR
director, Prof A. I. Arutyunov, Honored Worker of Science, Vest-
nik Rentgenologii i Radiologii, Vol 31, No 2, Mar/Apr 56, pp 7-13

The purpose of this research was to study the delayed morphological
changes occurring under the action of fractional doses of X rays on the
brain.

Tests were run on seven dogs which were subjected to two courses of
irradiation with a 5- to 5 1/2-month interval between courses and a total
dose of 5,400-12,200 r.

Photomicrographs of cortical tissue 11-14 months after irradiation
show delayed changes arising after protracted fractional irradiation by
massive X-ray doses. Morphologically, they appear in the form of injuries
of blood vessels, nerve filaments, cells, and glia and have a definite re-
lationship to the dose and time after irradiation.

Sum 1258

MERKULOVA, L.

Laboratory manager. NTO 4 no.12:13 D '62.

(MIRA 16:1)

1. Uchenyy sekretar' Vladimirskogo oblastnogo pravleniya Nauchno-tekhnicheskogo obshchestva stroitel'noy industrii.
(Building materials—Testing)

CHALOV, P.I.; MUSIN, Ya.A.; TUZOVA, T.V.; MERKULOVA, K.I.

Isotope shift between U^{234} and U^{238} in secondary uranium minerals
of some hydrothermal deposits. Atom. energ. 19 no.1:82-84 Jl '65.
(MIRA 18:7)

BRUYLE, Ye.S.; MERKULOVA, K.S.

Determination of the solubility of a disodium salt of
ethylenediaminetetraacetic acid (trilon B). Zhur.prikl.
khim. 37 no. 5:1155-1156 My '64.   (MIRA 17:7)

1. Vsesoyuznyy nauchno-issledovatel'skiy i konstruktorskiy
institut khimicheskogo mashinostroyeniya.

BABENKO, Kh.I., kand.med.nauk; MERKULOVA, M.I., kand.med.nauk

Testosterone propionate and its use in rosacea keratitis. Oft.
zhur.   12 no.5:270-273 '57.   (MIRA 13:6)

1. Iz Ukrainskogo nauchno-issledovatel'skogo instituta glaznykh
bolezney imeni prof. Girshmana (direktor - chlen-korrespondent
AMN SSSR prof. I.I. Merkulov).
       (TESTOSTERONE)   (CORNEA--DISEASES)

MERKULOVA, M.I.

15.8150
11.9700
11.2230

i33382

S/190/62/004/002/013/021
B110/B101

AUTHORS: Petrov, K. A., Nifant'yev, E. Ye., Khorkhoyanu, L. V.,
Merkulova, M. I., Voblikov, V. F.

TITLE: Phosphorus-containing polymers.   III.   Application of the
Arbuzov reaction for polymerizing ethylene alkyl phosphites

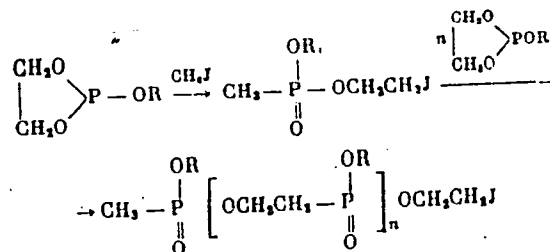PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 4, no. 2, 1962, 246-249

TEXT: The method by A. Ye. Arbuzov et al. (Izv. AN SSSR, Otd. khim. n.,
1950, 357) can be used for producing polyphosphonates from cyclic
phosphinites.   In the present study, polyphosphonates were similarly
synthesized on the basis of ethylene alkyl phosphites (I).   Alcohol was
added dropwise to 126.5 g of ethylene chlorophosphite, 300 ml of ether,
and 152 g of triethylamine; the mixture was left standing, filtered off,
heated for 30 min, and (I) was obtained by double distillation.   Cyclic
phosphites contain an alkoxy group besides the cyclic ester group.
Polyphosphonates are formed under catalytic action of methyl iodide on
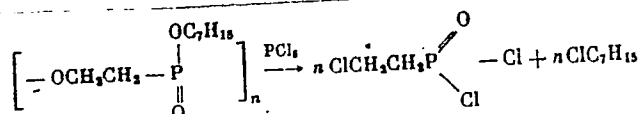ethylene alkyl phosphite during 3 hr heating at 130°C in Ar atmosphere:

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33 382

S/190/62/004/002/013/021
B110/B101

Phosphorus-containing polymers...

$$CH_2O \backslash P-OR \xrightarrow{CH_3J} CH_3-P(OR) \parallel O -OCH_2CH_3J \xrightarrow{n CH_2O \backslash CH_2O POR} $$

$$\rightarrow CH_3-P(OR) \parallel O \left[OCH_2CH_2-P(OR) \parallel O\right]_n OCH_2CH_3J$$

The structure of polyethylene heptyl phosphite was proven as follows:

$$\left[-OCH_2CH_2-P(OC_7H_{15}) \parallel O\right]_n \xrightarrow{PCl_5} n ClCH_2CH_2P(O)(Cl) \diagdown Cl -Cl + n ClC_7H_{15}$$
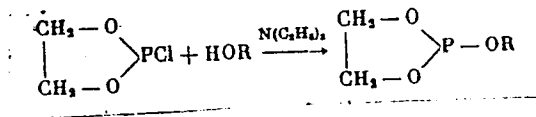
The degree of polymerization depends on the CH_3I amount, the reaction time and temperature. Optimum was: (1) small CH_3I amount; (2) ~20 - 30 hr, the reaction time depending on the molecular weight of the monomer, Card 2/3

33302
S/190/62/004/002/013/021
B110/B101

Phosphorus-containing polymers...

