MOLODENSKIY   M.S.

10-58-2-1/30

AUTHORS: Avsyuk, G.A., Gal'tsov, A.P.; Iveronova, M.I.; Meshcheryakov,
Yu.A.

TITLE: At the XIth General Assembly in Toronto of the International Union
of Geodesy and Geophysics (IUGG) (Na XI general'noy assambleye
mezhdunarodnogo soyuza geodezii i geofiziki (IUGG) v Toronto)

PERIODICAL: Izvestiya Akademii nauk SSSR - Seriya geograficheskaya, 1958,
Nr 2, pp 3-8 (USSR)

ABSTRACT: The XIth General Assembly of the International Union of Geodesy
and Geophysics convened in Toronto from 3 to 14 September
1957. The USSR was represented by a delegation consisting of
54 scientists headed by Academician I.P. Bardin. The Soviet
geographers G.A. Avsyuk, A.P. Gal'tsov, M.I. Iveronova and Yu.A.
Meshcheryakov participated for the first time in a meeting of the
Union. The conference was divided into various sections dealing
with special fields. The conference heard the following Soviet
reports: The Geodesists M.S. Molodenskiy, A.A. Izotov, Yu.D.
Bulanzhe and M.I. Sinyagina   on the achievements of Soviet
science in the geodesy; V.V. Belousov, V.A. Magnitskiy, Ye.A.
Lyubimova,   V.I. Keylis-Borok and Yu.V. Reznichenko on seismo-
logical problems and questions concerning the physical structure
of the Earth's deposits; G.A. Avsyuk on glacial research work

Card 1/3

10-58-2-1/30

At the XIth General Assembly in Toronto of the International Union of Geodesy and Geophysics (IUGG)

Card 2/3

carried out in the USSR; A.M. Obukhov and A.S. Monin on metereo-logical questions, especially diffusion and convection. Special attention was paid to the reports of the Soviet scientists M.I. Sinyaginaya and Yu.A. Meshcheryakov on the study of present movements of the Earth crust in the European part of the USSR. M.I. Budyko dealt with the distribution of the components of the thermal balance of the Earth's surface. This report met with especially great interest since only the USSR has succeeded in preparing monthly charts on the components of the thermal balance all over the world, and what is even more important, in solving the problem of determining the evaporation taking place on the surface of dry land. Ye.P. Tolstik explorer of polar regions reported on Soviet research in the Arctic and Antarctic Zones within the International Geophysical Year. Due to the Soviet achievements in all these fields of science V.V. Belousov, Corre-sponding Member of the AS,USSR, was elected Vice-President of the

10-58-2-1/30

At the XIth General Assembly in Toronto of the International Union of Geodesy and Geophysics (IUGG)

of the International Union of Geodesy and Geophysics.

1. Geodesy and Geophysics—Conference

Card 3/3

MOLODENSKIY, M.S.

AUTHOR: Yurkina, M. I., Candidate of   6-58-3-12/16
            Technical Sciences

TITLE: Answering Letters to the Editor
            (Otvety na voprosy chitateley)

PERIODICAL: Geodeziya i Kartografiya, 1958, Nr 3, pp. 71-72 (USSR)

ABSTRACT: Question: in the article by M. I. Yurkina "The Theory of the Earth's
            Shape in Foreign Countries" in   Geodeziya i Kartografiya,
            1957, Nr 7 the method of the analytical continuation of
            the gravity anomalies, suggested by A. K. Malovichko, was
            not illustrated.
            Answer: in paragraph 11 of the book by M. S. Molodenskiy
            "The Fundamental Problems of Geodetical Gravimetry"
            ("Trudy TsNIIGAiK Nr. 42, 1945) it was proved that
            according to the measurements performed at the earth's
            surface it is not possible to determine the elements of
            the inner gravitational field. The values of gravity
            within the attractive mass cannot be determined either
            without using the data on the distribution of density
Card 1/2   within the earth. The content of this paragraph entirely

Answering Letters to the Editor   6-58-3-12/16

disproves the considerations made by A. K. Malovichko
on the possibility of a determination of the geoid. A
detailed analysis of this method was given in the article
by V. A. Kuzivanov (1956). Here, too, the way for the
determination of the geoid, as suggested by Malovichko,
is refuted. The proof by Molodenskiy and the conclusion
by Kuzivanov are here illustrated with the aid of an
example. There are 1 figure and 2 references,   which
are Soviet.

AVAILABLE: Library of Congress

1. Gravity--Determination

Card 2/2

SOV/6-58-7-1/19

AUTHOR: Molodenskiy, M. S., Corresponding Member, Academy of Sciences, USSR

TITLE: Present-Day Problems in the Determination of the Shape of the Earth (Sovremennyye zadachi izucheniya figury Zemli)

PERIODICAL: Geodeziya i kartografiya, 1958, Nr 7, pp. 3-5 (USSR)

ABSTRACT: Problems concerning the investigation of global shape and the external gravitational field of the earth are inseparably linked with each other. Three ranges of problems can be distinguished: 1) "Static geodesy", which is confined to the production of more and more accurate and detailed "re-productions" of the present-day shape of the globe and of its gravitational field. 2) "Kinetic geodesy", which is investigating the alterations of the shape of the globe and of the gravitational field. 3) "Dynamic geodesy", which deals with the causes for these alterations and with the explanation of the observed anomalies of gravitation by the particular features of the structure and of the development
Card 1/3   of the earth's crust and of the earth as a whole.   a): In

SOV/6-58-7-1/19

Present-Day Problems in the Determination of the Shape of th **Earth**

the near future a new more accurate and more detailed general gravimetric map of the USSR is to be compiled. Since there are well founded prospects of obtaining more accurate results of plumb line deviations from gravimetrical methods than from astronomical ones the problem arises of how to interprete gravimetrical data. Astronomical measurements retain the advantage of being independent when individual points are to be determined and the plumb line must directly be obtained. But then the gravimetrical method will permit to interpolate the plumb line deviations with high accuracy. Thus the random errors in the astronomical measurements determining the lo- cation of individual points can be corrected.   2) In this case a modification of the potential of the centrifugal force must be taken into account. Sometimes it is also necessary to take into consideration the modification of the attraction of external masses and of the astronomical coordinates (due to pole shift). Three cases, which ought to be distinguished, are discussed. A few special cases are described permitting essential simplifications.   3) The solutions of problems of dynamic geodesy are mainly dependent upon the progress made in seismic investigations studying the deeper layers of the

Card 2/3

SOV/6-58-7-1/19

Present-Day Problems in the Determination of the Shape of the Earth

earth's crust and in the development of new methods for an immediate estimation of the density or of the density ratio at the boundary of two media by seismic methods.

1. Geology   2. Earth—Configuration   3. Mathematics
4. Seismographs—Applications

Card 3/3

3(4)

AUTHOR: Molodenskiy, M. S., Corresponding Member of the AS USSR

TITLE: Problems and Tasks of Geodetic Gravimetry (Problemy i zadachi
            geodezicheskoy gravimetrii).(A Review of the Book by A. K.
            Malovichko)(otzyv na knigu A. K. Malovichko)

PERIODICAL: Geodeziya i kartografiya, 1959, Nr 6, pp 50-56 (USSR)

ABSTRACT: The Permskiy gosudarstvennyy universitet im. A. M. Gor'kogo
            (Perm' State University imeni A. M. Gor'kiy) published, at the
            end of 1958, the paper by A. K. Malovichko which was written at
            the Novosibirskiy institut inzhenerov geodezii, aerofotos"yemki
            i kartografii (Novosibirsk Institute of Geodetic, Aerial Survey
            and Cartographic Engineers). The book is entitled "Problems and
            Tasks of Geodetic Gravimetry". It contains three chapters.
            Malovichko expresses the opinion that theory in the study of
            the shape of the physical earth's surface is a product of scien-
            tific unscrupulousness and mathematical illiteracy. Molodenskiy
            replies in the present article to this accusation directed to
            himself and others by submitting the book to a detailed review.
            Finally, Molodenskiy states that Malovichko has only a very poor
            conception of geodesy and geodetic gravimetry. The theoretical
            standard of the book is even for a student too low. Finally,

Card 1/2

Problems and Tasks of Geodetic Gravimetry.   SOV/6-59-6-14/22
(A Review of the Book by A. K. Malovichko)

        Molodenskiy raises the question whether the responsible editor,
        Professor I. I. Lapkin, has read the book. There are 1 figure
        and 1 Soviet reference.

Card 2/2

MOLODENSKIY, Mikhail Sergeyevich; YEREMEYEV, Vladimir Fedorovich;
    YURKINA, Mariya Ivanova; MAKAROV, N.P., otv.red.; SHAMAROVA,
    T.A., red.izd-va; ROMANOVA, V.V., tekhn.red.

