ACCESSION NR: AP4034035

essential features of the structure were similar to those observed previously by the authors during the aging of Ni-Be and Cu-Be. Orig. art. has: 4 figures.

ASSOCIATION: None

SUBMITTED: 06Nov63   DATE ACQ: 20May64   ENCL: 00

SUB CODE: SS,MM   NO REF SOV: 004   OTHER: 004

Card 2/2

TYAPKIN, Yu.D., Cand Phys-Math Sci — (diss) "Roentgen-structu-
ral study of aging of nickel alloys." Mos, 1959. 15 pp (Glavnii-
proyekt under Gosplan USSR. Central Sci_____ _____ Inst of
Ferrous Metallurgy). 150 copies. Bibliography at end of text
(KL,39-59, 101)

//

ACC NR: AR6013666   SOURCE CODE: UR/0058/65/000/010/E031/E031

AUTHOR: Gavrilova, A. V.; Tyapkin, Yu. D.

TITLE: Changes in crystal structure with age hardening in nickel-beryllium and copper-beryllium alloys

SOURCE: Ref. zh. Fizika, Abs. 10E241

REF SOURCE: Sb. tr. In-t metalloved. i fiz. metallov Tsentr. n.-i. in-ta chernoy metallurgii, vyp. 36, 1964, 326-354

TOPIC TAGS: hardness, strain hardening, beryllium containing alloy, metal aging

TRANSLATION: Be atoms collect into monatomic layers parallel to the crystallographic planes of the [100] matrix in the initial hardening stages of Cu-Be (150-200°C) and Ni-Be (400-450°C) (Guinier-Preston zones). When the Guinier-Preston zones combine with the surrounding matrix, a mixing of atoms occurs in the matrix which can be represented as an elastic shift in the [110] planes in the [110] direction. These shifts produce "monoclinic" changes in the initial cubic lattice. A metastable phase occurs in the alloys when the time lag increases or the hardening temperature rises to 300°C (for Cu-Be) and 500°C (for Ni-Be) due to an extension of the Guinier-Preston zone. The structural relationship between the metastable phase and the solid solution is similar to that between ordered and unordered phases in the ordering of an AuCu alloy. The

Card 1/2

ACC NR: AR6013666

"monoclinic" changes in the matrix with the aging of Ni-Be and Cu-Be alloys are due to the character of the stress state in submicrovolumes of the alloy and to the anisotropy of the elastic constants of the cubic matrix. Large elastic distortions (stresses) with the aging of Ni-Be and Cu-Be alloys do not considerable increase their hardness. The hardness increases only at the stage at which these stresses begin a turn in the blocks of the matrix solid solution. 30 references. I. Tulupova.

SUB CODE: 11

Card 2/2

GAVRILOVA, A.V.; TYAPKIN, Yu.D.

Investigating the aging of martensite in iron-nickel alloys with
additions of aluminum. Fiz. met. i metalloved. 20 no.2:313-315
Ag '65.   (MIRA 18:9)

1. TSentral'nyy nauchno-issledovatel'skiy institut chernoy metal-
lurgii imeni I.P.Bardina.

L 1939-66   EWT(m)/EWP(w)/T/EWP(t)/EWP(z)/EWP(b)/EWA(c)   LJP(c)   MJW(CL)/JD/HW
ACCESSION NR: AP5021946
UR/0126/65/020/002/0313/0315
548.53

AUTHOR: Gavrilova, A. V.; Tyapkin, Yu. D.