the reaction temperature, and the CH_3I concentration; (3) ~160 - 200°C, depending on the molecular weight (hexyl and isooctyl compounds: 160 - 170°C; nonyl and decyl compounds: 200°C). The polymers are viscous, colorless, and odorless liquids soluble in organics. Some of them are highly thermostable (polydecyl ethylene phosphite endures < 200°C for 20 - 30 hr). Utilization as plasticizer or admixture to lubricants is possible.

$$\begin{matrix} CH_2-O \\ | \\ CH_2-O \end{matrix} > PCl + HOR \xrightarrow{N(C_2H_5)_3} \begin{matrix} CH_2-O \\ | \\ CH_2-O \end{matrix} > P-OR$$

was also synthesized. There are 2 tables and 5 references: 4 Soviet and 1 non-Soviet. The reference to the English-language publication reads as follows: A. K. Sherrill, J. Amer. Chem. Soc., 52, 1985, 1930.

SUBMITTED: February 9, 1961

Card 3/3

ACCESSION NR: AT4017411   S/0000/63/000/000/0086/0089

AUTHOR: Petrov, K. A.; Nifant'yev, E. Ye.; Sopikova, I. I.; Merkulova, M. I.

TITLE: Phosphorylated polysaccharides. III. Phosphorylation of cellulose by dialkyl-(aryl)phosphites

SOURCE: Tsellyuloza i yeye proizvodnyye, sbornik statey (Cellulose and its derivatives). Moscow, 1963, 86-89

TOPIC TAGS: polysaccharide, cellulose, phosphorylated polysaccharide, cellulose phosphorylation, phosphorylation, dialkylphosphite, diarylphosphite

ABSTRACT: On the basis of the authors' previous work, the following studies were conducted: (1) phosphorylation of cellulose by di-β-chloroethylphosphite, di-β-fluoroethylphosphite, and diphenylphosphite; (2) reaction of cellulose phosphite with tetraethylmethylenediamine; and (3) reactions of cellulose phosphite with chloral, diethyldisulfide, ethylsulfenechloride, and ethylthiocyanate. In the phosphorylation, 0.5 g of cellulose (cotton wool, thread and cord), dehydrated by washing with absolute alcohol, was reacted at 110, 130, 150 or 165C for 30 or 60 hrs. with 25 g of the reagents in a stream of nitrogen at a pressure of 50-60 mm Hg. After removal of the excess phosphite by filtration, the product was washed with methanol and ether and vacuum-dried over P_2O_5. The A P and Cl content of 4.27-
Card 1/3

ACCESSION NR: AT4017411

8.56% and 2.97—9.06%, respectively, was found in the product, obtained from cotton wool, while lower results were achieved with viscose thread and cord. Di-β-chloro- and di-β-fluoroethylphosphites were found to be better suited for the reaction. In the reaction with tetra-ethylmethylenediamine and disulfides, conversion of cellulose phosphites into α-hydroxy- and α-aminophosphonates and thiolophosphates was also accomplished by the reactions
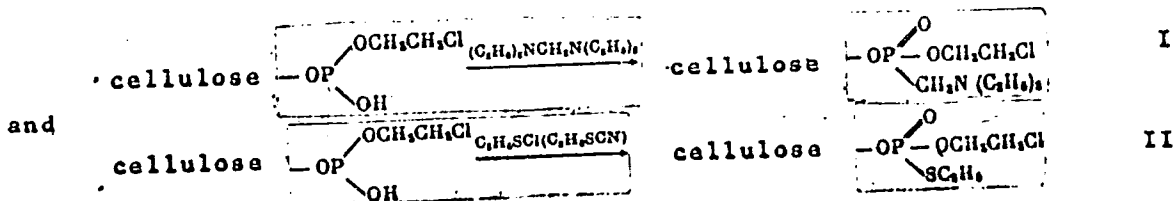
Orig. art. has: 1 table.

ASSOCIATION: none

Card 2/3

ACCESSION NR: AT4017411

SUBMITTED: 12Apr62

SUB CODE: OC

ATD PRESS: 3045

NO REF SOV: 006

ENCL: 00

OTHER: 002

Card— 3/3

Radium in field waters and petroleum of Bibi-Elbat oil field. B. A. Nikitin and M. S. Merkulova. *Trav. inst. état radium* (U. S. S. R.) 2, 100-75(in German 175 6)(1933).—Waters obtained from the same strata are closely related chemically but contain variable quantities of Ra. Waters rich in Ra are not localized, and adjacent wells may show wide variations in radioactivity. Concn. of Ra decreases with depth, which is also accompanied by a decrease in concn. of minerals, Cl and alkaline earth metals. Alk. waters contg. up to 0.5% HCO_3^- and a few thousandths % of Ca and Mg, show less than 2×10^{-10} g./100 cc. Ra. One of the wells showed a 40% decrease in radioactivity over a period of 10 months, while the chem. compn. of the water remained practically const. U and Ra contents of waters are not interdependent. Analysis of 33 crude-oil samples showed absence of Ra. Petroleum from water-free strata in the region of radioactive waters contains less than 2×10^{-11} g./100 cc. Ra in water-sol. form. It is concluded that the presence of Ra in water can be due only to leaching of minerals.

V. A. Kalichevsky

3

Distribution of radium between crystals and solution of difficultly soluble salts. M. S. Merkulova. *Trav. inst. etat. radium (U. S. S. R.) 3,* 141-98(in German 198-9) (1937). —A study of the systems Ba-BaCrO₄, Pb-RaSO₄ and Ra-RaSO₄ reveals that the distribution of Ra between the solid and liquid phases attains true thermodynamic equil. if the solubilities of BaCrO₄, PbSO₄ and RaSO₄ are increased slightly by the method of slow crystn. with stirring. Numerous tables and soly. data. Forty-five references.