[Methods for studying the exterior gravitational field and
the figure of the earth] Metody izucheniia vneshnego gravitatsion-
nogo polia i figury zemli. Moskva, Izd-vo geodez. lit-ry, 1960.
151 p. (Leningrad. TSentral'nyi nauchno-issledovatel'skii
institut geodezii aeros"emki i kartografii. Trudy, no.131).
                                  (MIRA 13:6)

      (Earth--Figure) (Gravity)

PHASE I BOOK EXPLOITATION   SOV/4291
                                 SOV/42-S-131

Molodenskiy, Mikhail Sergeyevich, Vladimir Fedorovich Yeremeyev, and
    Mariya Ivanovna Yurkina

Metody izucheniya vneshnego gravitatsionnogo polya i figury zemli (Methods of
    Studying the Outer Gravitational Field and the Figure of the Earth).
    Moscow, Geodezizdat, 1960. 250 p. Series: Moscow. Tsentral'nyy nauchno-
    issledovatel'skiy institut geodezii, aeros"yemki i kartografii. Trudy, vyp. 131)

Additional Sponsoring Agency: USSR. Glavnoye upravleniye geodezii i kartografii.

Ed.: N.P. Makarov; Ed. of Publishing House; T.A. Shamarova; Tech. Ed.:
    V.V. Romanova.

PURPOSE: The book is intended for geodesists, surveyors, and cartographers. It
    may also be used by students of geodesy and cartography.

COVERAGE: This issue of the Transactions of the Central Scientific Research Insti-
    tute of Geodesy, Aerial Survey, and Cartography deals with methods of investi-
    gating the outer gravitational field in a system of coordinates applicable to the
    entire Earth. The authors analyze the possibilities of a geometric method, i.e.,

Card 1/7

Methods of Studying the Outer Gravitational Field (Cont.)   SOV/4291

combination of precise linear and angular measurements (triangulation, astro-
nomic determination of latitudes, longitudes and azimuths and trigonometric
levelling). Authors give methods for the determination of anomalies of the
gravitational field and methods of numerical integration and the possible errors
in gravimetric conclusions. Chapters I to VII are based mainly on the work of
M.S. Molodenskiy, and Chapter VIII on the work of V.F. Yeremeyev. The authors
thank I.D. Zhongolovich, L.P. Pellinen and N.P. Makarov. There are 111
references: 83 Soviet, 12 English, 10 German, 4 French, 1 Italian, and 1 Czech.

TABLE OF CONTENTS:

Card 2/7

GAMBURTSEV, Grigoriy Aleksandrovich, akademik [deceased]; RIZNICHENKO, Yu.V.,
red.; MOLODENSKIY, M.S., red.; BERZON, I.S., doktor fiz.-mat.nauk, red.;
KEYLIS-BOROK, V.I., doktor fiz.-mat.nauk, red.; LYAPUNOV, A.A.,
doktor fiz.-mat.nauk, red.; YEPINAT'YEVA, A.M., kand.tekh.nauk,
red.; KOSMINSKAYA, I.P., kand.fiz.-mat.nauk, red.; STARODUBROVSKAYA,
S.P., mladshiy nauchnyy sotrudnik, red.; BERKGAUT, V.G., red.izd-va;
MARKOVICH, S.G., tekhn.red.

[Selected studies] Izbrannye trudy. Moskva, Izd-vo Akad.nauk SSSR,
1960. 461 p.   (MIRA 13:7)

1. Chleny-korrespondenty AN SSSR (for Riznichenko, Molodenskiy).
          (Prospecting--Geophysical methods)

MOLODENSKIY, M.S

AUTHOR: None given

TITLE: Chronicle

PERIODICAL: Geodeziya i kartografiya, 1960, No. 8, pp. 72-77

card 1/6

card 2/6

card 3/6

Chronicle

8/005/60/000/008/001/001
B012/B051

card 4/6

card 5/6

card 6/6

S/006/60/000/009/001/003
B012/B054

AUTHORS: Molodenskiy, M. S., Corresponding Member of the AS USSR,
                Gorokhova, V. S.

TITLE: The Possibility of Increasing the Distance Between
                Astronomic Points in Astronomic-gravimetric Leveling

TEXT: In his paper (Ref. 1, footnote on p. 17), M. S. Molodenskiy
referred to cases where it is desirable to increase the "pace" of
astronomic-gravimetric leveling considerably. In another paper (Ref. 2,
footnote on p. 17), the same author investigated the errors occurring in
astronomic-gravimetric leveling at 100 km distances between two
astronomic points. In the present paper, the authors make a calculation
taking account of the spherical form of the Earth, and show that these
distances can be increased considerably. As in the previous papers, the
entire surface of the Earth is divided into two areas: 1) Σ-area in
which the gravitational anomaly is assumed to be known for every point;
2) Σ'-area covering the remaining part of the Earth's surface. The

Card 1/2

The Possibility of Increasing the Distance   S/006/60/000/009/001/003
Between Astronomic Points in Astronomic-   B012/B054
gravimetric Leveling

calculation shows that in astronomic-gravimetric leveling distances of up
to 1,000 km and more are permissible between astronomic points. The
maximum error of the gravimetric correction $\Delta \xi$ (Σ'), due to anomalies not
considered in the Σ'-area, is 0.1" in this case. There are 2 figures, 1
table, and 3 Soviet references.

Card 2/2

MOLODENSKIY, Mikhail Sergeyevich; KRAMER, Marianna Vasil'yevna; RYVKIN, A.Z.,
    red. izd-va; ROMANOV, G.N., tekhn. red.

    [Terrestrial tides and the nutation of the earth's axis] Zemnye pri-
livy i nutatsiia Zemli. Moskva, Izd-vo Akad. nauk SSSR, 1961. 39 p.
                              (MIRA 14:8)

      (Nutation)   (Tides)

S/547/62/000/145/001/002
E032/E414

AUTHORS: Molodenskiy, M.S., Yeremeyev, V.F., Yurkina, M.I.

TITLE: An estimate of the accuracy of Stokes's series and
             some attempts to improve his theory

SOURCE: Moscow. Tsentral'nyy nauchno-issledovatel'skiy
             institut geodezii, aeros"yemki i kartografii. Trudy.
             no.145. 1962. Issledovaniya'po geodezicheskoy
             gravimetrii, 3-21

TEXT: It is pointed out that because the regularization of the
Earth cannot be carried out with sufficient accuracy, the accuracy
of Stokes's series may be appreciably lower than the nominal
accuracy.   For high order harmonics there is no simple relation
between the coefficients of expansions representing anomalies
defined on the Earth's surface and the Stokes constants
characterizing the external gravitational field.   This effect is
now investigated with a model in the shape of a sphere girded
along the equator by a toroidal belt half buried in the sphere and
covered by lateral conical surfaces in order to reduce the angle
with the sphere to about $10°$.   Various methods of expanding the
disturbing potential are then tried and numerical values for the
Card 1/3

An estimate of the accuracy ...   S/547/62/000/145/001/002
E032/E414

expansion coefficients are tabulated.   The expansion coefficients are computed (1) for the given distribution of anomalous masses, (2) by formally referring the quasigeoidal heights at points on the model's surface to the reference sphere and (3) by formally referring the gravitational anomalies to the sphere and applying the Stokes series.   Marked discrepancies are found between the numerical values obtained for these coefficients in the three cases, and it is concluded that these discrepancies can only be explained by high harmonics in the formal expansions for the anomalies and the heights of points on the physical surface.   The present results are in full agreement with earlier calculations of quasigeoidal and geoidal heights at the equator and the pole.   The error in the integral Stokes formula at the pole of the model, i.e. well away from the region with large gravitational anomalies and large slopes, turns out to be greater than the possible departure of the quasigeoid from Listing's geoid.   It is concluded that current practical methods of computing the coefficients in the expansion for the disturbing potential from gravity measurements are inadequate.   In order to achieve acceptable accuracy the theory
Card 2/3

An estimate of the accuracy ...   S/547/62/000/145/001/002
                                          E032/E414

of the external gravitational field and the shape of the Earth's
physical surface must be used.   A survey is then made of the
various theoretical treatments available in the literature.   It is
shown that the methods of S.V. Gromov (Vestnik Leningradskogo
universiteta, no.19, 1956, 174-185: no.19, 1957, 145-152:
Uch. zap. LGU, no.273, 1958, 208-249) and of R.A. Hirvonen
(Sarja A. III Geologica-Geographica, 56, Helsinki, 1960) cannot
lead to an improvement in Stokes's theory, whereas the method due
to Arne Bjerhammar (Series A III, Geologica - Geographica, 1961, 61)
leads to the same accuracy as Stokes's formula.   The authors also
disagree with the model of J. de Graaff-Hunter which is said to
lead to the same difficulties as the application of Stokes's theory
to the real Earth.   Finally, the integral equation for the
disturbing potential developed by J.J. Levallois (Bull. Geod., 1958,
N50) and Bjerhammar is shown to be subject to an error of the order
of the slope of the Earth's physical surface at the point under
investigation.   This error may reach up to 40%.
There are 5 figures and 7 tables.

