L 38432-66

ACC NR: AP6019579

Mechanical working of the alloys containing up to 30% of the alloying additive was analogous to that commonly used for molybdenum. The dependence of the electromotive force of the thermocouples on temperature for different alloys of molybdenum and rhenium was determined up to 1800°C. A platinum-platinum rhodium thermocouple was used as a control. Results are exhibited in a series of curves. The thermoelectric and mechanical properties of the thermocouples are listed in several large tables. It is concluded that thermocouples made of molybdenum-rhenium alloys can be used for temperature measurements in hydrocarbon media, for a limited time, not exceeding 1 to 2 hours, at temperatures up to 1500°C. Orig. art. has: 5 figures and 4 tables.   [06]

SUB CODE: //, 20 SUBM DATE: none/ ORIG REF: 006/ OTH REF: 003
09

Card 2/2

L 39723-66   EWT(d)/EWT(m)/EWP(k)/EWP(h)/EWP(v)/EWP(t)/EWP(l)/ETI   IJP(c)   JD/JG/

ACC NR: AP6007163   ·SOURCE CODE: UR/0115/65/000/012/0028/0030
GD-2

AUTHOR: Danishevskiy, S. K.; Smirnova, N. I.

ORG: none

TITLE: Furnaces for calibrating metal thermocouples at 2000—2500C

SOURCE: Izmeritel'naya tekhnika, no. 12, 1965, 28-30

TOPIC TAGS: thermocouple, laboratory furnace, electric furnace / VP-5367
furnace

ABSTRACT: As modern W-Mo-Re thermocouples operate at temperatures of
2500C and higher, the old Soviet-made PVG-349 calibrating furnace with its upper
limit of 2000C has become inadequate. Its modernization (new trademark VP-5367)
is described; it includes a larger (18-mm diameter, 220-mm long) working cavity,
neutral gas (argon) atmosphere, and a better (water) cooling of current leads;

Card 1/2   UDC: 536.532.089.6

L 39723-66
ACC NR: AP6007163

also, a better arrangement of the graphite heating elements, better flange gaskets, and more favorable conditions of operation of the optical pyrometer enhance the quality of the modernized furnace. Its consumption is 4.5 kva; 30—40 min are required to heat the furnace to 2200C (450 amp, 10 v); changing temperature through 100C takes 10 min. Orig. art. has: 3 figures.

SUB CODE: 09 / SUBM DATE: none / ORIG REF: 002

Card 2/2 H5

AUTHORS: Florianovich, G. M., Kolotyrkin, Ya. M.,   SOV/2o-12o-4-43/67
              Smirnova, N. K.

TITLE: The Influence of Nickel Upon the Electrochemical and Corrosion
              Behavior of Steel (Vliyaniye nikelya na elektrokhimicheskoye
              i korrozionnoye povedeniye stali)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol. 12o, Nr 4,
              pp. 845 - 848 (USSR)

ABSTRACT: In this paper the influence exercised by nickel on the behavior
              of steel in the domain of passivation is investigated by means
              of the potentiostatic method of measuring polarization curves;
              the experiments were carried out with steels of the types
              Kh22T, Kh 22N14T and Kh 2CN6ST. Measurements were carried out
              at 20° in a 0,1 n-solution of H_2SO_4 in a nitrogen atmosphere.

              The velocity of the dissolution of steel Kh 22T depends on the
              potential in rather a complicated way. The behavior of steel
              at different potentials is described in short. The minimum
              velocity of steel dissolution is within the potential range of
              from 0 to 0,500 V. Also the other types of steel investigated
Card 1/3   showed similar dependence of dissolution velocity on the

The Influence of Nickel Upon the Electrochemical and   SOV/2o-12o-4-43/67
Corrosion Behavior of Steel

potential. The addition of nickel decreases the dissolution
velocity in all potentials that are more negative than + 1,200 V.
The velocity of dissolution systematically decreases within the
range of passivation in the case of an increase of the nickel
percentage in steel. The addition of nickel has almost no in-
fluence upon the position of the curve which characterizes the
over voltage of hydrogen. To convert steel into the passive state
and thus also to increase its resistance to corrosion the
stationary potential in the case of absent external polarization
must be shifted towards the positive side, up to values which are
more passive than the passivation potential. Such a shift can
be brought about by the increase of the over voltage of the
anodic reaction and also by increase of the total velocity of
the depolarizing cathodic reactions. The authors decreased the
over voltage of hydrogen by facing a small quantity of platinum
upon the steel surface. Similar results were obtained by intro-
ducing atmospheric oxygen into the solution. The degree of
passivation of the surface of a steel with given composition
is a function of the potential and in the cases described does

Card 2/3   not depend on the method of maintaining this potential. A shift

The Influence of Nickel Upon the Electrochemical and   SOV/2o-12o-4-43/67
Corrosion Behavior of Steel

> of the potential by a change in the chemical composition of
> the steel can considerably change the degree of its passivation
> with a given potential. In conclusion, the authors thank
> A.A.Babakov for having placed the steel samples at their
> disposal. There are 1 figure, 1 table, and 4 references, 3 of
> which are Soviet.

PRESENTED: January 10, 1958, by A.N.Frumkin, Member, Academy of Sciences,
               USSR

SUBMITTED: October 9, 1957

1. Steel--Corrosion   2. Steel--Electrochemistry   3. Steel--Passivity
4. Nickel--Electrochemistry

Card 3/3

3 6

PHASE I BOOK EXPLOITATION   SOV/5256

Gerasimov, Valentin Vladimirovich, ed., Candidate of Chemical Sciences.

Korroziya reaktornykh materialov; sbornik statey (Corrosion of Nuclear-
   Reactor Materials; a Collection of Articles) Moscow, Atomizdat, 1960.
   284 p. 3,700 copies printed.

Ed.: A.I. Zavodchikova; Tech. Ed.: Ye.I. Mazel'.

PURPOSE: This collection of articles is intended for mechanical and
   metallurgical engineers as well as for scientific research workers con-
   cerned with the construction of nuclear reactors.

COVERAGE: The water corrosion of various types of stainless steel and
   alloys under high pressures and temperatures is investigated from the
   point of view of the use of these materials for the construction of nuclear
   reactors. Attention is given to the following: the use of oxygen for pro-
   tecting steel against corrosion, the behavior of steel in high-temperature

Card 1/8

3 b

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Corrosion of Nuclear- (Cont.)

water with various compositions, factors of metal stress corrosion, intergranular corrosion, the mechanism of corrosion cracking, and the corrosion resistance of aluminum and zirconium alloys. Conclusions based on test results are included. No personalities are mentioned. Most of the articles are accompanied by references. Of 238 references 97 are Soviet.

9

YEROFEYEV, N.S., red., ZLOTNIKOV, I.M., red.; LESIK, N.P., red.;
     NIKOLAYEVSKIY, N.M., red.; SHIRKOVSKIY, A.I., red.
     SMIRNOVA, N.K., ved. red.; ROZOVA, S., tekhn. red.

     [Some problems in the development and operation of gas and
     gas-condensate fields] Nekotorye voprosy razrabotki i eks-
     pluatatsii gazovykh i gazokondensatnykh mestorozhdenii.
     Moskva, 1962. 91 p.   (MIRA 16:10)

     1. Institut tekhnicheskoy informatsii i ekonomicheskikh is-
     sledovaniy po neftyanoy i gazovoy promyshlennosti.
        (Gas wells)   (Condensate oil wells)

SMIRNOVA, N.K.; SUSLOVICH, N.I.

Gas and gas-condensate fields; Lac pools. Gaz. delo no.10:71-72
'63.
(MIRA 17:4)

SMIRNOVA, N. K.

Gas and gas condensate fields of Shebelinka. Gaz. delo no. 11:
54-57 '63.   (MIRA 17:5)

SMIRNOVA, N.K.; SUSLOVICH, N.L.

Gas and gas condensate fields of the Netherlands. Gaz. delo no.12:
48-51   '63.   (MIRA 17;10)

IMRNOVA, N.F.

Karadag gas and gas condensate fields. Gas. del: no.9:
50-55 '63.   (MIRA 17:12)

USSR / Physical Chemistry. Crystals.   B-5

Abs Jour   : Ref   Zhur - Khimiya, No 8, 1957, 25836

Author   : N.L. Smirnova
Title   : Structural Types with Most Densely Packed Atoms. Possi-
              ble Structural Types of AB_3 Composition.

Orig Pub   : Kristallografiya, 1956, 1, No 2, 165-170.

Abstract   : Structural types of binary compounds of the composition B:
              : $A > 3$, in which the atoms A and B together make up a
              cubic, hexagonal, or mixed densest packing, are discussed.
              It is supposed that only such structural types are possi-
              ble, in which the A atoms are surrounded only by B atoms,
              and each B atom has at least one A atom within its co-
              ordination sphere. The possible structural types, in which
              each B atom is surrounded with 4 A atoms (composition of
              AB_3 compounds), are deducted. One of the two surmised va-
              riations of the structure of ε -Cu_3Sn was found experimen-
              tally (RZhMet, 1956, 7823).
Card   : 1/1   - 40 -

SMIRNOVA, N.L.