John Livak

A·S·M·–·S·L·A METALLURGICAL LITERATURE CLASSIFICATION

Radioactive method for the determination of the absolute surface of crystal suspensions. V. G. Khlopin and M. S. Merkulova. *J. Phys. Chem.* (U. S. S. R.) 13, 1282-96(1939).—In order to apply adsorption for detg. the surface of particles it is necessary that the particles be thoroughly washed and that they be subject to no surface changes. While the results of Imre for adsorption of Ra on PbSO₄ (*C. A.* 25, 2897) were invalidated by secondary processes, the methods of Paneth and Hahn-Strassmann give good results when correctly applied. Data are given on the amt. and rate of adsorption of Ra and Ra D on variously prepd. samples of PbSO₄, BaSO₄, PbCrO₄, BaCrO₄ and Ag₂CrO₄. For PbSO₄, the Paneth radioactive-isotope, the isomorphous-ion, the microscopic and the emanation methods gave, resp., the values 23.4,

17.4, 13.7 and 18 × 10⁻⁴ g. Pb per g. PbSO₄. For BaSO₄ the 1st, 3rd, and 4th methods gave 24.1, 20.1 and 25.4 × 10⁻⁴ g. Ba/g. BaSO₄; for PbCrO₄, 10.5, 9.9, 11.5; for BaCrO₄, 49.3, 48.8, 53.1. For Ag₂CrO₄ the values were 81.4, 7.7 and 9.1; in this case only the microscopic method is applicable with certainty as the Ra ion is not isomorphous with the Ag ion.   F. H. Rathmann

METALLURGICAL LITERATURE CLASSIFICATION

Radioactivity of the waters and rocks of Matsesta. M. S. Merkulova
(Compt rend Acad Sci URSS, 1941, 31, 347 - 349)   Analyses are
given.

Determination of the age of the waters of Matzesta. M. S. Mer-kulova.-(Compt. rend. Acad. Sci. U.R.S.S., 1941, **31**, 459—460).—The calculation of the age of the waters of Matzesta from the He/A ratio according to the method of Savtschenko gives 2·02 × 10⁸ years.

C. R. H

MERKULOVA, M. S.   Nov/Dec 48

USSR/CHEMISTRY - IONS
                    ADSORPTION

"The Nature of Ion Absorption by Clays and Soils: V, Absorption of Heavy Metal Ions
by Clays and Soils Under Dynamic Conditions, " I. N. Antipov-Karatayev, M. a. Pasvik-
Khlopina, M. S. Merkulova, V. I. Grebenshchikova, Soil Institute, and Radium
Institute, Acad Sci USSR, 5 pp

"Kolloid Zhur" Vol X, No 6

Experiments show that the method of sorption filtration can be used for quantitative
studies of interchange and adsorption processes in soils under dynamic disequilibrium
conditions, and that it facilitates establishing a quantitative relationshipbetween
the static absorption capacity and the dynamic activity of soils. Submitted 22 Mar 47.

PA 65/49T11

MERKULOVA, M. S.

USSR/Chemistry - Radium Absorption

Sep/Oct 49

"Absorption of Radium on Lead Sulfate in the Presence of Surface-Active Substances," V. G. Khlopin, M. S. Merkulova, 12 3/4 pp

"Iz Ak Nauk SSSR, Otdel Khim Nauk" No 5.

Experiments with adsorption of radium on $PbSO_4$ in presence of aluminum ions, dye Ponceau 4R, and humic acid showed: Presence of surface-active substances in solution hinders kinetic interchange of ions between solution and surfaces of crystals, thereby hindering all phenomena whose basis depends on kinetic interchange of ions. More time was needed to achieve a state of equilibrium in presence of surface-active substances. In cases where they formed compounds with ions of crystals (these compounds being only slightly soluble in solvent), kinetic interchange of ions between crystal surfaces and solution is stopped completely. To obtain accurate results in study of primary adsorption of ions on crystalline adsorbents in presence of foreign substances, experiment must be set up to that concentration of ions of adsorbent, precipitation, and recrystallization of adsorbent can be controlled. Submitted 7 Sep 48.

PA 149T27

Radium Inst., AS USSR

2144. Distribution of thorium isotopes between the crystals of
lanthanum fluoride and its saturated solutions in 3% and
12% HNO_3 at 100°C. V. G. Khlopin and M. S. Merkulova.
Doklady Akad. Nauk S.S.S.R. 65, 861-4 (1949) Apr. 21
(in Russian).

According to the author's theory, the system ThF_4 - LaF_3 is
similar to TF_3 -CaF_2 in that systems of these types form
abnormal mixed crystals, i.e., there exists for them a lower
limit of miscibility. The thorium isotope used was $UX_1(Th^{234})$,
and , since its concentration in the solutions is exceedingly
low, no mixed crystals with LaF_3 should form. However, the
experiments described here showed that the distribution of
UX_1 between the crystals of LaF_3 and the saturated solution of
LaF_3 in HNO_3 followed the Henry-Dalton-Nernst law and thus
proved the existence of normal mixed crystals. This contradiction
with the authors' theory was resolved after it was found that

the lanthanum salts used in the experiments contained Th; the Th content of the solutions was thereby considerably increased, and the concentrations were certainly above the probable lower limit of miscibility.

4220 Distribution of Radium Between Crystals of Lanthanum Fluoride and Ra Saturated Solution in 3% Nitric Acid at 100°C. V. G. Khlopin and M. S. Merkulova. Doklady Akad. Nauk S. S. S. R. 71. 661 21(1950)(in Russian).