Card 3/3

MOLODENSKIY, M.S.

The core of the earth is liquid. Priroda 52 no.4:105-106 '63.
(MIRA 16:4)

1. Chlen-korrespondent AN SSSR.
(Earth—Internal structure)

MOLODENSKIY, M.S.; YEREMEYEV, V.F.; YURKINA, M.I.

Problem of transversal shift in triangulation. Geod. i kart. no.6:3-5
Je '63.   (MIRA 16:9)
                    (Triangulation)

MOLODENSKIY, M.S.

Effect of viscosity on the phase of earth tides. Izv. AN SSSR.
Ser. geofiz. no.10:1469-1482 O '63.

Direction of the main axes of the stressed state in earth tides.
Ibid.:1483-1485   (MIRA 16:12)

1. Institut fiziki Zemli AN SSSR.

TSVILLING, M.Ya.; YAKHONTOV, Yu.A.; ISKRITSKAYA, L.I.; MOLODETS, V.N.;
YEVSIN, A.D.; BLEDNEV, A.I., dotsent, kand.voyenno-morskikh
nauk, kapitan 1 ranga, red.; KRUPENNIKOVA, I.A., red.;
YAKIMOVICH, Yu.K., red.-leksikograf; KUZ'MIN, I.F., tekhn.red.

[German-Russian naval dictionary] Nemetsko-russkii voyenno-morskoi
slovar'. Sost.M.IA.TSvilling i dr. Pod obshchei red. A.I.Bledneva.
Moskva, Voen.izd-vo M-va obor.SSSR, 1961. 456 p.
(MIRA 14:3)

(German language--Dictionaries--Russian)
(Naval art and science--Dictionaries)

VULIKHMAN, V.A., inzh.; MOLODETSKAYA, O.T., inzh.

Automatic control of tank filling and pump interlocking.
Mekh. i avtom. proizv. 17 no.8:15-17 Ag '63.   (MIRA 16:10)

MOLODETSKAYA, S.Ye.

Subluxation of the head of the radius in small children.
Zdravookhraneniye 6 no.1:35-37 J-F'63.   (MIRA 16:8)

1. Iz 3-y detskoy polikliniki (zav. poliklinikoy - G.F.
Belevich) g. Kishineva.
                (RADIUS—DISLOCATION)

L 10813-66
ACC NR: AP5028528   SOURCE CODE: UR/0286/65/000/020/0120/0120

AUTHORS: Molodetskiy, E. G.; Litinskiy, I. D.; Eril'skiy, G. G.

ORG: none

TITLE: Method for automatic control of an installation for sterilization of canned
foods. Class 53, No. 175812 /announced by All-Union Design-Construction and
Scientific Research Institute for Automation of the Food Industry (Vsesoyuznyy
proyektno-konstruktorskiy i nauchno-issledovatel'skiy institut avtomatizatsii
pishchevoy promyshlennosti)/

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 20, 1965, 120

TOPIC TAGS: food, food preservation, food sterilization, canned food, pressure
chamber, pressure regulator

ABSTRACT: This Author Certificate presents a method for automatic control of an
installation for sterilizing canned foods by controlling the temperature of the
heating medium. This is done by introducing either heating or cooling elements
and simultaneously controlling the pressure within the installation. To simplify
control and to eliminate pressure differences between inside the container of the

Card 1/2   UDC: 664.8.036.536-52

L 10813-66
ACC NR: AP5028528

sterilized product and the installation (this difference usually leads to a
deformation of the container), the pressure inside the container is adjusted to
the changing temperature of the heating medium, and this adjusted pressure is then
maintained in the installation. The pressure inside the packing is adjusted by
means of an inertial unit consisting of a pressure throttle and a pneumatic
cylinder.

SUB CODE: 06/   SUBM DATE: 25Mar64

Card 2/2

MOLODETSKIY, I.G., inzh.; TERZIYEV, G.S., inzh.

Automatic vacuum evaporator for producing tomato products.
Mekh.i avtom.proizv. 16 no.10:15-16 O '62. (MIRA 15:11)
(Tomato products)
(Automation)

LIBERMAN, I.G.; MOLODETSKIY, I.G.; SPINUL, N.M.

Changes in the level of the product in vacuum evaporation apparatus with continuous action. Kons.i ov.prom. 17 no.10: 13-16 O '62.   (MIRA 15:9)

1. Proyektno-konstruktorskiy institut kompleksnoy avtomatizatsii proizvodstvennykh protsessov v pishchevoy promyshlennosti.
          (Evaporating appliances) (Level indicators)

MOLODETSKIY, K., Geroy Sotsialisticheskogo Truda

Reducing the cost of coal mining. NTO no.2:22 F '59.
(MIRA 12:2)

1. Nachal'nik shakhty No.5-bis "Trudovskaya," g.Stalino.
(Stalino--Coal mines and mining)

MOLODID, R.M.; BALGOZHIN, Sh.G.

Efficiency of using the MOK-1 powered battery stull.   Sbor. nauch.
trud. Kaz GMI   no.19:148-155 '60.   (MIRA 15:3)
                 (Karaganda Basin--Mine timbering)

L 02382-67   EWP(t)/ETI   IJP(a)   JD

ACC NR: AP6012813   SOURCE CODE: GE/0030/66/014/002/K195/K199

AUTHOR: Filipchenko, A. S.; Molodian, I. P.; Nasledov, D. N.; Sidorov, V. G.;
Emelyanenko, O. V.

ORG: Joffe Physico-Technical Institute, Academy of Sciences, SSSR, Leningrad

TITLE: On the second conduction band in indium antimonide

SOURCE: Physica status solidi, v. 14, no. 2, 1966, K195-K199

TOPIC TAGS: indium compound, antimonide, conduction band, Hall effect, Fermi level,
electron transition

ABSTRACT: Data are presented to show the existence of a conduction band in InSb locat-
ed about 0.5 ev above the bottom of the main conduction band (000). The rise in the
Hall coefficient with temperature was measured in 14 indium antimonide samples doped
with selenium or tellurium. The hypothesis that this rise is due to electron transi-
tions to a second conduction was tested and the value of the gap determined. Orig.
art. has: 1 table, 4 formulas.

SUB CODE: 20/   SUBM DATE: 09Mar66/   ORIG REF: 004/   OTH REF: 005

Card 1/1   vmb

MOLODIKOV, V.A.

Designers need a scientific method of calculating gear transmissions. Izv.
AN SSSR Otd.tekh.nauk no.4:599-601 Ap '53.   (MLRA 6:8)
                                                                     (Gearing)

MOLODIKOV, V.A., inzh.; BIRYUKOV, I.V., inzh.

Purpose of tests and measuring equipment. Trudy MIIT no. 121:4-8 '60.
(MIRA 14:4)

(Electric railroads)

MOLODIKOV, V.A., inzh.

Study of the lateral oscillations of an electric train depending on the change in the taper of the trusses. Trudy MIIT no. 121:122-158 '60.

(MIRA 14:4)

(Railroad motorcars)

ISAYEV, I.P., doktor tekhn.nauk, prof.; MOLODIKOV, V.A., inzh.

Modernization of the suspension system of the N8 electric locomotive.
Elek.i tepl.tiaga 5 no.4:16-17 Ap '61.   (MIRA 14:6)
                        (Electric locomotives)

ISAYEV, Igor' Petrovich; MOLODIKOV, Vasiliy Aleksandrovich; BIRYUKOV,
Ivan Vyacheslavovich; LAZARYAN, V.A., doktor tekhn. nauk,
retsenzent; PEROVA, A.A., kand. tekhn. nauk, red.;
VOROB'YEVA, L.V., tekhn. red.

[Fundamentals of programming and solving of traction and
dynamics problems of the rolling stock of electric railroads
by means of electronic computers]Osnovy programmirovaniia i
reshenie zadach tiagi i dinamiki elektropodvizhnogo sostava
na elektronnykh vychislitel'nykh mashinakh. Moskva, Trans-
zheldorizdat, 1962. 185 p.   (MIRA 15:10)
         (Electric railroads--Management)   (Electronic computers)

MOLODINI, Leila

[From the history of material culture of Georgian people;
folk butter-churning tools] Iz istorii material'noi kul'-
tury gruzinskogo naroda; narodnye maslotoinye orudiia.
Tbilisi, Izd-vo AN Gruz.SSR, 1963. 121 p. [In Georgian]
                                        (MIRA 17:11)

MOLODIYEV, V.Ye.