Types of structures with close-packed atoms. Possible types of structures with the composition AB. N. L. Smirnova (M. V. Lomonosov State Univ., Moscow). *Kristallografiya* 1, 603-6(1956).—Closest packings in which each A atom is surrounded only by B atoms and each B atom has 3 A atoms in its coördination sphere were examd. Two types correspond to cubic and hexagonal packings. The respective structures are: tetragonal, space group $I4/m$, $a = a_{cub.} (5/2)^{1/2}$, $c = a_{cub.}$, $Z = 2$: A in 2(a), B in 8(h); $x = 0.4$, $y = 0.2$ and monoclinic, $C2/c$, $a = (4c^2_{hex.} + a^2_{hex.})^{1/2}$, $b = a_{hex.} (3)^{1/2}$, $c = (4a^2_{hex.} + c^2_{hex.})^{1/2}$, $\beta = 87°40'$, $Z = 4$. A in 4(e) with $y = 1/4$, B$_I$ in 8(f) with $(x, y, z) = (0.1, 1/3, 0.1)$, B$_{II}$ in 8(f) with $(x, y, z) = (0.3, 1/3, 0.3)$. A. L. Mackay

AUTHOR: Smirnova, N. L.   70-3-2-19/26

TITLE: On Structure Types with Close-packed Atoms. (O strukturnykh tipakh pri plotneyshey upakovke atomov) III. Possible Structure Types with the Composition AB_6 (Vozmozhnyye strukturnyye tipy pri sostave AB_6)

PERIODICAL: Kristallografiya, 1958, Vol 3, Nr 2, pp 232-235 (USSR).

ABSTRACT: The types which can be identified are as follows:

Space group $R\bar{3}$ $a_r = a_k\sqrt{3/2}$; $\alpha=99°36'$; $a_{hex.} = a_k\sqrt{7/2}$, $c_{hex.} = a_k\sqrt{3}$; n=1; 3A in 3(a); 18B in 18(f) positions with x = 5/21, y= 4/21, z = 2/3. Example $NiSnCl_6 \cdot 6H_2O$.

(Notation given earlier ibid. 1956, Vol 1, pp.165-70 and 1956, Vol 1, pp 502-5.) This structure is based on cubic close packing.

Space group $C2/c$; n=4, $a = (4c_{hex.}^2 + a_{hex.}^2)^{1/2}$; $b = a_{hex.}\sqrt{3}$; $c = (9a_{hex.}^2 + c_{hex.}^2)^{1/2}$; for c/a = 1.633, $\beta = 78°27'$. A in 4(e) with y = 1/12; all B atoms in 8(f) with parameters (x,y,z) of (4/7, 11/12, 5/28), (1/7, 7/12,3/28),

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On Structure Types with Close-packed Atoms

70-3-2-19/26

(5/7, 5/12, 1/28). This structure is based on hexagonal close packing. It repeats after 14 layers.

Space group C2/c; n=8, $a=7a_{hex.}$, $b=a_{hex.}\sqrt{3}$, $c=(c_{hex.}^2 + a_{hex}^2)^{1/2}$

where $a_{hex.}$ and $c_{hex.}$ are the identity periods for four-layer close packing of one sort of atom; $\beta=72°58'$ for $c_{hex.}/a_{hex.} = 3.266$. The A atoms are in the 4(c) and 4(e) positions with $y = 5/12$; B atoms are in 8(f) positions, B_1 with $x = 1/28$, $y = 3/4$ and $z=0$, B_2 with (3/28, 1/4,0), B_3 with (5/28, 3/4,0), B_4 with (2/28, 11/12, 1/4), B_5 with (4/28, 5/12, 1/4) and B_6 with (6/28, 11/12, 1/4). This structure has 28 layers.

There is also a mixed type of packing with 20 layers and space group c2/c; n=8, $a=5a_{hex.}$, $b=5a_{hex.}\sqrt{3}$, $c=(a_{hex.}^2 + c_{hex.}^2)^{1/2}$; $\beta = 72°58'$ for $c_{hex.}/a_{hex.} = 3.266$. A_1 atoms are in 4(c) and

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On Structure Types with Close-packed Atoms   70-3-2-19/26

and A_2 in 4(e) with y=7/12. B atoms are all in 8(f) with parameters (1/20, 1/4,0),(3/20, 3/4, 0) (1/10, 1/12, 1/4) and (1/5, 7/12, 1/4).
Acknowledgments to Academician N.V. Belov and Professor G.B. Bokiy.
There are 4 figures and 4 references, 3 of which are Soviet and 1 English).

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

SUBMITTED: May 20, 1957

Card 3/3

AUTHOR: Smirnova, N.L.   70-3-3-20/36

TITLE: On the Structural Types for Close Packed Atoms.
          Possible Structure Types for the Composition AB_{12}

          (O strukturnykh tipakh pri plotneyshey upakovke atomov.
          Vozmozhnyye strukturnyye tipy pri sostave AB_{12})

PERIODICAL: Kristallografiya, 1958, Vol 3, Nr 3, pp 362 - 364
                                                          (USSR).

ABSTRACT: Earlier papers ibid. Vol 1, p 165: Vol 1, p 502;
          Vol 3, pp.232-5.
          Each A atom is surrounded by 12 B atoms and each B has only one
          A next to it. Only one type, based on cubic close packing
          has been found, namely:

          Space group $R\bar{3}$; $a_{rh.}=1.581\ a_k$; $\beta = 107°28'$; $a_{hex.}=2.55\ a_k$;

          $c_{hex.} = 1.732\ a_k$.
          A atoms lie in 3(a) positions at (0,0,0) and B_I in 18(f) with
          $x=2/39$, $y=7/39$, $z=1/3$, B_{II} in 18(f) with $x=17/39$, $y=1/39$

          and $z = 1/3$. Acknowledgments to Prof. G.B. Bokiy and
          Academician N.V. Belov.
          There are 7 figures and 3 Soviet references.
Card1/2

70-3-3--20/36

On the Structural Types for Close Packed Atoms. Possible Structure
Types for the Composition AB_{12}

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

SUBMITTED: June 10, 1957
Card 2/2

SMIRNOVA, Nina L'vovna

"Possible Superstructures Formed by the Distribution of A and
B Atoms in the Octahedral Holes of the Hexagonal Close-Packing"

a report presented at Symposium of the International Union of
Crystallography   Leningrad, 21-27 May 1959

AUTHOR: Smirnova, N. L.   SOV/70-4-1-2/26

TITLE: Possible Superstructures Arising from the Arrangements
          of Atoms in Close Packed Positions (Vozmozhnyye
          sverkhstruktury pri razmeshchenii atomov po mestam
          plotneyshey upakovki)

PERIODICAL: Kristallografiya, 1959, Vol 4, Nr 1, pp 13-19 (USSR)

ABSTRACT: Earlier papers examined cubic, hexagonal or mixed close
          packing of two sorts of atoms A and B for compositions
          $B:A \gg 3$ (Refs 1-4). Here arrangements are introduced,
          first for the composition $B:A = 3$ which is commonest.
          There are two basic superstructures and an indefinite
          number of derivatives. In each case layers are built out
          of cubo-octahedra: for cubic close packing (c.c.p.) these
          layers are plane and for the hexagonal close packing
          (h.c.p.) or mixed arrangements they are pleated. The
          second layer, built up like the first, can lie over the
          holes between the cubo-octahedra of the preceding layer
          (first type, denoted KK) or over the square sections of
          the cubo-octahedra (second type, denoted KK'). Derivative
          structures are obtained by alternating these layers.
Card1/4   Additional atoms may be introduced [$CaTiO_3$, $Na_6(SO_4)_2FCl$]

Possible Superstructures Arising from the Arrangements of Atoms
in Close Packed Positions

or not (Cu_3Au). The ordering of unoccupied sites
(denoted by π) may also have to be considered; for
example Bi_2MoO_6, $K_2NiF_4\pi_2$ and $Bi_2Pd\pi_6$ are comparable.
The KK types are first listed. Sometimes the displace-
ments are so large that one can hardly talk of close
packing (Na_3AlF_6 etc.). In the KK type, octahedra,
filling the spaces between the cubo-octahedra, lie at
the points of a primitive lattice. Their centres form
a simple cubic structure. These octahedra are fully
or partially occupied by other atoms. Each atom M is
surrounded by an octahedron of Q atoms and each Q by
2,3,4,5 or 6 atoms of M. For the composition MQ the
structure NaCl seems the only possibility. For MQ_2
there is also only one possible packing system.
Structures are listed with cubic close packing ABC, h.c.p.
AB, ABAC, ABCACB and rhombohedral ABCBCACAB. 613
structures were found for this type of KK arrangement
with A:B = 1:3. Further lists are given of (nK)(mK')

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Possible Superstructures Arising from the Arrangements of Atoms
in Close Packed Positions

arrangements where n and m are whole numbers and
A:B = 1:3 and also types for B:A = 4;6;5;8;10/3;19;27.
In all 700 compounds of 90 structural types have been
examined and classified. References are given for
those not appearing in Structure Reports (up to Vol 13).
It is concluded that:
1) The superstructures in both intermetallic and
inorganic compounds where there are the same types of
arrangements are identical.
2) Tables of the possible superstructures are useful
as an aid to determining structures by trial and error.
3) Superstructures have a more general applicability than
coordination polyhedra but not as general as structure
types.
4) There is a series of simple variants in the arrange-
ments of atoms in the sites of exact close packing and
very many structures can be described in such terms.
Acknowledgments are made to Academician N. V. Belov and
Card3/4   Professor G. B. Bokiy for their advice.