This work is one in a series on the formation of mixed crystals from solutions containing a component which is present in very small quantities. However, the main purpose of the study is the formulating of criteria for the discrimination between the several types of isomorphism, as distinguished by Grimm and Goldschmidt. According to the authors' theory, only "true" isomorphic crystalline substances are miscible in all proportions; in the other kinds of isomorphism, there exist some limiting proportions below which the formation of mixed crystals is impossible. In the former case, the coefficient of the distribution of the microcomponent between the solid and liquid phases, (the crystallization coefficient), is constant; in the latter case, it decreases rapidly with the concentration of the microcomponent in the solution. The experimental investigation of the system YF₃ - CaF₂ being difficult, it was replaced by that of the analogous pair LaF₃ - RaF₂. A wide concentration range was obtained by adding various quantities of the Ba salt to the Ra salt, (the legitimacy of such a substitution has been shown in Zhur Fiz. Khim 14. 941(1840)). Titrated suspensions of LaF₃ in 3% HNO₃ were mixed with saturated solutions to which a small quantity of La(NO₃)₃ had been added. Some of the suspensions had been prepared from a La salt containing Ra -Ba ("active suspensions"), similarly, some

of the saturated solutions contained Ra + Ra. Mixtures of active suspensions with inactive solutions, or mixtures of inactive suspensions with active solutions, were heated for 60 hr at 100°C. Recrystallizations, resulting in equilibrium distributions of Ra + Ba between the crystals and the solution, were thus obtained, at various total concentrations of Ra⁺⁺ + Ba⁺⁺ ions in the solution. The crystallization coefficient fell rapidly from 18.3 at the total concentration 7 × 10⁻⁴ to almost zero at concentrations of the order 10⁻⁷ to 10⁻⁸. This result confirmed the requirements of the theory regarding the position of the system LaF₃ - RaF₂ in the classification of isomorphous mixtures.

MERKULOVA, M. S.

USSR/ Chemistry - Physical chemistry

Card   1/2   Pub. 147 - 19/21

Authors   : Merkulova, M. S.

Title   : Distribution of lead isotopes between crystals and a saturated ammonium
             iodide solution at a 25° temperature

Periodical : Zhur. fiz. khim. 29/10, 1915-1920, Oct 1955

Abstract   : Distribution of the ThB lead isotope between crystals and saturated
             ammonium iodide solution prepared synthetically in a form free of lead
             was investigated at a temperature of 25°. It was found that the distri-
             bution of lead isotopes between liquid and solid phases is in perfect
             compliance with the V. G. Khlopin law; the crystallization coefficient
             showed a constant value of 9.3 and was not affected by the presence of

Institution : Moscow State University im. M. V. Lomonosov

Submitted   : May 1, 1955

Card 2/2   Pub. 147 - 19/21

Periodical :   Zhur. fiz. khim. 29/10, 1915-1920, Oct 1955

Abstract   :   easily adsorbing aluminum ions in the solution. Data are presented
                   regarding the miscibility boundary for a $NH_4J-PbJ_2-H_2O$ system and
                   codeposition of Pb with alkali metal halides. Seven references:
                   4 USSR, 2 USA and 1 Germ. (1911-1952). Tables.

MERKULOVA, M.S.

CH

Lead-isotope distribution between a solution and the crystals of nonisomorphic salts. The K_2SO_4-$PbSO_4$-H_2O system. M. S. Merkulova, V. I. Chastukhina, and L. N. Burtseva (M. V. Lomonosov Moscow State Univ.). Doklady Akad. Nauk S.S.S.R. 102, 1167-9(1955).—The distribution of Pb^{213} between the soln. and the crystals of anhyd. K_2SO_4 was studied at 25-100°. The results indicate the formation of inner adsorption systems in the distribution of the Pb between the soln. and the crystals. Knowledge of the relation between the equil. coeff. of crystn. and the concn. of the substance distributed may furnish means for distinguishing copptn. accompanied by the formation of inner adsorption systems, from copptn. of isomorphous or anomalous mixed crystals.   W. M. Sternberg

②

MERKULOVA, M.S

The lead-isotope distribution between potassium chromate solution and crystals. M. S. Merkulova and T. S. Shevelkina (M. V. Lomonosov State Univ., Moscow). Doklady Akad. Nauk S.S.S.R. 103, 437—8(1955).—Equil. conditions were studied in the $K_2CrO_4(ThB)C_rO_4$-H_2O system, with the ThB distributed between the K_2CrO_4 crystals and the soln. The equil. was established in 10 min.; this indicated an adsorption process. The value of $K_s(D)$ function, the adsorption coeff., remains satisfactorily const. for various amts. of the solid phase and at temps. of 25 and 100°. The addn. of multivalent ions ($Al(NO_3)_3$) affects $K_s(D)$ in concn. even as low as 0.001 mg./20 ml., and reduces it to zero at 0.400 mg./20 ml. The reduction in $K_s(D)$ upon varying the concn. of $PbCrO_4$ between 1×10^{-9} and 4×10^{-8} millimoles indicates that in the copptn. of Pb with K_2CrO_4 an inner adsorption takes place.
W. M. Granberg

MERKULOVA, M. S.

599

RADIUM DIFFUSION BETWEEN THE SOLUTION AND CRYSTALS OF POTASSIUM SULFATE. M. S. Merkulova and S. A. Potapova. (Moscow State Univ.) Doklady Akad. Nauk S.S.S.R. 103, 643-6(1955) Aug. 1. (In Russian)

Capture of radium in crystallization of nonisomorphous salts was studied with the system $K_2SO_4-RaSO_4-H_2O$.
(R.V.J.)

Merkulova, M. S.