Problems relative to the organisation of work in liqueur and vodka plants. Spirt. prom. 23 no.2:22-23 '57.   (MIRA 10:4)

1. Vsesoyusnyy nauchno-issledovatel'skiy institut spirtovoy promyshlennosti.
        (Liquor industry)

ACCESSION NR: AP5017707

AUTHORS: Nekhotyashchiy, V. A.; Molodkin, A. B.

TITLE: Sheet steel with a plastic coating

SOURCE: AN UkrSSR, Institut elektrosvarki. Proyektirovaniye svarnykh konstruktsii (Design of welded structures). Kiev, Naukova dumka, 1965, 109-113

TOPIC TAGS: construction material, plastic coating, steel corrosion, sheet metal, welding technique / Stavinil

ABSTRACT: Sheet steel coated with polychlorovinyl has been developed. It has ...tance and can be used in welded structures. The coating, which ... ...the corrosive action of many com-
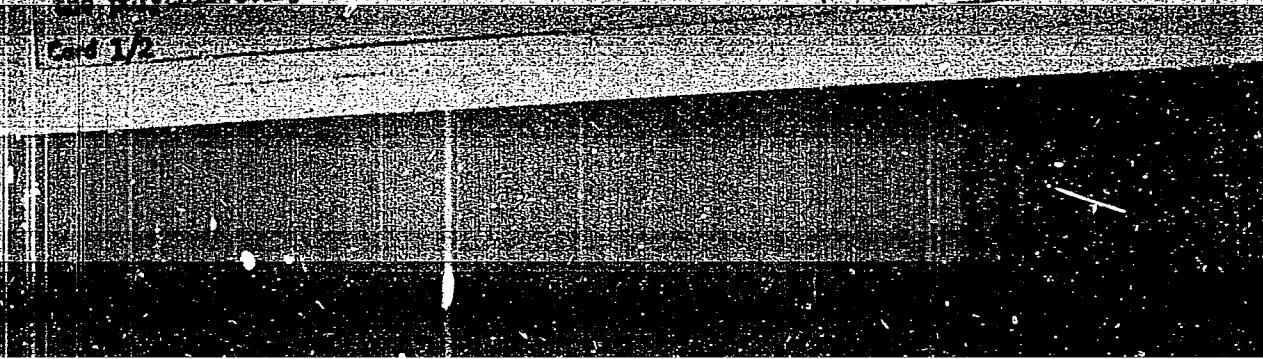
L 50267-65

ACCESSION NR: AT5017705

sufficient for melting the coating for fusion. Welding of the steel sheet must be done by either: 1) removing the plastic coating at the weld spot and using electric welding in a protective atmosphere (e.g., CO_2), or by ordinary contact

seam or spot welding, after which the protective coating is restored; 2) using one-sided contact welding (either spot or seam) without removing the coating. Proper techniques for securing high quality welds of these material have been

Art. Titl 3 figures.

ASSOCIATION: Institut elektrosvarki im Ye. O. Patona, AN UkrSSR (Institute of Electric Welding, AN UkrSSR)

SUBMITTED: 13Jan65   ENCL: 00   SUB CODE: MM, MT

NO REF SOV: 000   OTHER: 000

Card 2/2

MOLODKIN, A.

CHERNYAVEV, I., GOLOVNYA, V. and MOLODKIN, A.

"Thorium Complex Carbonate Compounds."

paper to be presented at 2nd UN Intl. Conf. on the peaceful uses of Atomic Energy, k Geneva. 1 - 13 Sept 58.

SOV/78-3-12-14/36

AUTHORS: Chernyayev, I. I., Golovnya, A. V., Molodkin, A. K.

TITLE: Concerning the Hydrated Forms of Sodium Thorium Pentacarbonate
                (O gidratirovannykh formakh pentacarbotoreata natriya)

ABSTRACT: The thorium carbonates of the alkali metals were systematically
                investigated and a new method for synthesizing $Na_6Th(CO_3)_5$·
                ·$2OH_2O$ and $Na_6Th(CO_3)_5$·$12H_2O$ was developed. The syntheses of
                $Na_6Th(CO_3)_5$·$(10-12)H_2O$ and $Na_6Th(CO_3)_5$·$5H_2O$ were also worked
                out. The alkaline earth salts of sodium thorium pentacarbonate
                were isolated as the barium and calcium salts:
                    $Ba_3Th(CO_3)_5$·$7H_2O$ and $Ca_3Th(CO_3)_5$·$7H_2O$.
                The thermal stabilities of $Na_6Th(CO_3)_5$·$2OH_2O$ and $Na_6Th(CO_3)_5$·
                $12H_2O$ were investigated and the corresponding thermograms were
                plotted. The course of the thermograms indicates that both

Card 1/3   crystal hydrates are converted to the non-aqueous $Na_6Th(CO_3)_5$

Concerning the Hydrated Forms of Sodium Thorium Pentacarbonate

above 100°, and that above 300° they decompose to form ThO_2 and Na_2CO_3. Several crystallographic properties of the $Na_6Th(CO_3)_5 \cdot 20H_2O$ and $Na_6Th(CO_3)_5 \cdot 12H_2O$ were investigated. The properties of $Na_6Th(CO_3)_5 \cdot 20H_2O$ indicate that the crystals are monoclinic with the following parameters: $a{:}b{:}c = 1.461{:} 1{:}1.495$ and $\beta = 106^\circ\ 12'$. The refractive indices are: $N_g = 1.476$, $N_m = 1.470$, $N_p = 1.462$. The crystallographic properties of $Na_6Th(CO_3)_5 \cdot 12H_2O$ differ sharply from those of the $Na_6Th(CO_3)_5 \cdot 20H_2O$. The refractive indices of $Na_6Th(CO_3)_5 \cdot 12H_2O$ are: $N_g = 1.504$, $N_p = 1.472$ and $N_m = 1.490$. The crystals of each hydrate differ greatly in terms of their stability in air. The $Na_6Th(CO_3)_5 \cdot 20H_2O$ crystals are unstable, losing their water very quickly and becoming opaque, while the $Na_6Th(CO_3)_5 \cdot 12H_2O$ crystals are completely stable. The behavior of both salts in water, alkali bases, acids, salts, and several organic solvents was investigated. Both crystals hydrolyze

Card 2/3

SOV/78-3-12-14/36

Concerning the Hydrated Forms of Sodium Thorium Pentacarbonate

easily in water to form white, amorphous precipitates. In alka-
li bases both hydrates are insoluble, while in acids they
decompose spontaneously to give off CO_2 gas. In organic solvents
(methyl and ethyl alcohols, ethyl ether, acetone, benzene,
glycerin, and others) the crystals are insoluble. The crystals
of $Na_6Th(CO_3)_5 \cdot 12H_2O$ are soluble in saturated solutions of the
oxalates and carbonates of the alkali metals. The water
molecules in sodium thorium pentacarbonate complexes are not
identical. The last water molecule is the most stable in terms
of its complex bond. The following new structural formula is
suggested for sodium thorium pentacarbonate:
$[Na_6[Th(CO_3)_5 \cdot H_2O] \cdot (n-1)H_2O$.
There are 7 figures, 13 tables, and 49 references, 3 of which
are Soviet.
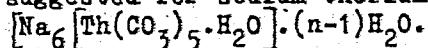
SUBMITTED: February 21, 1958

Card 3/3

MOLODKIN, A. K.

88605

5.3700

S/078/61/006/002/009/017
B017/B054

AUTHORS: Chernyayev, I. I., Golovnya, V. A., Molodkin, A. K.