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Possible Superstructures Arising from the Arrangements of Atoms
in Close Packed Positions

        There are 3 tables and 33 references, 7 of which are
        Soviet, 12 international, 6 German 7 English and 1 Swedish.

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

SUBMITTED: May 6, 1958

Card 4/4

AUTHOR: Smirnova, N. L.   SOV/70-4-1-3/26

TITLE: Possible Superstructures in the Simple Cubic Structure
           (Vozmozhnyye sverkhstruktury v prostoy kubicheskoy
           strukture)

PERIODICAL: Kristallografiya, 1959, Vol 4, Nr 1, pp 20-24 (USSR)

ABSTRACT: The simple cubic packings are examined.   Structures
          with NaCl type superstructure and its derivatives are
          listed as examples, $\Box$ being used to denote vacant sites,
          e.g. A and B sites together make up those possible:
          NaCl is then $A=Na_4$, $B=Cl_4$; CaF_2 is $A=Ca_4$, $B=\Box_4$; $AB=F_8$;
          diamond is $A=C_4$, $B=\Box_4$, $AB=C_4\Box_4$; etc. In these cases each
          A is surrounded by 6B and vice versa. Partial tables
          are also given of AB_2 and AB_3 compounds. It is found
          that large groups of structure types of intermetallic
          and inorganic compounds can be united into a few
          summarising hypothetical types. Definite structure types
          have values of their atomic coordinates near to the
          values in these summarising types. If the axial
          directions are altered or the ratios a:b:c are varied,
Card1/3   the atomic coordinates vary regularly. Particular

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Possible Superstructures in the Simple Cubic Structure

structure types are obtained from the summarising types by removing some or other of the "partial structures" and also by making superstructures in these or other sublattices with small displacements (or without displacements) of these or of other atoms from their ideal positions. Structure types of intermetallic and inorganic compounds, in particular as regards their cationic parts, are built from the same "partial structures" with identical superstructures. The frameworks in intermetallic and inorganic compounds may be the same but in the former electrons will act as the cement and in the latter cations. The superstructures found are 1) atomic surroundings of A – 6B and of B – 6A, composition AB. NaCl type is the only possibility. 2) A-6B; B-5A + 1B; composition A_5B_6. The B atom has more than one neighbouring B atom which is impossible. 3) A-6B; B – 4A + 2B; composition A_2B_3. Two arrangements of A and B around B which are both impossible. 4) A – 6B; B – 3A + 3B; composition AB_2. One superstructure possible.

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Possible Superstructures in the Simple Cubic Structure

$$SOV/70-4-1-3/26$$

5) $A - 6B$; $B - 2A + 4B$; composition AB_3. One
cubic superstructure (all the others are orthorhombic).
Acknowledgments are made to Academician N. V. Belov
and Professor G. V. Bokiy for their advice.
There are 4 figures, 3 tables and 3 references,
1 of which is Soviet, 1 Hungarian and 1 international.

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

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24.7100

76004
SOV/70-4-5-26/36

AUTHOR: Smirnova, N. L.

TITLE: Possible Disposition of Atoms in the Octahedral Spaces of a Close-Packed Hexagonal Structure

PERIODICAL: Kristallografiya, 1959, Vol 4, Nr 5, pp 778-782 (USSR)

ABSTRACT: Let each of the X atoms that form a close-packed hexagonal structure be equally surrounded by A and B atoms, placed in the octahedral spaces of the structure. Thereby, A or B may mean an atom or a lattice vacancy. In any event, any X atom is, then, confined to the body center of a rhombohedral prism, whose vertices can be occupied by A and B in rational proportions such as 1:5, 2:4, 3:3. These ratios will lead to the compounds of AB_5X_6 or A_5BX_6, AB_2X_3 or A_2BX_3, and ABX_2 types respectively. At the same time, A and B can be considered to form their own structures interpenetrating one another. In the case of 1:5 ratio, the hexagonal prisms, formed by B, will have A at the body centers, but the prisms may join

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Possible Disposition of Atoms in the Octa-
hedral Spaces of a Close-Packed Hexagonal
Structure

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SOV/70-4-5-26/36

each other along the prism face with O or $\frac{1}{2}$ unit transla-
tion. Thus, two different structures will emerge. If
the ratio is 2:4, A may occur along a prism edge, basal
edge, or face diagonal of the rhombohedral prism. Con-
sidering the interpenetrating A and B structures, 7 .
possible combinations are found to lead to the three
different dispositions of A; in other words, 7 struc-
tures may be formed. If the ratio is 3:3, the 3 A
(or B) atoms may be confined to a basal face, prism
face, or to 2 different prism faces. Here again, a
number of possible combinations of the interpenetrating
A and B structures may lead to the three kinds of A
distribution. Thus, ABX_2-type compounds may occur in

a number of structural varieties. The discu·   · ·bina-
tions are not the only possible combinations, since the
A:B ratio may vary from one rhombohedral prism to the
next. A number of minerals such as chromium sulfide,
bismuth iodide, corundum, ilmenite, rutile, diaspore,
olivine, columbite, and many others are considered to

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Possible Disposition of Atoms in the Octa-
hedral Spaces of a Close-Packed Hexagonal
Structure

76004

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have one or another of these types of structures. Belov,
N. V., and Bokiy, G. B., are acknowledged for suggestions.
There are 11 figures; and 9 references, 5 Soviet, 2 Italian,
1 Japanese, 1 Danish.

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

SUBMITTED: February 19, 1959

Card 3/3

SHIKOVA, M. L.   Cand Chem Sci -- "Crystallochemical laws of formation of superstructures." Mos, 1960. (Acad Sci USSR. Inst of Crystallography. Mos Order of Lenin and Order of Labor Red Banner State Univ im M. V. Lomonosov)

(KL, 4-61, 183)

-68-

SMIRNOVA, N.L.

Basic identity of structural types. Zhur. strukt. khim. 1 no.3:
342-345 S-O '60.   (MIRA 14:1)

1. Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova.
                (Crystal lattices)

BOKIY, G.B.; SMIRNOVA, N.L.

Crystallochemistry of arsenides, stibnides, and bismuthides.
Vest. mosk. un. Ser. 4: Geol. 15 no. 5:22-37 S-O '60.
(MIRA 13:12)

1. Kafedra kristallografii i kristallokhimii Moskovskogo
universiteta.
        (Arsenic compounds)   (Stibnide compounds)
                    (Bismuth compounds)

SMIRNOVA, N.L.

Possible superlattices for n-layer line tightest packings at $n = 3$. Zhur.strukt.khim. 2 no.4:418-423 Jl-Ag '61. (MIRA 14:9)

1. Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova.
(Crystal lattices)

SMIRNOVA, N.L.

Possible values of the coordinate x in one-parameter lattice
complexes of cubic systems. Kristallografiia 7 no.1:7-11
Ja-F '62.
(MIRA 15:2)

1. Moskovskiy gosudarstvennyy universitet im. M.V. Lomonosova.
(Crystallography, Mathematical)

SMIRNOVA, N.L.; BELOV, N.V.

On two large groups of structural types corresponding to the formula. AX_2. Kristallografiia 7 no.5:671-679 S-O '62.   (MIRA 15:12)

1. Institut kristallografii AN SSSR i Moskovskiy gosudarstvennyy universitet imeni Lomonosova.
                        (Crystallography)

SMIRNOVA, N.L.; BELOV, N.V.

Structures from Thomson cubes with alternate bipyramidal nets having a
cubic or diamond-type symmetry. Kristallografiia 7 no.6:826-834 N-D '62.
(MIRA 16:4)

1. Institut kristallografii AN SSSR i Moskovskiy gosudarstvennyy
universitet imeni Lomonosova.
(Crystallography)

BOKIY, G.B.; SMIRNOVA, N.L.

    Systematics of structural types. Part 1. Zhur.strukt.khim.
    4 no.5:744-756 S-O '63.   (MIRA 16:11)

    1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova.

SMIRNOVA, N.L.

Determining the possible arrangement of atoms in octahedral
vacancies of n-layer very tight packings at n $>$3. Kristallo-
grafiia 8 no.2:181-185 Mr-Ap '63.   (MIRA 17:8)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova.