USSR/Physical Chemistry - Radiochemistry, Isotopes.   B-7

Abs Jour: Referat. Zhurnal Khimiya, No 2, 1958, 3731.

Author : M.S. Merkulova, S.A. Potapova, T.S. Shevelkina, V.I. Chastukhina.

Inst   :
Title   : Distribution of Lead and Radium Isotopes between Solution and Crystals of Anisomorphous Salts.

Orig Pub: Zh. fiz. khimii, 1957, 31, No 5, 1056-1062.

Abstract: The distribution of $Pb(ThB)$ and Ra between the solution and solid phase in K_2SO_4 - $PbSO_4$ - H_2O, K_2SO_4 - $RaSO_4$ - H_2O and K_2CrO_4 - $PbCrO_4$ - H_2O systems was studied at 25 and $100°$. The distribution equilibrium was determined in 10 minutes. The crystallization factor D does not depend on the amount of the makrocomponent separated in the precipitate. D is somewhat lower in an acid medium than in a neutral. D depends very much on the temperature. If Bi^{3+} ions were introduced into the sulfate system, or Al^{3+} ions into the chromate system,

Card   : 1/2   -2-

MERKULOVA, M.S.

5(2), 21(5) PHASE I BOOK EXPLOITATION SOV/1900

Akademiya nauk SSSR. Komissiya po analiticheskoy khimii

Primeneniye radioaktivnykh izotopov v analiticheskoy khimii
(Use of Radioactive Isotopes in Analytical Chemistry) Moscow
Izd-vo AN SSSR, 1958. 306 p. [Series: Its: Trudy, t. 9 (12?)]
Errata slip inserted. 3,000 copies printed.

Resp. Ed.: I.P. Alimarin, Corresponding Member, USSR Academy
of Sciences; Ed. of Publishing House: A.H. Yermakov; Tech.
Ed.: T.V. Polyakova.

PURPOSE: The book is intended for chemists and chemical
engineers concerned with work in analytical chemistry.

COVERAGE: The book is a collection of the principal papers
presented in Moscow at the Second Conference on the Use of
Radioactive Isotopes. The problems discussed at the
Conference included coprecipitation, aging, and solubility
of precipitates, determination of the instability constants

of complex compounds, separation of rare earth metals, and
ion-exchange chromatography. No personalities are mentioned.
There are 351 references 175 of which are Soviet, 33 German,
19 French, 8 Swedish, 2 Hungarian, and 2 Czech.

TABLE OF CONTENTS:

Card 1/10

MERKULOVA, M. S. AND MELIKHOV, I. V. (Moscow State University im M. V. Lomonosov)

"Coprecipitation of Lead and Strontium Isotopes with Sodium Chloride Crystals"

Isotopes and Radiation in Chemistry, Collection of Papers of 2nd
All-Union Sci.Tech. Conf. on Use of Radioactive and Stable Isotopes and
Radiation in National Economy and Science, Moscow, Izd-vo AN SSSR, 1958, 300pp.

This volume publishes the reports of the Chemistry Section of the
2nd All Sci Tech Conf on Use of Radioactive and Stable Isotopes and Radiation
in Science and the National Economy, sponsored by Acad. Sci. USSR and Main
Admin for Utilization of Atomic Energy under Council of Ministers USSR,
Moscow, 4-12 April 1957.

MERKULOVA, M.S.

AUTHOR: Merkulova, M. S.   78-1-5/43

TITLE: The Coprecipitation of Radioactive Elements With
               Crystalline Deposits (Soosazhdeniye radioelementov s
               kristallicheskimi osadkami).

PERIODICAL: Zhurnal Neorganicheskoy Khimii, 1958, Vol. 3, Nr 1, pp. 25-28
               (USSR)

ABSTRACT: According to the opinion of some authors the chloride-ion
               in the lattice of the alkali metal halide is exchanged by the
               complex anion $(PbCl_3)^-$ under the formation of mixed crystals
               (reference 1) with the coprecipitation of lead - isotopes
               with sodium chloride- and potassium chloride crystals. This
               is, however, unlikely, since this complex anion differs
               essentially from the chloride-ion with respect to size. We
               were of opinion that with the coprecipitation of salts of
               bivalent metals with halides of the alkali metals, abnormal
               mixed crystals are formed and that the exchange takes place
               between finished parts of the crystal lattices of the two
               components. A minimum miscibility should therefore exist
               with the crystallization of lead isotopes with halides of
Card 1/5   alkali metals.

The Coprecipitation of Radioactive Elements With Crystalline   78-1-5/43
Deposits

3 systems were investigated:
$NH_4J-PbJ_2-H_2O$, $NaCl-PbCl_2-H_2O$ and $NaCl-SrCl_2-H_2O$. The initial
products, ammonium iodide and sodium chloride which had to be
free from lead and strontium were synthetized especially for
this purpose (under the co-operation of N. M. Matvevnin,
Ye. D. Zhabin und I. V. Malikhov).
The influence of the concentration of the lead- and strontium
isotopes in the solution on the value of the coefficient of
crystallization was studied for deciding 1) whether a minimum
distribution exists and 2) how the value of the coefficient
of crystallization changes with increasing concentration of
the micro component in the solution. The distribution of the
micro component between crystals and the solution was
investigated according to the methods elaborated by V. G.
Khlopin. The lead isotopes B and Ra D, as well as Sr^{89} were
taken as micro-components. Their concentration was kept and
at a very low level in each case. Therefore a lower limit
of miscibility had to be found in the case of the formation
of abnormal mixed crystals; at least, the value of the
Card 2/5   coefficient of crystallization D should have approximated