TITLE: Ammonium Thorium Pentacarbonate

PERIODICAL: Zhurnal neorganicheskoy khimii, 1961, Vol. 6, No. 2, pp. 394 - 399

TEXT: The authors studied the synthesis and some properties of ammonium thorium pentacarbonate $(NH_4)_6Th(CO_3)_5 \cdot H_2O$. The existence of this compound was confirmed by ion exchange reactions with thallium, hexammine cobalt chloride, and guanidine. The following compounds were formed: $Tl_6Th(CO_3)_5 \cdot H_2O$, $[Co(NH_3)_6]_2Th(CO_3)_5(3+m)H_2O$, and $(CN_3H_6)_3(NH_4)_3Th(CO_3)_5 \cdot 3H_2O$. The compound $(NH_4)_6Th(CO_3)_5 \cdot 3H_2O$ is very unstable, and decomposes in air yielding ammonia, carbon dioxide, and water. The composition of this compound after one week of storing in air is given in a table. The stability of thorium pentacarbonate complexes of the type $Me_6Th(CO_3)_6 \cdot nH_2O$

Card 1/2

88605

Ammonium Thorium Pentacarbonate   S/078/61/006/002/009/017
                                                 B017/B054

depends on the kind of cations, and has the following order:

$$[(NH_4)_6]^{6+} < Co(NH_3)_6{}_2{}^{6+} < [(CN_3H_6)_3(NH_4)_3]^{6+} < Tl_6{}^{6+}.$$
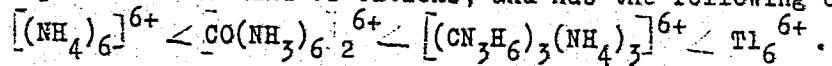
Ammonium thorium pentacarbonate is soluble in water with simultaneous
hydrolysis. In mineral acids, it decomposes and yields CO_2. The compound
is soluble in saturated alkali carbonate solutions, ammonia, guanidine,
and alkaline metal halide solutions. This effect indicates the possibility
of an existence of higher thorium carbonate complexes or carbonate
compounds of polymeric character. Ammonium thorium pentacarbonate is
insoluble in organic solvents such as ethanol, ethyl ether, acetone,
benzene, toluene, etc. There are 5 figures, 1 table, and 42 references:
13 Soviet, 6 US, 12 German, 5 British, 1 Italian, 3 French, and 1 Indian.

SUBMITTED: December 3, 1959

Card 2/2

89302

21.3100

AUTHORS: Chernyayev, I. I., Molodkin, A. K.

TITLE: Guanidine thorium pentacarbonate $(CN_3H_6)_6Th(CO_3)_5 \cdot nH_2O$

PERIODICAL: Zhurnal neorganicheskoy khimii, v. 6, no. 3, 1961, 587-592

TEXT: The authors continued their previous studies (Refs. 1 and 2) on thorium pentacarbonates. New syntheses of the tri- and tetrahydrates of guanidine thorium pentacarbonate were devised and the properties of the compounds studied. Compound $(CN_3H_6)_6Th(CO_3)_5 \cdot 4H_2O$ was obtained in different crystal forms, e. g., prisms, bipyramids, and in the form of a fine powder, depending on the reaction time by adding freshly precipitated thorium hydroxide which was dissolved in saturated guanidine carbonate solution to a saturated solution of sodium carbonate. $(CN_3H_6)_6Th(CO_3)_5 \cdot 4H_2O$ was also obtained by direct reaction of thorium nitrate with a guanidine carbonate solution. The refractive indices of this compound are Np = 1.539 and Ng = 1.583. The trihydrate of guanidine thorium pentacarbonate was obtained from

Card 1/3

89902

S/078/61/006/003/011/022
B121/3208

Guanidine thorium ...

1 M thorium nitrate solution and 7.65 M saturated guanidine carbonate solu-
tion in the form of crystal platelets, whose analysis gave the following
composition: $(CN_3H_6)_6Th(CO_3)_5 \cdot 3H_2O$. The refractive indices are $Ng = 1.583$
and $Np = 1.530$. Guanidine thorium pentacarbonate may also be produced by
dissolving thorium oxalate in guanidine carbonate and by subsequent crystal-
lization. According to the operational conditions, either large crystals
or a fine powder are obtained. Guanidine thorium pentacarbonate is stable
on the air, and only on prolonged exposure to air the crystals disintegrate
under separation of water. The water is completely expelled by heating to
$50 - 80^\circ C$, and $(CN_3H_6)_6Th(CO_3)_5$ is obtained. It may be seen from the heat-
ing curves that one water molecule in the tetrahydrate of guanidine thorium
pentacarbonate is included into the inner sphere of the complex, and that,
accordingly, the latter has the following formula:
$(CN_3H_6)_6[Th(CO_3)_5 \cdot H_2O] \cdot 3H_2O$. The thermal decomposition of various
hydrates of guanidine thorium pentacarbonate thus takes place in the same
way. Complete decomposition of the compounds occurs at $180 - 230^\circ C$. Some
chemical properties of guanidine thorium pentacarbonate hydrates were

Card 2/3

89902

Guanidine thorium ...

S/078/61/006/003/011/022
B121/B208

studied. These compounds were found to hydrolyze readily in water. Mineral acids cause decomposition with carbon dioxide liberation. They are insoluble in organic solvents, but soluble in saturated guanidine carbonate solution, particularly when heated. These compounds are also soluble in solutions of carbonates, oxalates, and halides of alkali metals and ammonium, as well as in urea solutions, forming complex compounds of the hexacarbonate type. Thorium hexacarbonate complexes of the $Me_8Th(CO_3)_6 \cdot nH_2O$ type could not be isolated. It is assumed that the guanidine thorium hexacarbonate formed in the solution is decomposed and converted to the more stable guanidine thorium pentacarbonate complex. The crystal lattice of the tetrahydrate of guanidine thorium pentacarbonate is symmetric and does not show any piezoeffect. There are 4 figures and 13 references: 3 Soviet-bloc and 10 non-Soviet-bloc.

ASSOCIATION: Institut obshchey i neorganicheskoy khimii Akademii nauk SSSR
               (Institute of General and Inorganic Chemistry, Academy of
               Sciences USSR)

SUBMITTED: January 22, 1960

Card 3/3

CHERNYAYEV, I.I.; MOLODKIN, A.K.

Hexaamminecobalt (III) pentacarbonatothorate (IV), $[Co(NH_3)_6]$ $_2Th(CO_3)_5 \cdot nH_2O$. Zhur.neorg.khim. 6 no.4:809-815 Ap '61.

(MIRA 14:4)

1. Institut obshchey i neorganicheskoy khimii imeni N.S.Kurnakova AN SSSR.

(Cobalt compounds)   (Thorium compounds)

MOLODKIN, A.K.; SKOTNIKOVA, G.A.

Cesium octarhodanothorate $Cs_4[Th(CNS)_8].2H_2O$.   Zhur.neorg.khim. 7 no.7:
1548-1551 Jl '62.   (MIRA 16:3)
    (Cesium compounds)   (Thorium compounds)   (Thiocyanates)

MOLODKIN, A.K.; SKOTNIKOVA, G.A.

Thermogravimetric study of thorium thiocyanates. Zhur.neorg.khim.
8 no.9:2080-2087 S '63.   (MIRA 16:10)

MOLODKIN, A.K., SKOTNIKOVA, G.A.

Molecular refractions of some thorium thiocyanates. Zhur. neorg.
khim. 8 no.10:2240-2247 O '63.   (MIRA 16:10)

1. Institut obshchey i neorganicheskoy khimii im. N.S. Kurnakova
AN SSSR.
          (Thorium compounds) (Thiocyanates) (Refractometry)

MOLODKIN, A.K.

Recommendations on the introduction of the international system
of units into inorganic chemistry. Zhur. neorg. khim. 8 no.12:2827-
2841 D '63.   (MIRA 17:9)

1. Institut obshchey i neorganicheskoy khimii imeni N.S.Kurnakova
AN SSSR.

KHARITONOV, Yu. Ya.; MOLODKIN, A. K.; BABAYEVA, A. V.

Infrared absorption spectra of thorium (IV) complexes with
thiocyanate groups. Izv AN SSSR Ser Khim no. 4:618-622 Ap '64.
                                        (MIRA 17:5)

1. Institut obshchey i neorganicheskoy khimii im. N. S.
Kurnakova AN SSSR.

MOLODKIN, A.K.; SKOTKINA, G.A.

Thiocyanate compounds of thorium. Zhur.neorg.khim. 9 no.1:60-69
Ja '64.   (MIRA 17:2)

1. Institut obshchey i neorganicheskoy khimii imeni N.S.Kurnakova
AN SSSR.

MOLODKIN, A.K.; IVANOVA, O.M.; SKOTNIKOVA, G.A.

Mixed acyl complexes of thorium. Zhur. neorg. khim. 9 no.2:295-306 F'64.

(MIRA 17:2)

MOLODKIN, A.K.; SKOTNIKOVA, G.A.

Mixed carbonate-oxalate compounds of thorium. Zhur. neorg.
khim. 9 no.3:555-561 Mr '64.   (MIRA 17:3)

1. Institut obshchey i neorganicheskoy khimii im. N.S.
Kurnakova AN SSSR.

MOLODKIN, A.K.; SKOTNIKOVA, G.A.

Synthesis of $Na_2[Th(NCS)_5OH(H_2O)_{(2-3)}]$. Zhur. neorg. khim. 9
no.6:1493-1494 Je '63   (MIRA 17:8)

GOLOVNYA, V.A.; MOLODKIN, A.K.; TVERDOKHLEBOV, V.N.