SMIRNOVA, N.L.; BELOV, N.V.

     Structural group of quartz. Kristallografiia 8 no.3:346-350
     My-Je '63.
                                   (MIRA 16:11)

     1. Institut kristallografii AN SSSR i Moskovskiy gosudarstven-
     nyy universitet imeni Lomonosova.

SMIRNOVA, N.L.

Possible superstructures in multilayer tight packings.
B-atoms have (a) 4 or 2; (b) 4 or 1 adjacent A-atoms.
Kristallografiia 9 no.2:265-267 Mr-Ap'64.   (MIRA 17:5)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova.

SMIRNOVA, N.L.

　　　Isomorphism from the viewpoint of crystallochemistry. Trudy
Min. mus. no.15:162-166 '64.   (MIRA 17:11)

SMIRNOVA, N.L.; KUNIN, M.B.; BELOV, N.V.

Fedorov group (D^4_6h) as a generic indicant of the family of crystal structures. Zhur. strukt. khim. 5 no.5:719-729 S-O '64.
(MIRA 18:1)

1. Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova.

SMIRNOVA, N.L.; GREKOVA, S.N.

Bivariant and trivariant lattice complexes of a tetragonal system as combinations of 13 flat lattices. Vest. Mosk. un. Ser. 4: Geol. 20 no. 6:75-80 N-D '65. (MIRA 19:1)

1. Kafedra kristallografii i kristallokhimii Moskovskogo gosudar-stvennogo universiteta. Submitted August 4, 1964.

SMIRNOVA, N.M.; DOBRYCHENKO, A.G.

    Earthquake in the Terek region. Priroda 53 no.6:116-117 '64.
                                  (MIRA 17:6)

    1. Groznenskaya seysmicheskaya stantsiya AN SSSR.

SOV/120-59-1-44/50

AUTHORS: Nakhutin, I. Ye., Smirnova, N. M.

TITLE: Production of Pure Xenon (Polucheniye chistogo ksenona)

PERIODICAL: Pribory i tekhnika eksperimenta, 1959, Nr 1, p 149 (USSR)

ABSTRACT: A method of separating the hydrocarbons present in xenon
           is described. The elimination of the hydrocarbons was done
           by employing a highly active reagent which is prepared by
           depositing a layer of copper oxide on a surface of silica
           gel. The reagent was placed in a short quartz tube (having
           a length of a few cm), and dehydrated at a temperature of
           300°C. The tube was then heated to 700°C, and the xenon to
           be purified was passed through it. The device operated as a
           chromatographic column in that the change of colour of the
           reagent after the reaction permitted the observation of the
           front forming in the column. A preliminary filling of the
           column by xenon was done very slowly. Subsequently, the xenon
           was passed in a continuous stream, at a rate of about 10l/cm^{2}hr,
           through the heated column and through another two columns
           operating at the ambient temperature. The other two columns
           captured the carbonic acid and the water vapours which formed
           during the oxidation of the hydrocarbons. After the operat-
           ion the column was regenerated at 600°C. By the above method
           it was possible to obtain a spectrally pure xenon; the lines

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SOV/120-59-1-44/50

Production of Pure Xenon

        of hydrogen and oxygen could not be detected, nor were the
        molecular spectra of hydrocarbons present. The method can
        be used for the purification of other rare gases. The authors
        express their gratitude to N. A. Teterina for carrying out the
        spectral analysis. There are no figures or references.

SUBMITTED: February 15, 1958.

        Card 2/2

LASKORIN, B.N.; SMIRNOVA, N.M.; GANTMAN, M.N.; VORONOVA, A.I., red.;
VLASOVA, N.A., tekhn. red.

[Ion-exchange membranes and their use] Ionoobmennye membrany ikh
primenenie. Moskva, Gos.izd-vo lit-ry v oblasti atomnoi nauki i
tekhniki, 1961.   162 p.   (MIRA 14:12)
                        (Ion exchange)

S/089/61/010/004/004/027
B102/B212

21.3000 (1565)

AUTHORS: Laskorin, B. N., Smirnova, N. M.

TITLE: Application of ion-exchange membranes in the hydrometallurgy
                of uranium

PERIODICAL: Atomnaya energiya, v. 10, no. 4, 1961, 353-361

TEXT: Since large amounts of acids and alkaline solutions are consumed in
standard processes of uranium sorption and extraction, the authors have
applied electrodialysis with ion-exchange membranes for neutralization of
acid or alkaline uranium solutions. This method has also been successfully
applied to reduce U VI (from hydrochloric solutions of borate having up to
300 g/l of uranium) electrochemically to U IV. Such ion-exchange membranes
(ionite membranes) promote either anion or cation diffusion (anionites,
cationites). The membranes used by the authors have been delivered from the
Nauchno-issledovatel'skiy institut plastmass Goskomiteta po khimii (Scien-
tific Research Institute of Plastics of the State Committee for Chemistry)
and the Moskovskiy khimiko-tekhnologicheskiy institut im. D. I. Mendeleyeva
(Moscow Institute of Chemical Technology imeni D. I. Mendeleyev). Foreign-

Card 1/8

22601

S/089/61/010/004/004/027
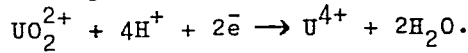B102/B212

Application of ...

made membranes, such as Amberplex C-1 and A-1, Permaplex C-10 and A-10, and Nepton CR-51, CR-61 and AR-111 have also been investigated. First, the application of ion-exchange membranes is described, which are used to remove excessive acid in uranium solutions. The membranes have been tested with sulfuric, nitric, and hydrochloric solutions of uranium. Two-, three-, and twenty-chamber electrodialyzers made of organic glass and having a capacity of 30-1500 ml were used for the purpose. Platinum, tantalum, graphite, lead, and stainless steel served as material for electrodes. Work with two-chamber electrodialyzers. The following setup has been used to remove excessive acid from sulfate soluti~ = having different uranium concentrations:
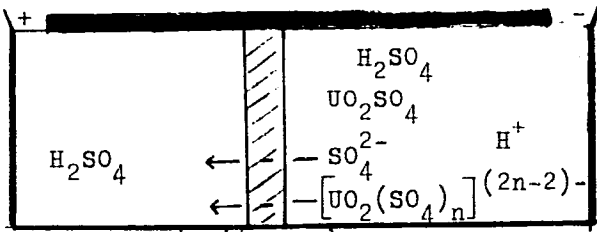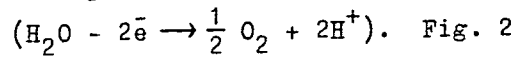

Anionite-membrane

Card 2/8

The following reaction will also take place:

$$UO_2^{2+} + 4H^+ + 2\bar{e} \rightarrow U^{4+} + 2H_2O.$$

This is possible since water is decomposed at the anode

$$(H_2O - 2\bar{e} \rightarrow \frac{1}{2} O_2 + 2H^+). \quad \text{Fig. 2}$$

Application of ...

illustrates the course of the reduction process. In addition, partial separa-
tion of uranium from iron by electrodialysis has also been made
(at pH = 3-3.6). It has been found that during this process the cathode was
covered with metallic iron; this method has yielded a decontamination factor
for uranium from iron of about 1000. Nitric acid solution have been treated
analogously (80 g of U/l and pH = 3-3.5). These tests have also been made
with a two-chamber device having an anionite membrane. The average amount
of energy needed to obtain 1 kg of nitric acid was less than 10 kwh.
Application of multi-chamber electrodialyzers. Multi-chamber systems (as
shown in Fig. 4) permit another decrease of energy consumption which is
given by $W = E(C^0 - C^1)/37.4\ n\eta$, kwh/l of distillate (E denotes the voltage,
η the current output, and n the number of chambers). The authors have also
investigated the rules governing the transfer of certain ions through a
carboxyl membrane at different molar ratios of acid and salt. Amberplex A-1
has been used in tests with pure acids containing 5-6 g of uranium/liter and
1 g-equiv/l of hydrochloric or nitric acid. A three-stage device schemati-
cally shown in Fig. 5 has been used to reduce the acid content from 1 to
0.1 g-equiv/l. For 1 N hydrochloric acid $\eta_1 = 0.37$ (first stage), for 0.7 N
$\eta_2 = 0.40$, (second stage), and for 0.4 N $\eta_3 = 0.44$ (third stage), the mean

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Application of ...