TITLE: Aging of martensite of iron-nickel alloys having aluminum additions

SOURCE: Fizika metallov i metallovedeniye, v. 20, no. 2, 1965, 313-315

TOPIC TAGS: iron base alloy, nickel containing alloy, aluminum containing alloy, iron nickel aluminum alloy, maraging alloy, maraging steel

ABSTRACT: Three iron-base alloys, containing   8 Ni-1.5 Al, 29 Ni-2.0 Al, and 29 Ni-3.5 Al, were investigated in order to determine the mechanism of structural changes responsible for the significant strength increase under the effect of heat treatment. The specimens were cooled to -196C and aged at 400—450C.   Aging brought about precipitation of a secondary phase having a CsCl-type structure and a composition close to (Fe, Ni)Al. This phase then decomposes in two phases: NiAl and α-Fe. In spite of the small change in volume, the decomposition causes significant strengthening.   Orig. art. has: 1 table.   [WW]

ASSOCIATION: TsNIIChERMET im. I. P. Bardina

Card 1/2

L 1939-66
ACCESSION NR: AP5021946   O

SUBMITTED: 13Jul64   ENCL: 00   SUB CODE: MM

NO REF SOV: 007   OTHER: 001   ATD PRESS: 4415

Card 2/2

RABIN'KIN, A.G., TYAPKIN, Yu.D.; FAMALEYEV, K.M.

Changes in the crystal structure and magnetic properties of the
Co-Pt alloy in the ordering process. Fiz. met. i metalloved. 19
no.3:360-366 Mr '65.   (MIRA 18:4)

1. Filial Instituta khimicheskoy fiziki AN SSSR i TSentral'nyy
nauchno-issledovatel'skiy institut chernoy metallurgii imeni Bardina.

TYAPKIN, Yu.D.; YEROSHENKOV/-IUKANINA, I.G.

Modulated periodic structure in magnetic Fe - Ni - Al base alloys
with a body-centered cubic lattice. Dokl. AN SSSR 160 no.2:325-
328 Ja '65.   (MIRA 18:2)