    Thorium bisulfite. Zhur. neorg. khim. 9 no.8:2032-2034 Ag '64.

                                                          (MIRA 17:11)

MOLODKIN, A.K.; SKOTNIKOVA, G.A.; ARUTYUNYAN, E.G.

Guanidinium sodium thorium trisulfate. Zhur. neorg. khim. 9
no.12:2705-2709 D '64.   (MIRA 18:2)

1. Institut obshchey i neorganicheskoy khimii imeni Kurnakova
AN SSSR.

CHERNAYEV, I.I.; GOLOVNYA, V.A.; MOLODKIN, A.K.

Remarks on the article by D.I. Riabchikova, M.P. Volynets,
V.A. Zarinskii and V.I. Ivanov "High-frequency titration.
Report No.7: Thorium carbonate compounds". Zhur. anal. khim.
19 no.8:1036- 1037   '64.   (MIRA 17:11)

MOLODKIN, A.K.; ARUTYUNYAN, E.G.

Thorium aquasulfate compounds. Zhur. neorg. khim. 10
no.2:352-362 F '65.   (MIRA 18:11)

1. Submitted March 3, 1964.

GOLOVNYA, V.A.; MOLODKIN, A.K.; TVERDOKHLEBOV, V.N.

Synthesis of thorium tri and "tetra" sulfites. Zhur. neorg. khim.
10 no.9:2196-2198 S '65.   (MIRA 18:10)

1. Institut obshchey i neorganicheskoy khimii imeni Kurnakova AN
SSSR.

MOLODKIN, A.K.; IVANOVA, O.M.; KUCHUMOVA, A.N.

Some carbamide-containing complex thorium halides. Dokl. AN SSSR 164
no.4:820-821 O '65.   (MIRA 18:10)

1. Institut obshchey i neorganicheskoy khimii im. N.S.Kurnakova
AN SSSR. Submitted March 24, 1965.

MOLODKIN, A.K.; BALAKAYEVA, T.A.; KUCHUMOVA, A.N.

Thorium orthophosphates. Dokl. AN SSSR 165 no.3:573-574 N '65.
(MIRA 18:11)

1. Institut obshchey i neorganicheskoy khimii im. N.S. Kurnakova
AN SSSR. Submitted April 26, 1965.

MOLODKIN, A.K.; SKOTNIKOVA, G.A.; IVANOVA, O.M.

Tetrasulfate compounds of Th. Zhur.neorg.khim. 10 no.11:2441-2448
N '65.   (MIRA 18:12)

1. Institut obshchey i neorganicheskoy khimii imeni N.S.Kurnakova
AN SSSR. Submitted July 25, 1964.

MOLODKIN, A.K.; SKOTNIKOVA, G.A.; IVANOVA, O.M.

Penta- and hexesulfate compounds of thorium. Zhur.neorg.khim.
10 no.12:2675-2683 D '65.   (MIRA 19:1)

1. Institut obshchey i neorganicheskoy khimii imeni Kurnakova
AN SSSR.

MOLODKIN, P. F.

MOLODKIN, P. F.

"Geomorphology of the Irrigation Districts of Rostov
Oblast." Min Higher Education USSR, Rostov-on-Don State U imeni V. M.
Molotov, Rostov-on-Don, 1955. (Dissertation for the Degree of Candidate
in Geographical Sciences)

SO: M-955, 16 Feb 56

MOLODKIN, P.F., kandidat geograficheskikh nauk.

An unusual shape of ravines.   Priroda 46 no.6:108 Je '57. (MIRA 10:7)

1. Rostovskiy gosudarstvennyy universitet im. V.M.Molotova.
(Terek Valley--Erosion)

AUTHOR: Molodkin, P.F.,   12-90-2-13/30

TITLE: Topographic Changes Caused by Irrigation (Izmeneniye rel'yefa
              v svyazi s orosheniyem) As Exemplified by the Irrigated Areas
              of the Rostov Oblast' (Na primere oroshayemykh zemel' Ro-
              stovskoy oblasti)

PERIODICAL: Izvestiya Vsesoyuznogo Geograficheskogo Obshchestva, 1958,
              Vol 90, Nr 2, pp 176 - 178 (USSR)

ABSTRACT: Topographic changes caused by irrigation, are problems which
              have not yet been sufficiently dealt with. They include:
              changes of the micro-relief, of plane and linear erosion
              processes, of the groundwater level, development of swampiness
              and salinity of the ground and the possibility of sagging.
              Information is presented on the regularities of subsequent
              stages in the topographic development. Negative consequences
              of irrigation result from unreasonable irrigation-water dis-
              charges. The organization of observation centers for the
              investigation of geomorphological processes in irrigated
              areas is suggested. There are 5 Soviet references.

AVAILABLE: Library of Congress
Card 1/1   1. Topography   2. Earth-Configuration

MOLODKIN, P.F.

Basic characteristics of the development of the relief of irrigated
soils as exemplified by the irrigated regions in Rostov Province.
Uch.sap. RGU 44:211-216 '59.   (MIRA 14:1)
            (Rostov Province—Geology, Structural)
                    (Irrigation)

MOLODKIN, P. F.

On the current appearance of ravines in the lower Don Basin.
Izv. Vses. geog. ob-va 94 no.6:506-507 N-D '62.
(MIRA 15:1)

(Don Valley—Erosion)

MOLODKIN, V.

Using measuring and grinding instruments.   Tekhsov. MTS 17 no.20:
4-11 O '56.   (MLRA 9:12)

(Measuring instruments) (Grinding and polishing)

MOLODKIN

Determining the credit period for new machinery. Den. i kred. 16
no.10:75-76 O '58.   (MIRA 11:11)
          (Agricultural machinery industry—Finance)

S/185/63/008/002/011/012
D234/D308

AUTHORS: Zyuganov, A. N., Molodkin, V. B., Smirnov, A. A. and
             Tikhonova, Ye. A.

TITLE: Effect of lattice distortions on scattering of slow
             neutrons in alloys

PERIODICAL: Ukrayins'kyy fizychnyy zhurnal, v. 8, no. 2, 1963,
             256-263

TEXT: A theoretical investigation of the intensity of neutron scat-
tering in alloys with body-centered cubic lattice of β-brass type
and with face-centered cubic lattice of AuCu and AuCu$_2$ type. The
case of one scattering amplitude being negative is discussed in de-
tail, and conditions are established for which $F_{str}^2 - 4\bar{A}_0^2$ is posi-
tive. Conclusions: The fact that lattice distortions decrease the
intensity of regular structural reflections when both amplitudes
have the same sign, is taken into account. An increase of intensity

Card 1/2

Effect of lattice ...

S/185/63/008/002/011/012
D234/D308

is possible in some intervals of concentrations when one of the amplitudes is negative. The intensity of superstructural reflections can increase in both cases. Formulas for the intervals of concentrations are given. There are 2 figures.

ASSOCIATION: Institut metallofiziki AN USSR (Institute of Metal Physics, AS UkrSSR), Kiev

Card 2/2

25512

11.1190

AUTHORS: Vol'nov, I. I., Molodkina, A. N.

TITLE: Synthesis of hydrogen peroxide from elements by silent discharge

PERIODICAL: Zhurnal neorganicheskoy khimii, v. 6, no. 8, 1961, 1952-1954

TEXT: A new convenient synthesis of H_2O_2 was developed based on methods described in the literature by N. I. Kobosev, I. A. Semiokhin, V. L. Sindyukov (Zh. fiz. khimii, 34, 771 (1960)), S. Z. Makarov, I. I. Vol'nov, A. N. Atavina, T. V. Shatova (Otchet laboratorii perekisnykh soyedineniy AN SSSR, Moskva, 1950). The apparatus used is shown in Fig. 1. A tin foil on the inner wall of the external tube and a silver film on the outer wall of the internal tube served as electrodes. Reactions were effected on different parts of the electrode and with varying surfaces: 115-300 mm^2, 94-176 mm^2, and 24,000-62,500 mm^2. The inner tube of the discharge tube was treated with hot concentrated nitric acid, washed with distilled water, then treated with concentrated phosphoric acid, and again washed with distilled water. Without this treatment the

Card 1/3

S/078/61/006/008/011/018
B127/B220

Synthesis of hydrogen...   25512

yield did not exceed 50%. The apparatus was fed with line current, regulated and varied by an ЛАТР-1 (LATR-1) and an electrolytic circuit breaker connected to the first winding of the coil РУМКОРФ КЦ = 150 (Rumkorf KTs=150). The experiments were made at a voltage of 20kv and a frequency of 100cps. The amperage on the first winding of the inductor was 4.6-4.7a, on the tube, however, 5-7ma. The current density varied between 2 and 2.5a/mm^2·10^{-7}. The highest yield in H_2O_2 was observed at a content of 3.5-3.7vol% of O_2 in the initial mixture. The initial mixture was dried by using a Tishchenko phial filled with concentrated sulfuric acid. Then, it passed a copper coil cooled by liquid nitrogen. The pressure was maintained at 50 mm Hg in all reactions. The reaction time was 6 1/2 hr at a flow rate of 1 l/hr. The optimum working temperature was -17°C, since the concentrated solution had to be maintained in liquid state. The reaction yield varied between 67.2 and 82.8% by weight of H_2O_2. There are 2 figures, 1 table, and 6 references: 3 Soviet-bloc and 3 non-Soviet-bloc. The reference to the English-language publication reads as follows: Ref. 6: T. Bellinger, Ind. Eng. Chem., 38, 627 (1946).