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S/089/61/010/004/004/027

B102/B212

value of η was 0.40. The flow rate has been calculated from the formula $v = \text{In} \cdot 0.0374/\Delta C$ l/hr, where n denotes the number of chambers (for the case in question it has been 10); ΔC denotes the difference in concentration of the incoming and outgoing starting solution (in g-equiv/l). The flow rate has been calculated to be $v = 0.230$ l/hr. <u>Application of ionite membranes in separating uranium. Electrodeposition of uranium from sulfuric acid solutions containing ammonium sulfate.</u> In such solutions, uranium will be deposited in the cathode part of the electrodialyzer, and any excessive acid will migrate to the anode part and may be reclaimed. For this purpose, two-chamber devices with anionite and cationite membranes are used. Fig. 6 shows a diagram of such a unit with regeneration for a sulfuric acid solution. In order to deposit 1 kg of uranium for a solution with 5 g of uranium/liter, 10.4 kwh will be required at a current density of 32 ma/cm^2; for the same case with 10 g of uranium/l 3.4 kwh will be required. <u>Electrochemical deposition of uranium from desorption solutions.</u> Here, also a two-chamber system with regeneration has been used. The catholyte has been a solution with 2.5-10.0 g of uranium/l, 0.1-0.5 N HNO_3, and 0.5-0.9 N NH_4NO_3; the anolyte has been a solution with 0.6-1 N NH_4NO_3.

Current has been sent through till it had reached a pH value of 7

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S/089/61/010/004/004/027
B102/B212

Application of ...

(in the catholyte)..In all tests, yellow, easily filterable ammonium diur-
anate has been deposited in the cathode part. Utilization of ionite mem-
branes for the electrodialysis of uranium carbonate solutions: Fig. 9
shows a diagram of the layout. A basic starting solution with 0.3 g of
uranium/l, 24 g of Na_2CO_3/l, and 15.3 g of $NaHCO_3$/l was in the anode part,
while in the cathode part there was a 0.1 N NaOH solution (2.56 g of Na/l).
The cationite membrane was pervious to Na ions, but not to U ions, and the
alkaline solution could gather in the catholyte (and did not contain more
than 3 mg of U/l). All tests showed that the membranes investigated are
well suited for various purposes, and their application seems to be prom-
ising in the chemical technology of uranium processing. There are 9 fig-
ures and 12 references: 6 Soviet-bloc and 6 non-Soviet-bloc. The three
references to English-language publications read as follows: P. Kirk
USAEC RMO-2506 (1955); R. Kunin Patent USA No. 2, 832, 727, 1958 and No. 2,
832, 728; N. Frisch, USAEC RMO-2516 (1955)

SUBMITTED: October 29, 1960

Card 5/8

LASKORIN, B.N.; SMIRNOVA, N.M.

Electrochemical reduction of U(VI) to U(IV) in hydrochloric acid
solution with the use of cation exchange membranes. Atom.energ.
10 no.5:530-531 My '61.   (MIRA 14:5)
          (Uranium compounds) (Membranes (Chemistry))

25242

S/080/61/034/008/004/018
D204/D305

26,1110

AUTHORS: Laskorin, B.N. and Smirnova, N.M.

TITLE: Comparison of the physico-chemical properties of domestically-produced and foreign ionic membranes

PERIODICAL: Zhurnal prikladnoy khimii, v. 34, no. 8, 1961, 1700-1709

TEXT: The purpose of the present work is to investigate the basic properties of various membranes and compare home with foreign products. The membrane used in the experiments were domestically produced membranes based on: 1) polyethylene, e.g. cationic - KU (60%) containing 60% of KU-2 resin, and anionic - AV (60%) containing 60% of basic AV-16 anionic resin; 2) "nayrit" rubber or chlorosulphonated polystyrene (KhSP), cationic - AUV-3 (70%) nayrit, and AUV-3 (70%) KhSP, anionic - EDE-10p (65%) nayrit (on a silk base); 3) butylmethacrylate adhesive (BM) from KU-2 and EDE-10p resins on glass fiber, cationic - KU-2 (50%) BM, anionic - EDE-10p (50 and 70%) BM. In addition a new type of homogeneous anionic membrane has been

Card 1/5

25222

Comparison of the physico-chemical...

produced by combining liquid polyelectrolyte, polyethylenepolyamide,
with 12.5% solution of perchlorovinyl resin in dichloroethene in a
ratio of 4 : 1 solution cast into films to give .M-1 membranes.
Various heterogeneous membranes were also prepared by mixing finely
divided ion exchange resins, e.g. KU-2, KB-4, Dauchs - 50, AM-2P,
EDE-10p, JRA-400 with polystyrene or polyvinyl chloride. The follow-
ing products were chosen out of the foreign membranes - Nepton CR-51,
Nepton CR-51, Nepton CR-61, Nepton AR-111 (homogeneous) and Amber-
plex C-1, Amberplex A-1, Permaplex C-10, Permaplex A-10 (heterogen-
eous). The tests involved determination of swellability, moisture
capacity, flow capacity and electrochemical properties, all of which
depend on the choice of ion exchange resin and its content in the
membrane. In general the strength and elasticity of membrane de-
crease with an increase of the resin content while at the same time
the swellability, moisture capacity and conductivity increase resul-
ting in the reduction of selectivity. The swellability of membranes
was determined by using pretreated membranes, i.e. treated with
0.1 N H_2SO_4 to convert cationic membranes to H^+ - form and anionic

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25222

S/080/61/034/008/004/018
D204/D305

Comparison of the physico-chemical...

membranes to sulpho-form. By comparing the length "l" and thickness δ of specimens in dry and swollen states and evaluating the average ratios of $\frac{l \text{ swollen}}{l \text{ dry}}$ and $\frac{\delta \text{ swollen}}{\delta \text{ dry}}$ the relative value of the degree of swellability in water was determined. The moisture cap- acity of the membranes was determined by weighing dry and swollen specimens, and was expressed by $w = \frac{p_s \cdot p}{v_s \cdot d_o}$ where p and p_s are

corresponding weights in dry and swollen states, v_s is the volume in the swollen state and d_o - density of water. The results are given in tabulated form. The coefficient of flow capacity was measured by passing distilled water through membranes boiled in distilled water to remove air trapped in the pores, and was calcula- ted from the following equation:

$$ D = \frac{v}{A \cdot t \cdot p \cdot 13.6 \cdot 981} \cdot \frac{cm^2 sec}{g} $$

where A is the surface of membrane, t - time necessary to pass 5 cm^2 of liquid and p - pressure in cm Hg. The microstructure of

Card 3/5

S/080/61/034/008/004/018
D204/D305

Comparison of the physico-chemical...

the membranes was determined by microscopic means. Since the beha-
vior of membranes in electrolyte solutions is similar to that of
granular ion exchange resins, they exhibit a specific exchange capa-
city. It has been established that all the ionic groups of the
resin are available irrespective of the thickness of the membrane.
One disadvantage of such sorbents is, however, the slow rate of
establishing an ion exchange equilibrium. The most important elec-
trochemical properties of membranes are electrical conductivity and
selectivity or electrochemical activity, which is expressed as the
ability of a membrane immersed in a solution to vary the transfer
number of ions in an electric field. There are two well known meth-
ods of determining the number of ions transferred through membranes:
1) Determination of concentration changes in solutions surrounding
the membrane and; 2) Determination of membrane potentials. The
specific conductivity of membranes was measured with the use of plat-
inum electrodes and A.C. current of 1500 cycles. The transfer num-
ber measurements showed that the electrochemical activity of all
membranes was highest in dilute solution and decreased with the in-
creased electrolyte concentration. There are 5 figures, 5 tables

Card 4/5

Comparison of the physico-chemical...

and 7 Soviet-bloc references,

SUBMITTED: July 19, 1960

S/080/61/034/008/004/018
D204/D305

Card 5/5

SMIRNOVA, N.M., inzh.; BESSONOVA, T.A., inzh.

Methods of the spectral analysis of nickel-base alloys. Khim.
mashinostr. no.3:36-37 My-Je '63.   (MIRA 16:11)

ACC NR: AP6002808   (A)   SOURCE CODE: UR/0286/65/000/024/0057/0057

INVENTOR: Laskorin, B. N.; Smirnova, N. M.; Granovskaya, A. D.

ORG: none

TITLE: Method of manufacturing ion exchange materials. Class 29, no. 177030

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 24, 1965, 57

TOPIC TAGS: ion exchange, synthetic fiber, textile, graft copolymer, polymer, chlorine, vinyl chloride, amine, copolymer

ABSTRACT: The method of manufacturing ion exchange materials (textiles, fibers) by grafting another polymer to the initial polymer is characterized by the fact that chlorine-containing fibers and textiles such as chlorine or vinylidene chloride and vinyl chloride copolymers are used as the initial polymer, and polyethylene polyamine or other amino compounds as the second (added) polymer in order to improve the quality and increase the assortment of ion exchange materials.

SUB CODE: 11,20/ SUBM DATE: 23Apr62

Card 1/1

14-57-6-12319

A Physical and Chemical Description (Cont.)

and chemical nature, the latter resemble somewhat the lakes of the Kulunda steppe, which are of soda type in the first stage of formation.

Card 2/2

G. A. G.

SOV/33-36-2-6/27

3(1)
AUTHORS: Baturova, G.S., Pominov I.S.,
             Stolov, A.L., Smirnova, N.N.