1. TSentral'nyy nauchno-issledovatel'skiy institut chernoy me-
tallurgii im. I.P. Bardina. Submitted July 10 1964.
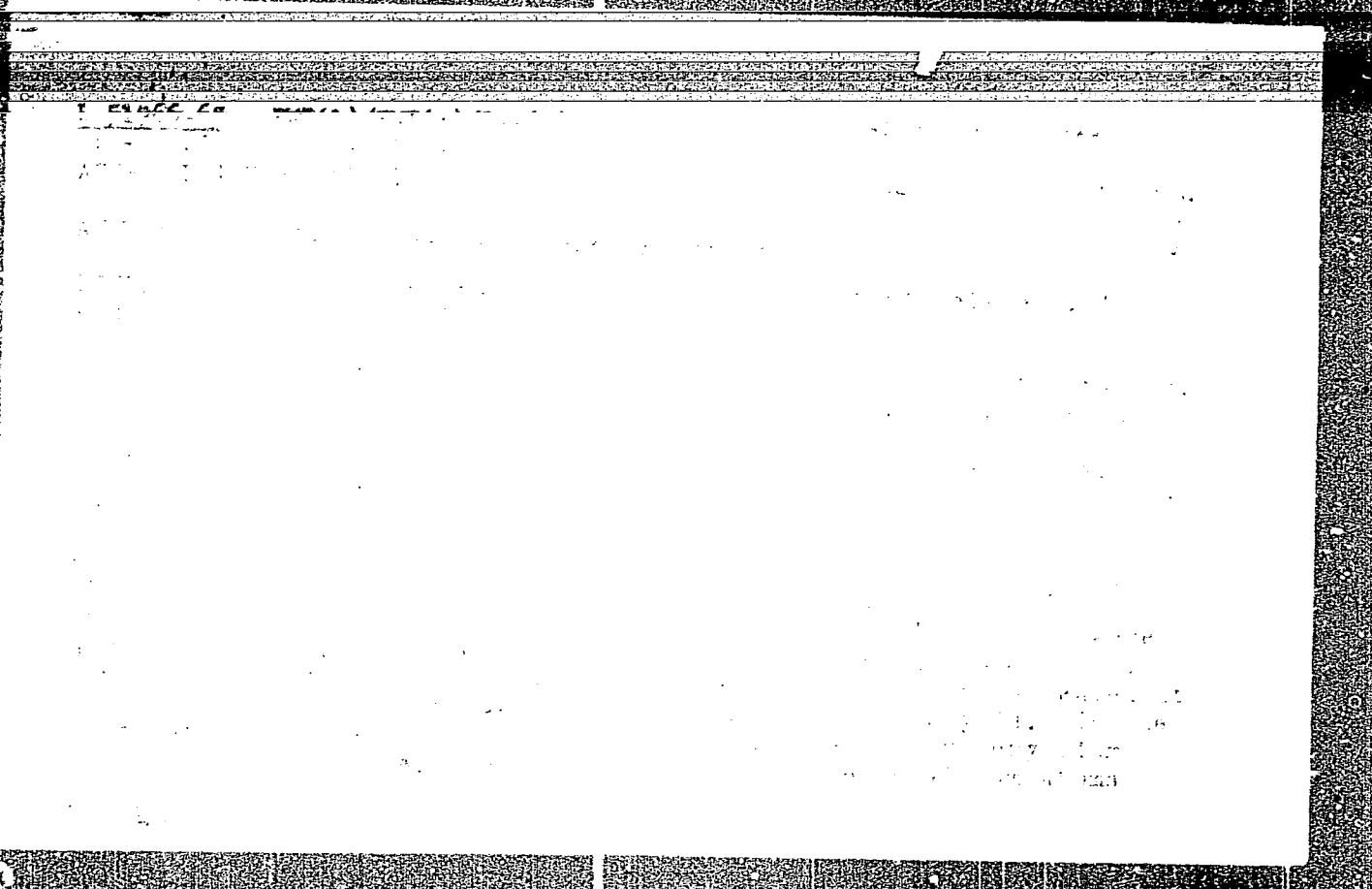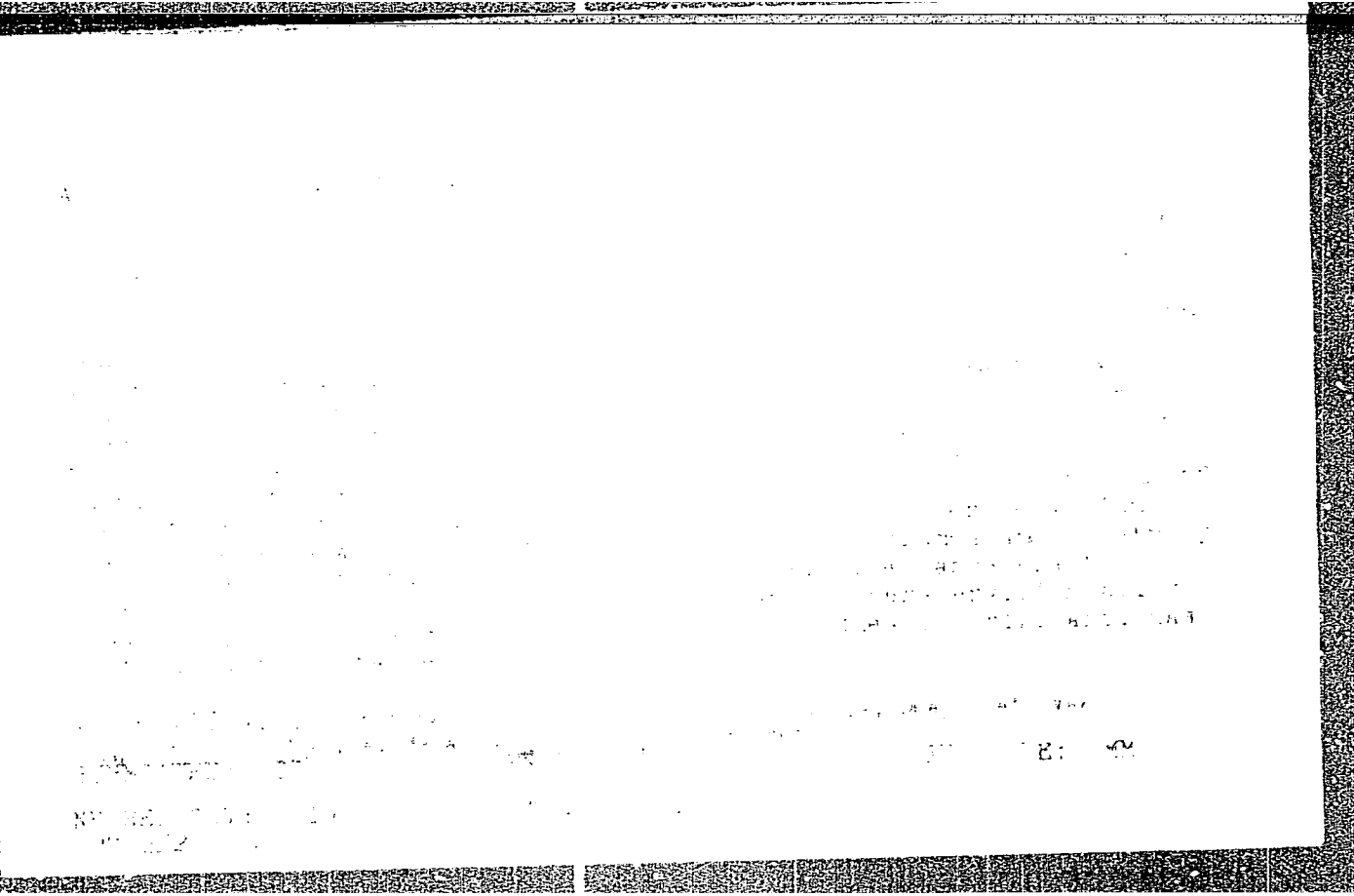
TYAPKIN, Yu.D.; YAMALEYEV, K.M.