ASSOCIATION: Institut obshchey i neorganicheskoy khimii im.
N. S. Kurnakova Akademii nauk SSSR (Institute of General and
Inorganic Chemistry imeni N. S. Kurnakov AS USSR)

Card 2/3

17.1151 also 1273, 1583

11.2140

27894
S/078/61/006/010/001/010
B121/B101

AUTHORS: Mel'nikov, A. Kh., Firsova, T. P., Molodkina, A. N.

TITLE: Production of pure preparations of sodium peroxide and potassium superoxide

PERIODICAL: Zhurnal neorganicheskoy khimii, v. 6, no. 10, 1961, 2225-2229

TEXT: An improved method has been developed for producing pure preparations of sodium peroxide, (Na_2O_2), and potassium superoxide, KO_2, by oxidizing the metals with oxygen. The apparatus is shown in Fig. 1. Reaction flask 1 is filled with the alkali metal by feeding part of the metal, previously melted in a test tube, through a capillary tube into flask 1. Sodium peroxide was produced from sodium and oxygen in a two-stage process. In the first stage, an oxygen pressure of 6-8 mm Hg is applied for about 30 min; the second stage lasting for 2-2 1/2 hr is performed under atmospheric pressure. At the beginning of oxidation an orange-colored luminescence of the metal occurs at 240-250°C, which may be prevented by reducing the O_2 supply. Complete oxidation occurs at a

Card 1/3

27894
S/078/61/006/010/001/010
B121/B101

Production of pure preparations of...

temperature of 360°C at most. The loose reaction product formed can easily be removed from the reaction space. The process is easily reproducible and gives yields of 100 % of Na_2O_2. Potassium superoxide is similarly formed: Metallic potassium is treated in the first stage for 30-40 min at an oxygen pressure of 6-8 mm Hg, and in the second stage for 4-5 hr at atmospheric pressure. The initial temperature in the oxidation process applied to obtain potassium superoxide is 110-120°C, and the final temperature is 350°C at most. The KO_2 yield was 92.74-98.34 %. This process involves a noticeable corrosion of the glass reaction vessel owing to silicate formation. Thus, high-purity preparations can be obtained only in vessels resistant to alkali oxides. Proper dosing of oxygen results in a reaction time only one-fourth or one-fifth that required with the use of air in the first stage. A paper by I. A. Kazarnovskiy, S. I. Raykhshteyn (Zh. fiz. khimii, 21, 245 (1947)) is mentioned. There are 2 figures, 2 tables, and 3 references: 1 Soviet and 2 non-Soviet. The reference to the English-language publication reads as follows: A. V. Harcourt, J. Chem. Soc. (London), 14, 267 (1862).

SUBMITTED: September 15, 1960

Card 2/3

S/078/62/007/006/004/024
B124/B138

AUTHORS: Mel'nikov, A. Kh., Firsova, T. P., Molodkina, A. N.

TITLE: Interaction of potassium hyperoxide with water vapor and carbon dioxide

PERIODICAL: Zhurnal neorganicheskoy khimii, v. 7, no. 6, 1962, 1228-1236

TEXT: When studying the interaction of potassium hyperoxide with water vapor between -10 and +19°C it was shown that practically no peroxide oxygen was set free at -10°C, while at 0°C 3/4 of the original peroxide oxygen remained in the product, even after 3 hrs. Practically the whole peroxide oxygen was set free at 19°C. At 10°C and below, the hydrated compounds $K_2O_2 \cdot nH_2O$ were formed, while at 19°C and above KO_2 was converted to KOH with release of the whole active oxygen, and - in the presence of sufficient water vapor - KOH was formed in various hydrated forms and solutions. Fig. 3 shows the gradual change of composition of the solid phase, and Fig. 4 shows the arrangement for studying the interaction between KO_2 and CO_2. The interaction depends mainly on temperature.

Card 1/6

S/078/62/007/006/004/024
B124/B138

Interaction of potassium hyperoxide ...

The composition of the end product depends on the transition phase formed during the first stage of interaction between KO_2 and water vapor. At $10°C$ and below, hyperoxide oxygen is set free, and potassium peroxodicarbonate $K_2C_2O_6$ is formed, while at $50°C$ and above potassium carbonate and bicarbonate are formed with the release of all the active oxygen (Figs. 7 and 8). Between 10 and $50°C$, the formation of $K_2C_2O_6$ is mainly determined by the effective removal of the heat of the exothermic reaction between KO_2 and CO_2. No proofs have been found for the formation of potassium monopercarbonate, K_2CO_4, and potassium pyrocarbonate, $K_2C_2O_5$.

There are 8 figures and 2 tables. The three most important English-language references are: P. W. Gilles, J. L. Margrave, J. Phys. Chem. 60, 1333 (1956); C. A. Kraus, E. F. Parmenter, J. Amer. Soc. 56, 2385 (1934); J. R. Partington, A. U. Fathallah, J. Amer. Chem. Soc., 1934 (1950).

ASSOCIATION: Institut obshchey i neorganicheskoy khimii im. N. S. Kurnakova Akademii nauk SSSR (Institute of General and Inorganic Chemistry imeni N. S. Kurnakov of the Academy of Sciences USSR)

Card 2/3

S/078/62/007/006/004/024
B124/B138

Interaction of potassium hyperoxide ...

SUBMITTED: November 1, 1960
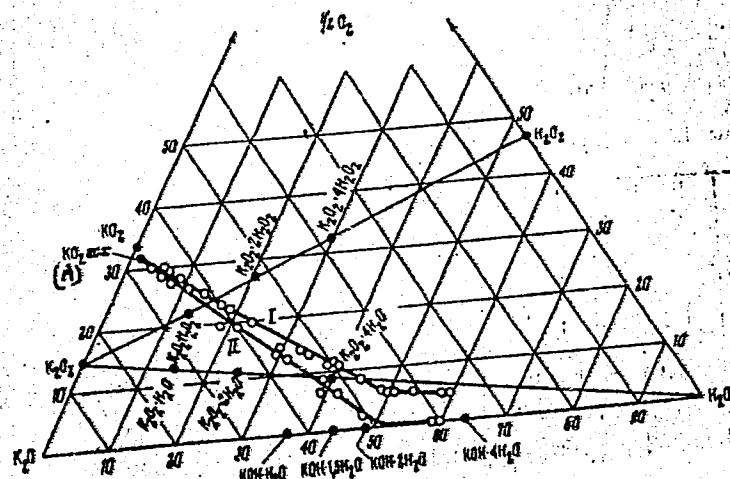
Fig. 3. Ternary diagram for $K_2O - (1/2)O_2 - H_2O$. (I) Test temperature -10 and $0°C$; (II) test temperature $19°C$. Legend: (A) KO_2 initial.

Card 3/6

S/078/62/007/006/005/024
B124/B138

AUTHORS: Mel'nikov, A. Kh., Firsova, T. P., Molodkina, A. N.

TITLE: Production of pure potassium peroxodicarbonate and study of some of its properties

PERIODICAL: Zhurnal neorganicheskoy khimii, v. 7, no. 6, 1962, 1237-1241

TEXT: The authors studied the optimum conditions for the conversion of potassium hyperoxide to potassium peroxodicarbonate, and compared the properties of the latter with those of peroxodicarbonate obtained according to E. J. Constam and A. Hansen. They used 98.7% potassium hyperoxide as initial product. A mixture of CO_2 and water vapor was continuously blown through a thin layer of fine-grained product. The temperature of the thermostat, in which the reactor was placed, was kept at ~0°C; the hyperoxide layer was heated to 10°C by the heat released during the reaction. The experiments took 1-2 hrs; they were carried on until constant weight was reached. Finally, the product was dried with dry air for 2-3 hrs, first at experimental and then at room temperature.

Card 1/8 3

S/078/62/007/006/005/024
B124/B138

Production of pure potassium ...