TITLE: Spectroscopic Observations of the Corona During the Total
             Solar Eclipse of June 30, 1954

PERIODICAL: Astronomicheskiy zhurnal,1959,Vol 36,Nr 2,pp 247-253 (USSR)

ABSTRACT: The paper contains an evaluation of the observations of the
             expedition of the AOE ; position of the expedition : stanitsa
             Novo - Rozhdestvenskaya of the Krasnodar district, $\lambda = 2^h 39^m 44^s$
             westward from Greenwich, $\varphi = + 45°53'2''$; time : June 30,
             1954. The results of the evaluation of two spectrograms of the
             corona in visual region are given (taken by I.S. Pominov and
             N.N. Smirnova). The obtained spectra contain five coronal lines
             with the wave lengths 6375, 5303, 4312, 4232, 4087 Å . The
             electron density of the solar corona was calculated according
             to the method of A.F. Bogorodskiy and N.A. Khinkulova for
             $\varsigma = 1.05$ to 2 from the coronal component of the continous
             spectrum. The decrease of the electron density with increasing
             ς is somewhat slower than obtained by Bogorodskiy and
             Khinkulova. G.A. Shayn is mentioned. The authors thank Professor

Card 1/2

SMIRNOVA, N. N.

U S S R ,

√ The crystallochemical study of the compound Ag.NO₁₁. G. B. Bokii and N. N. Smirnova. Doklady Akad. Nauk S.S.S.R. 91, 821–3(1953); cf. following abstr.—Discussion of the earlier work on the structure of Ag₄NO₁₁ indicates that the actual position of the O atoms could not be detd. in the presence of the heavy Ag atoms. All of the Ag atoms are assumed to possess the same valence, 2+, and the mol. formula is explained on the basis of the presence of peroxide ions, O₂⁻. In order to check the positions of the atoms, projection diagrams of the electron d. were made. From this it was concluded that only Ag⁺ and Ag⁺⁺ are present.

J. Rovtar Leach

86431

S/181/60/002/011/015/042
B006/B056

$9.4300 (3203, :043, 1143)$

AUTHORS: Nasledov, D. N.,   Smirnova, N. N.,   and Tsarenkov, B. V.

TITLE: The Temperature Dependence of the Main Parameters of GaAs
Point-contact Diodes

PERIODICAL: Fizika tverdogo tela, 1960, Vol. 2, No. 11, pp. 2762-2769

TEXT: The authors produced point-contact diodes from n-type GaAs single
crystals (conductivity at room temperature: $15 - 30$ $ohm^{-1} \cdot cm^{-1}$; concentra-
tion: $n_n = 5 \cdot 10^{16} - 10^{17} cm^{-3}$; mobility: $\mu_n \simeq 2000$ $cm^2/v \cdot sec$), and first
give a brief description of the production method. The volt-ampere charac-
teristics of the GaAs diodes were measured within the range of
$-196 - +300^\circ C$ (Figs. 1, 2), and the main parameters are given in Table 2.
The oscilloscopic characteristics were recorded by a "characteriograph"
described in Ref. 6. The direct branches of the volt-ampere characteristics
are described by the empirical formula

$$I_{dir} = I_o \left\{ \exp \left[\frac{q(U_{dir} - I_{dir} r_s)}{\beta kT} \right] - 1 \right\}$$. The factor $I_o \sim \exp(-\Delta E/kT)$
$(\Delta E \simeq 0.7$ ev$)$; β is a dimensionless factor which decreases with rising

Card 1/4

86431

The Temperature Dependence of the Main   S/181/60/002/011/015/042
Parameters of GaAs Point-contact Diodes   B006/B056

temperature (cf. Table 2); r_s is the internal series resistance of the diode, and U_{dir} is the direct voltage drop on the diode. The experimental results are shown in five diagrams. The direct current in the diode depends on recombination processes occurring in the volume-charge region, the base layer, and on the surface, and also on the ohmic resistance of the base layer. $I_{dir} = I_o \exp(qU_c/\beta kT)$ and $I_{dir} \sim \exp\left[(\Delta E - qU_o/\beta)/kT\right]$, where ΔE is the activation energy. An analysis of the statistical volt-ampere characteristics in the temperature range concerned showed that: 1) the temperature dependence of the differential conductivity at U_o, of the factor I_o in the empirical formula for the direct current and the reverse current at $-1v$ is exponential in the range of $373-573^\circ K$; the exponents coincide; 2) β decreases with rising temperature and is greater than 2 at $-196^\circ C$; 3) the section voltage decreases with increasing temperature; the temperature coefficient coincides with the temperature coefficient of the contact potential difference calculated for a symmetrical p-n junction, whereas the absolute value of U_{sec} is smaller than the calculated value of U_{calc}; 4) at a constant voltage, the direct current rises within the range of

Card 2/4

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The Temperature Dependence of the Main   S/181/60/002/011/015/042
Parameters of GaAs Point-contact Diodes   B006/B056

.0 - 0.6 v with rising temperature. Within the range of 0.7 - 1 v it first
increases, after which it drops , which is due to the temperature depend-
ence of the internal series resistivity of the diode. There are 5 figures,
2 tables, and 9 references: 7 Soviet, 1 US, and 1 Australian.

ASSOCIATION: Fiziko-tekhnicheskiy institut AN SSSR Leningrad
               (Institute of Physics and Technology of the AS USSR,
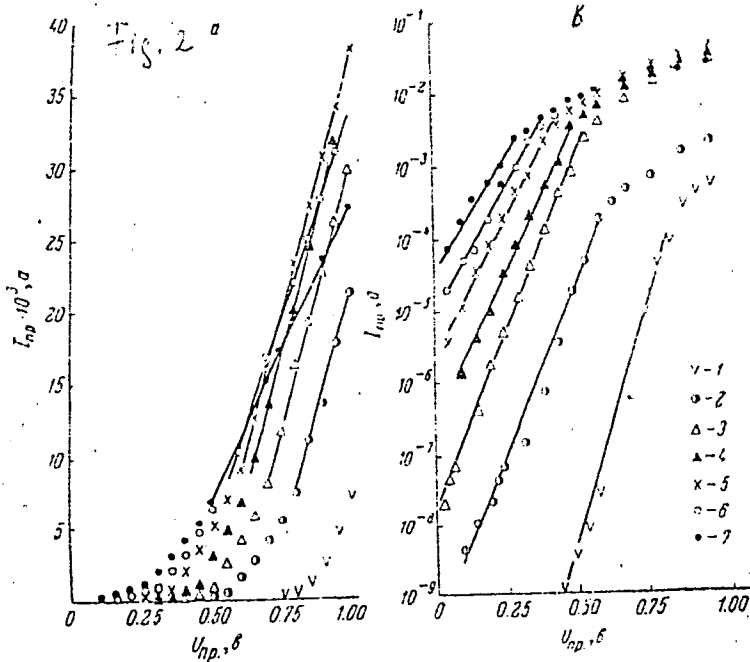   Leningrad)

SUBMITTED: June 9, 1960

Таблица 2

T, °C	I_c, a	s	r_s, ом	$U_{отс.}$, в	$I_{пр.}$ (+1 в), а	$I_{обр.}$ (−1 в), а
			1	2	3	4
—196	$2.5 \cdot 10^{-15}$	3.2	38	0.93	0.005	—
20	$3.6 \cdot 10^{-10}$	1.7	20	0.67	0.0185	$4.2 \cdot 10^{-8}$
300	$4 \cdot 10^{-5}$	1.55	29	0.34	0.0275	$1.8 \cdot 10^{-1}$

Legend to Table 2: 1) r_s ex-
pressed in ohms; 2) U_{sec} in
v, I_{dir} at +1v in a;
4) I_{rev} at -1v in a.

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S/181/60/002/011/015/042
B006/B056

Legend to Fig. 2: Direct
branches of the volt-am-
pere characteristics of
the GaAs point-contact
diode No. 2 at different
temperatures, on a linear
(a) and a semilogarithmic
(b) scale. 1) 77°K;
2) 293°K; 3) 373°K;
4) 423°K; 5) 473°K;
6) 523°K; and 7) 573°K.

Card 4/4

FILIPPOV, L.P.; YERSHOVA, N.G.; SMIRNOVA, N.N.

Changes in the properties of fluids in supercooling.   Vest.Mosk.un.
Ser.3:Fiz.,astron.15 no.4:21-25 Jl-Ag '60.   (MIRA 13:9)

1. Kafedra molekulyarnoy fiziki Moskovskogo universiteta.
                    (Supercooling)

ZVEREV, L.V.; SMIRNOVA, N.N.; FILIPPOVSKAYA, T.B.

Solubility of rock-forming silicate minerals in sulfuric acid
solutions. Min.syr'e no.4:134-147 '62.   (MIRA 16:4)
          (Silicates)   (Sulfuric acid)

L 2975-66   EWT(l)/EWT(m)/T/EWP(t)/EWP(b)/EWA(h)   IJP(c)   AT/JD

ACCESSION NR: AP5022437

UR/0109/65/010/009/1707/1709

539.293.011.41

37
B

AUTHOR: Nasledov, D. N.; Smirnova, N. N.; Slobodchikov, S. V.