The Coprecipitation of Radioactive Elements With Crystalline   78-1-5/43
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zero. The results show, however, that the distribution
of the lead- and strontium isotopes between the solution
and the crystals takes place according to rules analogous
to Khlopin's theorem. The coefficient of crystallization is
constant and independent from the quantity of the
precipitated deposit. It has a high value, especially in the
system $NaCl-PbCl_2-H_2O$ $(D=214)$. Therefore no minimum of
misciability, which is characteristic for the formation of
pseudo-, or abnormal mixed crystals, occurs here.
The influence of intensely adsorbing multivalent ions on the
value of the coefficient of crystallization was investigated
by means of various quantities of admixtures of aluminum (as
nitrate). It was found that D is independent from the
presence of intensely adsorbing multivalent ions.
The same systems were investigated with various concentrations
of the micro-component in the solution in order to clarify
the influence of the concentration of the distributing
substance on the value of D. It was found out that the value
of the coefficient of crystallization declines abruptly

Card 3/5   increasing concentration of the distributing substance. This

The Coprecipitation of Radioactive Elements With Crystalline   78-1-5-/43
Deposits

is contrary to the formation of real mixed crystals.
With investigations on the mechanism of the entry of lead
ions into the lattice of sodium chloride, it was found that
the equilibrium for the micro-component Ra D in the system
$NaCl-PbCl_2-H_2O$ is attained only after a long period. This is
in secordance with the mechanism of the formation of solid
solution.
The obtained experimental values show that the present type of
cocrystallization is in no relation with any of the already
known types. The explanation that the entry of bivalent metal-
ions in crystals of the type of NaCl takes place in two stages,
is most likely to prove true. The first stage consists in the
formation of a solid solution with mutual miscibility, since
the coefficient of crystallization remaine constant with
concentrations of the micro-component which are below the
minimum miscibility and is independent from the presence of
multivalent ions. Also the increase of the conductivity of the
crystal with increasing concentration of the added bivalent
ions is substantiated by tests. The second stage (with con-

Card 4/5   centrations beyond the minimum miscibility) consists of the
                                                     adsorption

The Coprecipitation of Radioactive Elements With Crystalline   78-1-5/43
Deposits

of the added component. This assumption is confirmed by the
fact that with a given concentration of the lead isotope Th B,
the coefficient of distribution has a 20 % lower value in the
presence of bismuth ions.
The correctness of our assumptions can be proved above all
by investigating the dependence of the coefficient of
crystallization or the concentration of the micro-component
in the solution in which case the concentration of the
admixture should be continuously modified by small amounts.
There are 3 tables, and 10 references, 6 of which are
Slavic.

SUBMITTED: June 18, 1957

AVAILABLE: Library of Congress

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MELIKHOVA, I.V.; MERKULOVA, M.S.; EVAL'D, G.

Coprecipitation of radioelements involving the formation of solid solutions with limited miscibility. Radiokhimiia 1 no.1:3-10 '59.

(MIRA 12:4)

(Radioisotopes) (Precipitation (Chemistry))
(Systems(Chemistry)

MELIKHOV, I.V.; MERKULOVA, M.S.

Some regularities of the coprecipitation of radioactive ele-
ments with crystalline carriers. Radiokhimiia 1 no.6:626-632
'59.   (MIRA 13:4)
      (Crystallization) (Radioactive substances)

MELIKHOV, I.V.; MERKULOVA, M.S.

Mechanism governing the migration of microquantities of certain elements into the crystals of a nonisomorphic carrier.
Radiokhimiia 1 no.6: 633-636 '59.   (MIRA 13:4)
    (Crystallization) (Lead--Isotopes) (Cadmium--Isotopes)

5(4)
AUTHORS:

Melikhov, I. V., Merkulova, M. S.,
Eval'd, G.

SOV/20-125-4-44/74

TITLE:

The General Laws of the Co-precipitation of Micro-impurities
During the Growth of Crystals (Obshchiye zakonomernosti
soosazhdeniya mikroprimesey pri roste kristallov)

PERIODICAL:

Doklady Akademii nauk SSSR, 1959, Vol 125, Nr 4, pp 845-847
(USSR)

ABSTRACT:

At present such crystals are widely being used in industry and
practice as contain small quantities of a non-isomorphous
impurity. Such impurities in most cases form solid solutions
(with limited mixing possibility) with the crystal. The authors
endeavored to determine the rules of the distribution of
impurities in the crystals of the microcomponents with which
the impurities form a solid solution with limited mixing pos-
sibility and in the oversaturated solution (undercooled melt).
The authors in this connection investigated the mechanism of
the co-precipitation of the impurities with crystals growing
in an oversaturated solution in the case of an intense mixing
of the liquid phase. The first stage of this co-precipitation
is interaction between the impurity and the separating surface

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Micro-impurities During the Growth of Crystals

of the phases. An expression is derived step by step for the
concentration of the impurity in the surface mono-layer. For
the purpose of experimental confirmation of the derived rela-
tions the co-precipitation of small quantities of $PbCl_2$ and
$CdCl_2$ with NaCl-crystals is investigated. In these investiga-
tions the oversaturation of the solution was isothermally
eliminated. The authors investigated the distribution of
Pb- and Cd-isotopes in the crystals and the oversaturated
solution of NaCl as a function of the concentration of the
microcomponent in the liquid phase. The quantity of micro-
components in the solid and in the liquid phase was determined
by the method of radioactive indicators. The results obtained
by these experiments quantitatively confirm the theoretically
derived relations and permit the following conclusions to be
drawn: 1) The rate of the exchange between the surface and
the solution on the front of crystallization is considerably
higher than that of the diffusion of the components by the
surface-diffusion layer. 2) The quantity of the impurity
going over into the solid phase during the growth of the

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crystals and also the distribution of the impurity in the
volume of the crystals of the precipitation may be determined
from the formulas derived in the present investigation. There
are 2 figures and 5 references, 1 of which is Soviet.