The resulting product was light-brown whereas the electrolytic product had a pale-bluish color. The product obtained by interaction of KO_2 with CO_2 had an average purity of ~85%. The electrolytic production of $K_2C_2O_6$ from saturated K_2CO_3 solution was performed in an H-shaped vessel with a porous separating wall; platinum wire was used as anode and a platinum disk as cathode. A BCA-10 (VSA-10) selenium rectifier provided alternating current of 15-16 v and 0.1-0.3 a. The electrolyte temperature was -15 to -20°C and the purity of the product up to 99.9%. Dry $K_2C_2O_6$ preparations obtained by the two methods are fairly stable, even at room temperature. Losses of active oxygen within 1 year are only fractions of 1% at room temperature. The product becomes gradually brighter. The thermogram obtained by Kurnakov pyrometer (Fig. 2) showed two endothermic effects, at 155-160°C (thermal decomposition of $K_2C_2O_6$) and at 198-200°C (decomposition of $KHCO_3$). The specific gravity of pure $K_2C_2O_6$ obtained from KO_2 was determined pycnometrically in benzene solution at

Card 2/ 3

S/078/62/007/006/005/024
B124/B138

Production of pure potassium ...

$20°C$. It was 1.97, while for electrolytic $K_2C_2O_6$ it was 1.95.
S. Z. Makarov and I. I. Vol'nov are mentioned. There are 3 figures and
2 tables. The English-language reference is: I. R. Partington,
A. U. Fathallah, J. Chem. Soc. (London), 1934 (1950).

ASSOCIATION: Laboratoriya perekisnykh soyedineniy, Institut obshchey i
neorganicheskoy khimii im. N. S. Kurnakova Akademii nauk SSSR
(Laboratory of Peroxide Compounds, Institute of General and
Inorganic Chemistry imeni N. S. Kurnakov of the Academy of
Sciences USSR)

SUBMITTED: December 3, 1960.

Fig. 2. Thermogram of potassium peroxodicarbonate: (a) obtained from
potassium hyperoxide; (b) obtained electrolytically. Legend:
(A) R_{diff} = 1000 ohms; (B) R_{simple} = 70,000 ohms; (C) time, min.

Card 3/0

AUTHORS: Firsova, T. P., Molodkina, A. N., Morozova, T. G.,
             Aksenova, I. V.

TITLE: Synthesis of sodium peroxocarbonates

PERIODICAL: Zhurnal neorganicheskoy khimii, v. 8, no. 2, 1963, 278 - 284

TEXT: In order to prove the existence of alkali hydroperoxides and to develop a simple method for synthesizing alkali peroxocarbonates, CO_2 was bubbled through concentrated solutions of NaOH and H_2O_2 at low temperatures. The filtrate was washed with ether and dried in air. The ratio NaOH : H_2O_2 was chosen according to the equations $2MOH + H_2O_2 + aq \rightleftharpoons M_2O_2 \cdot aq$; $MOH + H_2O_2 \rightleftharpoons MOOH + H_2O$ and $MOH + 1.5 H_2O_2 \longrightarrow MOOH \cdot 0.5 H_2O_2 + H_2O$. When carefully mixing H_2O_2 with NaOH (ratio: 0.5 : 1), bubbling of CO_2 through the mixture at a temperature from 0 to -15°C lead after 8 - 10 min to dissolution of the initially formed sodium peroxide octahydrate and to the

Card 1/3

Synthesis of sodium peroxocarbonates

sedimentation of a new phase which was identified as $Na_2C_2O_6 \cdot xH_2O$. Depending on the drying conditions, x fluctuated between 0.6 and 14 mole.. The residual 0.6 mole H_2O could not be removed without decomposing the substance. Thermographic analysis pointed to an endothermic effect at 126°C with the total active oxygen being liberated and Na_2CO_3 forming. If the mixing ratio H_2O_2 : NaOH was 1 : 1 $NaOOH \cdot 3H_2O$ was formed first. Bubbling CO_2 through the solution at a temperature between 0 and -20°C lead to the formation of sodium diperoxocarbonate $NaHCO_4 \cdot H_2O$ according to the equation CO_2 + MOOH $\rightarrow$ MHCO$_4$. With the ratio H_2O_2 : NaOH = 1.5 : 1 $NaOOH \cdot 0.5H_2O \cdot 2H_2O$ was formed as intermediate product, as final product also $NaHCO_4 \cdot H_2O$. The formation of the new phase was finished in 20 to 25 min, longer bubbling lead to the decomposition of peroxocarbonate into bicarbonate. The yield of sedimented peroxocarbonate depends on the degree of dilution due to the solubility of this compound. According to the equation $NaOH + CO_2$ + $H_2O_2 \rightarrow NaHCO_4 \cdot H_2O$, the solvent H_2O does not combine in the compound. At

Card 2/3

S/078/63/008/002/002/012
B101/B186

Synthesis of sodium peroxocarbonates

$0^{\circ}C$ and a ratio of NaOH : H_2O = 1 : 5.5 the yield was 80% at a ratio of 1 : 23 no sodium diperoxocarbonate was precipitated. This corresponds to a 22% solubility of this compound. A thermographic analysis yielded an endothermic effect at $50^{\circ}C$ with a transformation to $Na_2CO_3 \cdot H_2O_2$ whereby only half of the active oxygen was liberated, as well as an exothermic effect at $75^{\circ}C$ where the remaining O_2 was liberated and finally an endothermic effect at $100^{\circ}C$ caused by dehydration. This thermographic result proves that $NaHCO_4 \cdot H_2O$ is not identical with compounds of equal gross formula, as e.g. $NaHCO_3 \cdot H_2O_2$ or $Na_2C_2O_6 \cdot H_2O_2 \cdot 2H_2O$. $NaHCO_4 \cdot H_2O$ crystallizes in anisotropic needles. There are 4 figures and 6 tables.

ASSOCIATION: Institut obshchey i neorganicheskoy khimii im. N. S. Kurnakova Akademii nauk SSSR, Laboratoriya perekisnykh soyedineniy (Institute of General and Inorganic Chemistry imeni N. S. Kurnakov of the Academy of Sciences USSR, Laboratory of Peroxide Compounds)

SUBMITTED: May 24, 1962
Card 3/3

FIRSOVA, T.P.; MOLODKINA, A.N.; MOROZOVA, T.G.; AKSENOVA, I.V.

Synthesis of potassium peroxydicarbonates. Zhur. neorg. khim. 9 no.5:1066-1071 My '64.

(MIRA 17:9)

1. Laboratoriya perekisnykh soyedineniy Instituta obshchey i neorganicheskoy khimii imeni N.S. Kurnakova AN SSSR.

S/0000/63/000/000/0119/0127

ACCESSION NR: AT4028334

AUTHOR: Firsova, T. P.; Molodkina, A. N.; Morozova, T. G.; Aksenova, I. V.

TITLE: Investigation of the reaction process of carbon dioxide with alkali solutions of hydrogen peroxide and the synthesis of peroxocarbonates

SOURCE: Soveshchaniye po khimii perekisny*kh soyedineniy. Second, Moscow, 1961. Khimiya perekisny*kh soyedineniy (chemistry of peroxide compounds); Doklady* soveshchaniy. Moscow, Izd-vo AN SSSR, 1963, 119-127

TOPIC TAGS: carbon dioxide, hydrogen peroxide, percarbonate synthesis, sodium superoxide, potassium superoxide, water vapor, alkali

ABSTRACT: The purpose of this paper is to explain the principle possibility and conditions of forming percarbonates with the action of carbon dioxide on aqueous alkali solutions of hydrogen peroxide and to confirm the conclusions of previous research relative to the character of the reaction of sodium peroxide and potassium peroxide with water vapor and carbon dioxide. A mixture of aqueous hydroxide solutions (sodium or potassium) and hydrogen peroxide was treated by carbon dioxide. The precipitates obtained were subjected to full quantitative analysis in the general alkali content. The results of the work are presented in tables and

Card 1/2

ACCESSION NR: AT4028334

thermograms. The authors confirm the conclusions of the previous research. A new method of obtaining true percarbonates of alkali metals which are contained in the carbonization of aqueous alkali solutions of hydrogen peroxide is developed. The advantages of the proposed method in comparison with known laboratory methods of producing percarbonates, is contained in the fact that it does not require a complex apparatus, or use of organic solvents as well as preliminary stages for obtaining peroxide as initial substances. Orig. art. has: 4 figures, 4 tables and 8 formulas.

ASSOCIATION: Institut obshchey i neorganicheskoy khimii im. N.S. Kurnakova AN SSSR (Institute of General and Inorganic Chemistry AN SSSR)

SUBMITTED: 13Dec63   DATE ACQ: 06Apr64   ENCL: 00

SUB CODE: CH   NO REF SOV: 005   OTHER: 001

Card 2/2