TITLE: Current-voltage characteristics of alloy p-n-junctions in InAs

SOURCE: Radiotekhnika i elektronika, v. 10, no. 9, 1965, 1707-1709

TOPIC TAGS: current voltage characteristic, pn junction, InAs pn junction

ABSTRACT: The carrier concentration in the source n-InAs material was 5×10^{16} to $1.5 \times 10^{17}/cm^3$; Zn content in the alloy was 0.1—5%. Current-voltage characteristics were taken in the 78—296K range. At 78K, the forward-current vs. voltage characteristic showed two slopes: $\beta_1 = 1.2$—1.3 and $\beta_2 = 1.8$—2.8. Crystal-structure defects are assumed to be responsible for the high-values of β. At higher-than-room temperatures, the diffusion current describable by the regular Shockley theory prevails. The reverse-current vs temperature curve measured experimentally yields a forbidden-band width of 0.48 ev (at 0K). Orig. art. has: 2 figures and 2 formulas. [03]

Card 1/2

L 2975-66

ACCESSION NR: AP5022437   0

ASSOCIATION: none

SUBMITTED: 20Jun64   ENCL: 00   SUB CODE: SS

NO REF SOV: 001   OTHER: 001   ATD PRESS: 4109

BVK

Card 2/2

MARTYNOV, Yu.M.;   KORNBLIT, I.I.;   SMIRNOVA, N.P.;   DZHAGATSPANYAN, R.V.

Determination of metal impurities in silicon tetrachloride
and silicon dioxide by the spectrochemical method.
Zav.lab. 27 no.7:839-842 '61.   (MIRA 14:7)
(Silicon compounds) (Metals--Analysis) (Spectrochemistry)

L 29369-66

ACC NR: AP6019802   SOURCE CODE: UR/0239/65/051/004/0487/0494

AUTHOR: Smirnova, N. P. (Moscow); Volodin, V. M. (Moscow)

ORG: none

TITLE: Study of hypothalamic influences on coronary blood circulation

SOURCE: Fiziologicheskiy zhurnal SSSR, v. 51, no. 4, 1965, 487-494

TOPIC TAGS: cat, electrophysiology, hormone, brain, pharmacology, vasopressin

ABSTRACT: The hypothalamus of anesthetized cats was irritated by means of
an electric current; the tonus of coronary blood vessels was then determined
by the resistography method. The reaction to the irritation most frequently
consisted of contraction of the vessels, but vasodilation and two-phase
reactions were also observed. Reactions of different types were obtained
on irritation of the same points in the hypothalamus. Increasing the inten-
sity of the irritation or intravenous administration of dihydroergotoxin,
hexonium, or aminazine often changed the nature of the reaction upon irrita-
tion of the same point. After application of aminazine or hexonium, a pre-
dominance of pressor reactions was observed. The effect of the hypothala-
mus on coronary vessels was not eliminated after exclusion of the influence
of vascular innervation by section of the spinal cord or of the midbrain or
application of pharmacological agents. This indicated that the effect of

Card 1/2   UDC: 612.826+612.172.1

ACC NR: AT0050581   SOURCE CODE: UR/0000/66/000/000/0205/0206

AUTHOR: Klimovskaya, L. D.; Smirnova, N. P.; Poleshchuk, A. T.

ORG: none

TITLE: Cerebellar reaction to afferent stimulation during accelerations [Paper presented at the Conference on Problems of Space Medicine held in Moscow from 24 to 27 May 1966]

SOURCE: Konferentsiya po problemam kosmicheskoy meditsiny, 1966. Problemy kosmicheskoy meditsiny. (Problems of space medicine); materialy konferentsii, Moscow, 1966, 205-206

TOPIC TAGS: space physiology, biologic acceleration effect, central nervous system, electroencephalography, cerebellum, rat

ABSTRACT: The stabilizing function of the cerebellum depends on the qualitative and quantitative nature of afferent impulsation and the ability of neuron systems to adequately digest incoming information. One approach to the study of this problem is to evaluate the reaction of the cerebellum to ordinary afferent signals.

An evoked potential method was used in the study. Tests were conducted on white rats exposed to transverse accelerations (10 G for 4 min). The evoked potentials were responses to individual stimuli administered to the sciatic nerve. Square pulses with a duration of 0.5 msec were administered via a steel needle through the bone of the Culmen monticuli area. Potentials were recorded before, during, and after acceleration by means of a "Disa" universal gauge and a preamplifier on an "Alvar" electroencephalograph.

Electrical responses to sciatic nerve stimuli were recorded in rats

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L 10964-67
ACC NR: AT6036531   /

anesthetized with nembutal. These responses took the form of two-phased,
negative-positive oscillations with · latent periods of 25.2 ± 1.4 msec.
Occasionally, spike discharges were recorded before the negative phase
or during its descending phase.

    Accelerations caused changes in the amplitude and form of the evoked
potential both during and up to 10 minutes after exposure. These changes
were reflected in a decrease in response to threshold stimulus, a decrease
in the amplitude of the negative phase up to its complete disappearance,
and intensified spike discharges. From the data it can be seen that accel-
eration (10 G), which is well tolerated by rats and does not affect their
general condition, causes substantial changes in the function of cerebellar
afferent systems. The logical conclusion might be that during the action of
spaceflight factors, transition to weightlessness is accompanied by a disruption
of adequate perception of afferent impulses by the cerebellar cortex. This
could be of considerable concern relative to the disruption of cerebellar
mechanisms. [W.A. No. 22; ATD Report 66-116]

SUB CODE: 06 / SUBM DATE: 00May66

Card 2/2

SMIRNOVA, N.P. (Moskva); VOLODIN, V.M. (Moskva)

Analysis of hypothalamic effects on coronary blood circulation.
Fiziol.zhur. 51 no.4:487-494 Ap '65.   (MIRA 18:6)

NESTERENKO, G.V.; SMIRNOVA, N.P.

Ratio of chromium and vanadium as prospecting indications for Noril'sk differentiated trap rocks. Dokl. AN SSSR 154 no.6:1361-1363 F '64.
(MIRA 17:2)

1. Institut geokhimii Sibirskogo otdeleniya AN SSSR. Predstavleno akademikom D.I.Shcherbakovym.

SMIRNOVA, N.P.

Self-ignition of porous fiberboard. Sbor. rab. pozh.-ispyt. sta.
no.3:76-77 '63. (MIRA 17:7)

1. Leningradskaya pozharno-ispytatel'naya stantsiya.

FAYBISHENKO, A.D.; SMIRNOVA, N.P.

Fire hazards and preventive measures in the production of
epoxy resins. Sbor. rab. pozh.-ispyt. sta. no.3:39-49 '63.
(MIRA 17:7)

1. Leningradskaya pozharno-ispytatel'naya stantsiya.

Retardation of sexual cycle by chemical block of thyroid with methylthiouracil. P. A. Vunder, N. P. Smirnova, and R. L. Lichman (N. G. Chernyshevskii State Univ., Saratov). *Doklady Akad. Nauk S.S.S.R.* 72, 1203-6 (1950).—Feeding of methylthiouracil (best 20-60 mg. daily) leads to a lengthening of the estral cycle of female rats by a factor of 2-3 (30-80)-day expt.), especially noted at 50-60-mg. dosage; at 20-mg. dosage the effect is weak. A rapid return to normal occurs on stoppage of the drug. Thyroidectomy gives a similar but usually less defined effect.
                                        G. M. Kosolapoff

SMIRNOVA, N. P.

Changes in the synthesis and transamination of amino acids in the liver of rats in protein deficiency. N. N. Berezovskaya and N. P. Smirnova (Inst. Biol. and Med. Chem., Acad. Med. Sci. U.S.S.R., Moscow). *Biokhimiya* 21, 457-00(1956).—White rats were kept on a diet contg. 3% protein (*C.A.* 40, 3174²) until they lost 25-30% in wt., developed symptoms of hypoproteinemia, and showed a reduced urine urea content. They were then killed and the rate of synthesis of amino acids in the liver studied. Sections of the liver were incubated in a bicarbonate buffer (pH 7.4) in an atm. of 95% O_2 + 5% CO_2 at 37° with different keto acids. The synthesis of alanine, and glutamic and aspartic acids from the corresponding keto acids in liver sections of these rats fed protein-poor diets was considerably changed. Disturbances in the synthesis and transamination in transamination system involving alanine and ketoglutaric acids appeared 4-5 days after the animals had been placed on the protein-poor diet, and at a later period in the transamination system involving aspartic and ketoglutaric acids.
B. S. Levine

Lab. Phys. Chem.

SMIRNOVA, N.P.

[Changes in the synthesis and transamination of amino] acids in the liver of rats in protein deficiency. N. N. Berezovskaya and N. P. Smirnova. *Biochemistry* (U.S.-S.R.) 21, 463-9(1956)(English translation).—See *C.A.* 51, 3765h. B. M. P.