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

PRESENTED: December 29, 1958 , by V. I. Spitsyn, Academician

SUBMITTED: December 24, 1958

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21389

5 1150

S/186/60/002/002/003/022
E071/E433

AUTHORS: Malikhov, I.V., Ch'in Hsiao-Hsi and Merkuleva, M.S.

TITLE: On the problem of the coprecipitation of a micro-
             admixture during the crystallization of a macro-
             component from a supersaturated solution

PERIODICAL: Radiokhimiya, 1960, Vol.2, No.2, pp.133-151

TEXT   The problem of coprecipitation of an admixture during
isothermal removal of a supersaturation of a solution of a macro-
component has been discussed in the literature but, as yet, there
are no definite views on the factors determining the character of
distribution of the admixture between the solid and liquid phases
under given conditions of crystallization.   In a discussion of the
existing views on the crystallization process applicable to the case
of crystallization of a microadmixture with crystalline
precipitates formed on isothermal crystallization of a macro
component from a supersaturated solution, the authors proved that
the distribution of an admixture can be an equilibrium and a non-
equilibrium one, depending on the conditions of crystallization,
solubility, surface energy and density of the crystals of the
macrocomponent and the velocity and method of formation of nuclei.
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temperature etc.   By varying the above factors, a recrystallization of the solid phase during the period of an experiment can be obtained.   On the other hand, the experimental condition can be so chosen that no recrystallization of the precipitate formed takes place.   In the latter case, the coprecipitation of an admixture with growing crystals of a macrocomponent can be studied.   The authors investigated the coprecipitation of micro quantities of thallium chloride with sodium chloride.   In the preliminary experiments, the conditions under which no recrystallization of the precipitate takes place were determined.   The experimental technique was described earlier (R-r.8: Radiokhimiya, 1, 1, 3 (1959) and Ref.17: Radiokhimiya, 1, 6, 635 (1959)).   It was found that during crystallization of sodium chloride from a solution with an initial supersaturation of 3 to 4% on stirring with a screw mixer (200 rpm) a precipitate is formed which practically does not recrystallize over a period of 4 - 6 hours at 20°C.   The minimum particle size of the crystals (about 2.5 x 10⁻³ cm) was considerably larger than the minimum stable size (1.8 x 10⁻³ cm at 20°C) previously determined.   Subsequently, the distribution of micro-quantities of thallium chloride between the solid and liquid phases

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was studied. _ The initial concentration of thallium was
determined colorimetrically and the final content of thallium in
the solid and liquid phases was determined radiometrically with an
accuracy of ± 3% using Tl^{204}.   On the basis of the experimental
data the coefficient of heterogeneous distribution according to
Doerner and Hoskins' formula (Ref.18: J.Am.Chem.Soc., 47, 662 (1925))
and the practical coefficient of distribution D_{pr} according to
Khlopin's formula (Ref.1: Izbr. tr.,1, Izd.AN SSSR, M.-L. (1957))
were calculated.   It was found that neither of the above two
formulae describe the coprecipitation of thallium chloride with
sodium chloride.   The fact that thallium chloride is not part
precipitated by adsorption was checked by coprecipitation
experiments in the presence of Al^{3+} ions.   It is concluded that
the distribution of the admixture in the solid state is
heterogeneous.   At the beginning of crystallization the
concentration of the admixture in the solid state is high, with a
decreasing degree of supersaturation it decreases and then remains
constant.   There are 2 figures, 2 tables,   references:
13 Soviet-bloc and 15 non-Soviet-bloc.   Four of the references to
English language publications read as follows.
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On the problem of the ...

S/186/60/002/002/005/02..
E(71/E433

A.M.Tolbush, K.Rowley, L.Gordon, Anal.Chem., 36, 1605 (1958);
L.Gordon, J.I.Peterson, B.F.Fartt, Anal.Chem., 27, 1770 (1957);
G.W.Sears, J.Chem.Phys., 27, 979 (1958);
R.H.Doremus, J.Phys.Chem., 62, 1068 (1958).

SUBMITTED: September 16, 1959

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MELIKHOV, I.V.; TSYU SYAO-SI; MERKULOVA, M.S.

Interaction between a microimpurity and the surface of crystals. Dokl.AN SSSR 133 no.2:401-404 Jl '60. (MIRA 13:7)

1. Moskovskiy gosudarstvennyy universitet imeni M.V.Lomonosova. Predstavleno akademikom V.I.Spitsinym.
(Crystals)

BABAYAN, S.G.; PAKHOMOV, B.G.; MELIKHOV, I.V.; MERKULOVA, M.S.

Method of studying the kinetics of crystallization of supersaturated
solutions. Radiokhimia 3 no.5:391-395 '61.   (MIRA 14:7)
                    (Crystallization)

S/186/61/003/005/002/022
E132/E335

AUTHORS: Melikhov, I.V., Babayan, S.G. and Merkulova, M.S.