Character of crystal lattice defects at the initial stage of ordering
of a CoPt alloy. Dokl. AN SSSR 155 no.6:1310-1313 Ap '64.
(MIRA 17:4)

1. Predstavleno akademikom G.V.Kurdyumovym.

YAMALEYEV, K.M.; TYAPKIN, Yu.D.

X-ray examination of structural changes during the ordering of single crystals of the NiPt alloy. Fiz. met. i metalloved. 19 no.1:141-144 Ja '65.   (MIRA 18:4)

1. Institut metallofiziki Tsentral'nogo nauchno-issledovatel'nogo instituta chernoy metallurgii imeni Bardina.

increase in cohesive force, resulting in... ...distortions also cause a continuous reduc-

ACCESSION NR: AP4013329   S/0020/64/154/003/0578/0581

AUTHOR: Tyapkin, Yu. D.

TITLE: "Monoclinic" distortion of the cubic lattice during the aging of Ni-Be and Cu-Be alloys

SOURCE: AN SSSR. Doklady*, v. 154, no. 3, 1964, 578-581

TOPIC TAGS: cubic lattice distortion, aging, Ni-Be alloy, Ci-Be alloy, nickel berillium, copper berillium

ABSTRACT: In the investigation of the nature of the chnages occurring in the crystal structure of the matrix, Guinier-Preston zones appeared at the initial stage of aging Cu-Be and Ni-Be alloys. After a five-hour tempering period at 200C single cry- stals of Cu-2% Be specimens were submitted to X-ray analysis. Length and arrangement of diffusion rods along the planes and the region of anomalous scattering were investigated. Some rods were not centrosymmetrical. Submicroscopic berillium-depleted or en- riched regions were identified. The period of the Be-depletion of

Card 1/2

ACCESSION NR: AP4013329

the matrix, readily determined from reflections with a large $\Sigma\, h^2$ showed an excess of 0.5 to 1% over the mean period. At a later stage of aging, the dislocation of atomic planes [101] towards [101] by means of γ causes the transformation of the cubic lattice into a "monoclinic" lattice. The value of the dislocation is equal to a minimum of $\pm 5^0$ which corresponds to $\gamma \approx 0.1$. In aging Al-Cu specimens Guinier-Preston zones are also identified. However, mono-clinic distortions were not observed. The difference in the charac-ter of the matrix distortion in Al-Cu, Cu-Be and Ni-Be specimens was due to different elastic properties of the solid solution. Orig. art. has: 3 figures.