GURVICH, A.Ye.; SMIRNOVA, N.P.

Changes in the sontent of antibodies and the intensity of the
incorporation of glycine labeled with radioactive carbon into
antibodies following immunization of animals with two antigens
[with summary in English]. Biokhimiia 22 no.4:626-635 Jl-Ag '57.
(MIRA 10:11)

1. Laboratoriya fiziologicheskoy khimii Instituta biologicheskoy
i meditsinskoy khimii Akademii meditsinskikh nauk SSSR, Moskva.
        (ANTIGEN AND ANTIBODY REACTION,
            antibody level & inclusion of radiocarbocarbon labeled
            glycine after immun. with 2 antigens (Rus))
        (GLYCINE, metabolism,
            radiocarbon labeled, inclusion into antibodies after
            immun. of animals with 2 antigens (Rus))

SMIRNOVA, N.P.

Changes in the character of certain vegetative reactions in connection
with the action of ionizing radiations [with summary in English].
Med.rad. 3 no.3:3-9 My-Je '58   (MIRA 11:7)
        (ROENTGEN RAYS, eff.
            on vasc. reaction after hypothalamus stimulation in rabbits
        (HYPOTHALAMUS, physiol.
            eff. of stimulation on vasc. reaction of rabbits after
            total-body x-irradiation (Rus))
        (BLOOD VESSELS, physiology
            eff. of thalamic stimulation after total-body x-irradiation
            in rabbits (Rus))

LEBEDINSKIY, A.V.; NAKHIL'NITSKAYA, Z.N.; SMIRNOVA, N.P.

Participation of the autonomic nervous system in the organism's
reaction to ionizing radiation. Med.rad. 4 no.7:3-9 Jl '59.
(MIRA 12:9)

(AUTONOMIC NERVOUS SYSTEM, physiol.)
(RADIATION EFFECTS)

MOROZ, B.B.; SMIRNOVA, N.P.

Effect of Po^{210} on the organism. Med.rad. 4 no.9:66-74
S '59.   (MIRA 12:11)
         (POLONIUM eff inj)

SMIRNOVA, N.P. (Moskva)

On the functional state of the hypothalamic region following total
roentgen irradiation. Biul.eksp.biol.i med. 48 no.9:38-42 S '59.

(MIRA 13:1)

1. Predstavlena deystvitel'nym chlenom AMN SSSR V.V. Parinym.
(HYPOTHALAMUS radiation eff.)

LEBEDINSKIY, A.V.; KLIMOVSKAYA, L.D.; NAKHIL'NITSKAYA, Z.N.;
    SEDOV, V.V.; SMIRNOVA, N.P.

Effect of Y^{90} on the nervous system in connection with the
possibility of its use in experiments and in neurosurgical practice.
Vop. neirokhir 24 no. 2:9-12 Mr-Sp '60.   (MIRA 14:1)
                (YTTRIUM--ISOTOPES) (BRAIN)

SMIRNOVA, N. P., kand. med. nauk (Moskva)

Hypothalamic and pituitary disorders following use of ionizing
radiations. Probl. endok. i gorm. no.6:15-19 '61.
(MIRA 14:12)

1. Nauchnyy rukovoditel' - deystvitel'nyy chlen AMN SSSR prof.
A. V. Lebeainskiy.

(RADIATION--PHYSIOLOGICAL EFFECT)
(HYPOTHALAMUS)
(PITUITARY BODY)

SMIRNOVA, N.P. (Moskva)

Mechanisms of hypothalamic regulation of cardiac activity.
Fiziol.zhur. 47 no.2:185-190 F '61.   (MIRA 14:5)
            (HEART)   (HYPOTHALAMUS)

27.1220

h0h70
S/205/62/002/002/003/015
1020/1215

AUTHOR   Smirnova, N.P.

TITLE   The significance of central vegetative regulation disorders during exposure of the cardio-vascular system to ionizing radiation

PERIODICAL   Radiobiologiya, v. 2, no. 2, 1962, 228–233

TEXT   Vascular and myocardial reactions to radiation were studied previously .The present study deals with the changes in the hypothalamic pressor effect following irradiation. Experiments were performed on 33 male rabbits irradiated with 800 r and 1000 r. Electrical, stimulation of the hypothalamic region before irradiation by inserted electrodes generally caused an increase in blood pressure. This was also observed in irradiated animals. During the early stage of radiation sickness the pressure reaction was even greater. than in non-irradiated animals, while the stimulation threshold did not change. The cardiovascular reaction of irradiated animals showed a subsequent decrease in excitability of various hypothalamic regions and variation of the stimulation threshold. This indicates adaptation disorders of the cardiovascular system during radiation sickness. There are 2 figures and 3 tables.

SUBMITTED   August 2, 1962

Card 1/1

SMIRNOVA, N.P. (Moskva)

State of the central vegetative regulation of cardiac activity in irradiated animals. Pat.fiziol.i eksp.terap. 6 no.2:18-22 Mr-Ap '62.

(MIRA 15:8)

(RADIATION--PHYSIOLOGICAL EFFECT)   (HEART)   (HYPOTHALAMUS)

SMIRNOVA, N.P.

Involvement of the vegetative centers of the cerebellum in
the reaction to the effect of ionizing radiation. Radiobio-
logiia 4 no.4:536-540 '64.

(MIRA 17:11)

S/181/62/004/006/048/051
B108/B138

AUTHORS: Bursian, E. V., and Smirnova, N. P.

TITLE: Monocrystalline BaTiO$_3$ layers grown from melt in an oxygen
             atmosphere

PERIODICAL:. Fizika tverdogo tela, v. 4, no. 6, 1962, 1675 - 1676

TEXT: A new technique of growing monocrystalline BaTiO$_3$ layers is presented.
A layer of BaTiO$_3$ powder on a platinum backing is kept at 1600 - 1700°C in
an oxygen atmosphere for 1 - 2 min. When the melt is removed from the
heated zone of the furnace, it will form either a monocrystalline layer or
a layer consisting of several large monocrystalline blocks. The platinum
backing can then serve as one electrode. The other can be applied as a
silver paste etc. The crystals obtained are cubic and turn into the ferro-
electric tetragonal phase when cooled below their Curie point. Preliminary
measurements gave a dielectric constant of 4000 - 6000 at 20°C, 50 cps on a
20μ thick specimen. The dielectric constant decreases as the thickness of
the specimens is reduced. At the same time the hysteresis loop becomes more
Card 1/2

BURSIAN, E.V.; SMIRNOVA, N.P.

    Production of crystalline blocks of $BaTiO_3$ from the melt in an
oxygen atmosphere. Kristalografiia 8 no.5:799-800 S-O '63.
                                         (MIRA 16:10)

    1. Leningradskiy gosudarstvennyy institut im. A.I.Gertsena.

L 20373-65   EWT(l)/EPA(s)-2/EWP(e)/EWT(m)/EPF(n)-2/EPA(w)-2/EEC(t)/
T/EEC(b)-2/EWP(b)/EWA(h)/   Pab-10/Pt-10/Peb/Pu-4   IJP(c)/ASD(a)-5/
SSD/AFWL/AS(mp)-2/AFMD(t)/AFETR/RAEM(j)/ESD(dp)/ESD(gs)/ESD(t)   GG/WH
                                                    S/0181/64/006/006/1818/1820
ACCESSION NR: AP4039674

AUTHOR: Bursian, E. V.; Smirnova, N. P.

TITLE: Nonlinear capacitance of thin single crystal films of BaTiO$_3$ B

SOURCE: Fizika tverdogo tela, v. 6, no. 6, 1964, 1818-1820

TOPIC TAGS: polarity reversal, capacitance, single crystal, dielectric constant,
polarization, ferroelectric, nonlinear capacitance

ABSTRACT: This is a continuation of a whole series of papers (by various authors)
devoted to the investigation of polarity reversal in thin films of BaTiO$_3$. The
authors have extended the range of thickness of single BaTiO$_3$ crystals that may be
investigated for determining the geometrical effect. They have found that non-
linear polarization is preserved as the thickness is diminished from 100 to 1
micron, but that the activation field of the nonlinear part increases proportion-
ally to the reciprocal of the thickness. In rather strong fields the temperature
dependence of the dielectric constant is preserved, as are the other features of
ferroelectricity. These results confirm the view that the surface layer plays a

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ACCESSION NR: AP4039674

decisive role in the mechanism of polarization. It is pointed out that complete polarization at saturation proves to be no less for thin layers than for thick, and it may even be greater. A value of 2.5 microcoulombs/cm^2 was obtained for a thickness of 6 microns and of only 2 microcoulombs/cm^2 for a thickness of 30 microns. Orig. art. has: 3 figures.

ASSOCIATION: Leningradskiy gosudarstvennyy pedagogicheskiy institut im. A. I. Gertsena (Leningrad State Pedagogical Institute)

SUBMITTED: 17Jan64   ENCL: 00

SUB CODE: SS, EM   NO REF SOV: 004   OTHER: 005

Card 2/2