TITLE: A study of the co-deposition of micro-impurities during the isothermal lowering of the supersaturation of the solution 1. Crystallisation of K_2SO_4 from 1.5N HNO_3

PERIODICAL: Radiokhimiya, v. 3, no. 5, 1961,   520 - 527

TEXT: By studying the granulometric composition the capability for isotope exchange with the solution and the kinetics of the separation of deposits of K_2SO_4 from super-saturated solutions of this salt in 1.5N HNO_3 at different initial supersaturations $(S_o \leqslant 17.1\%)$, it has been shown that on changing the initial supersaturation from 0 to 85% the growth of the crystals of the solid phase appear to be practically the only process which must be taken into account when studying the co-deposition of micro-impurities. However, on putting the supersaturation up from 85% to 100 %, structural recrystallisation of the deposit has also to be considered. The experimental

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measurements were made as follows: a solution was cooled from
70 to 25 $^{\circ}$C so that at the latter temperature it would be super-
saturated.   It was stirred at a high and constant rate;   the
precipitate was separated quickly, the amount of salt in the
mother liquor being estimated conductometrically. The deposit
was microscopically studied to estimate grain size, shape and
volume. Curves were obtained of the amount of K_2SO_4 separated

from the solution against time of stirring;   of the particle-
size distribution of the precipitate;   of the change in mean
particle volume with increasing precipitation from a given
supersaturation;   of the same on a mass basis;   of the
change in the mass of the precipitate which takes part in
exchanges of material with the solution plotted against the
increasing total mass of precipitate;   of the isotopic exchange
between the precipitated K_2SO_4 and the solution. A further

communication will deal with the co-precipitation of lanthanum
during the process of lowering the supersaturation of the

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solution of the macro-component. V.I. Grebenshchikova is
mentioned in the article for her contributions.
There are 8 figures, 1 table and 14 references: 13 Soviet-bloc
and 1 non-Soviet-bloc.

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BABAYAN, S.G.; MELIKHOV, I.V.; MERKULOVA, M.S.

Coprecipitation of cerium with K_2SO_4 crystals. Part 1:
State of cerium in solutions in K_2SO_4. Radiokhimia
4 no.4:381-387 '62.
(MIRA 15:11)
    (Cerium sulfate)   (Potassium sulfate)
            (Precipitation (Chemistry))

MELIKHOV, I.V.; KIRKOVA, Ye.K.; MERKULOVA, M.S.

Coprecipitation of Ce with K_2SO_4 crystals. Part 5: Behavior
of Ce during the recrystallization of a K_2SO_4 precipitate in
a satueated aqueous solution of macrocomponents. Radiokhimiia
6 no.2:165-172 '64.   (MIRA 17:6)

MELIKHOV, I.V.; MERKULOVA, M.S.

Mechanism of the transfer of impurities from a solution to the precipitate.
Trudy Kom. anal. khim. 15:244-259 '65.   (MIRA 18:7)

ZUBOVA, M.; MERKULOVA, N.; SHELEST, M.

The miracle of our century. Standartizatsiia 29 no.8:
52-53 '65.   (MIRA 18:10)

MERKULOVA, N. A.

"Regulation of Respiration by the Cerebral Cortex in Rabbits." Cand Med Sci, Kuybyshev State Medical Inst, Kuybyshev, 1953. (RZh Biol, No 1, Jan 55)

Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (12)
SO: Sum. No. 556, 24 Jun 55

MERKULOVA, N.A.

     Respiratory changes after stimulation of the cerebral cortex in
rabbits. Trudy Vses.ob-va fiziol.biokhim.i farm. 2:62-63 '54.

                                        (MLRA 8:7)
1. Kafedra normal'noy fiziologii Kuybyshevskogo meditsinskogo in-
stituta.
          (BLOOD PRESSURE, physiology,
            eff. of cerebral cortical stimulation in rabbits)
          (RESPIRATION, physiology,
            eff. of cerebral cortical stimulation in rabbits)
          (CEREBRAL CORTEX, physiology,
            eff. of stimulation on blood pressure & resp. in rabbits)

SIROTININ, N.N., MERKULOVA, N.A., PESKOV, B.Ya., IVANOV, Yu.N.

Mikhail Vasil'evich Sergievskii; on his 60th birthday and 32nd
year of his scientific, pedagogical, and social activities.
Fiziol.zhur. 44 no.11:1095-1096 N'58   (MIRA 11:12)
          (SERGIEVSKII, MIKHAIL VASIL'EVICH, 1898-)

MERKULOVA, N.A.

Features of respiration after longitudinal and transverse section
of the spinal cord in cats. Biul. eksp.biol.i med. 50 no.9:41-45
S '60.
                                                            (MIRA 13:11)

1. Iz kafedry normal'noy fiziologii (zav. - chlen-korrespondent AMN
SSSR prof. M.V. Sergiyevskiy) Kuybyshevskogo meditsinskogo instituta.
          (SPINAL CORD--SURGERY)   (RESPIRATION)

MERKULOVA, N.A.; PESKOV, B.Ya.

Significance of the cerebral hemispheres in the pathogenesis of asymmetry and other disorders of respiration. Fiziol.zhur. 47 no.2:178-184 F '61.   (MIRA 14:5)

1. From the Normal Physiology Chair of the Medical Institute, Kuybyshev.
(BRAIN)   (RESPIRATION)

ACCESSION NR: AP4017130   S/0239/64/050/002/0161/0168

AUTHOR: Merkulova, N. A.

TITLE: Role of the cerebral cortex in asymmetric activity of the respiratory center in rabbits

SOURCE: Fiziologicheskiy zhurnal SSSR, v. 50, no. 2, 1964, 161-168

TOPIC TAGS: cerebral cortex, respiratory center, respiratory center asymmetric activity, callosum dissection, cortex partial removal, electric stimulus, cerebral hemisphere cortex, respiratory activity change

ABSTRACT: Respiratory center activity of rabbits was investigated under acute, semichronic, and chronic cortex conditions in a series of three experiments. In the first experiment under acute conditions, the animals were anesthetized and trepanned and electric stimuli were applied to the cortex before and after lateral dissection of the callosum. In the second experiment under semichronic conditions, similar procedures were followed with different timing. After the animals were trepanned, the openings were sewn up and dressings

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