ASSOCIATION: Institut metallovedeniya i fiziki metallov Tsentral'nogo nauchno-issledovatel'skogo instituta chernoy metallurgii imeni I.P. Bardina. (Institute of Metallurgy and Physics of Metals of the Central Research Institute of Ferrous Metallurgy)

SUBMITTED: 26Jul63   DATE ACQ: 26Feb64   ENCL: 00.

SUB CODE: ME   NO REF SOV: 008   OTHER: 008

Card 2/2

TYAPKIN, Yu.D.; USIKOV, M.P.

Comparison of X-ray and electronographic data on the dimensions
of crystal blocks in deformed stainless steel and nickel.
Fiz. met. i metalloved. 14 no.1:85-91 Jl '62.   (MIRA 15:7)

1. Institut metallovedeniya i fiziki metallov TSentral'nogo
nauchno-issledovatel'skogo instituta chernoy metallurgii.
            (Steel, Stainless—Metallography)
                (Nickel—Metallography)
                (Electron microscopy)

SIMONOVICH, Ye. N.; TYAPKINA, N. P.

Handy modification of Fulleborn's method. Med. paraz. i paraz.
bol. no.6:677-680 '61.   (MIRA 15:6)

1. Iz parazitologicheskogo otdela (zav. A. G. Revzina) sanitarno-
epidemiologicheskoy stantsii (glavnyy vrach L. K. Sakharova)
Leningradskogo rayona Moskvy.

                    (HELMINTHOLOGY)   (FECES—ANALYSIS)

BAGARYATSKIY, Yu.A.; TYAPKIN, Yu.D.

Simple device for eliminating the effect of the K_{α_2}-component in reversal X-ray photographs of single crystals. Kristallografiia 6 no.5:774-775 S-O '61. (MIRA 14:10)

1. Institut metallovedeniya i fiziki metallov.
   (Radiography)   (Crystals--Spectra)

S/126/62/014/001/007/018
E111/E135

AUTHORS: Tyapkin, Yu.D., and Usikov, M.P.

TITLE: Comparison of X-ray and electron-diffraction data on
             the size of crystal blocks in deformed stainless
             steel and nickel

PERIODICAL: Fizika metallov i metallovedeniye, v.14, no.1, 1962,
             85-91

TEXT: In X-ray diffraction determinations of the size of
crystal blocks with the aid of analysis of the width or form of
interference lines the size referred to is that of "regions of
coherent scattering". The question arises as to whether this
characterises a dimension of the crystal structure or is associated
with an optical effect. To solve this problem the authors have
compared X-ray results with those of electron microdiffraction from
thin foils of the test samples, simultaneous electron-microscopic
investigation of these foils being carried out. The samples
studied were of an 18-8 type stainless steel and pure nickel,
subjected to cold-rolling with 96% reduction combined with heat
treatment and, where appropriate, electrolytic thinning.   Some
Card 1/2

Comparison of X-ray and electron- ...   S/126/62/014/001/007/018
                                          E111/E135

electron microscopic pictures (generally at 15000 magnification)
were also obtained. The authors conclude that, allowing for
systematic errors, the block-size determinations by electron-
and X-ray diffraction give practically the same values. The
greatest difference is with nickel, probably because the foil
thickness could not be determined with sufficient accuracy. Thus,
for deformed stainless steel and pure nickel the dimensions of
coherent-scattering regions found from measurements of X-ray
interference-line width determination correspond to dimensions of
real crystal blocks having a relatively correct internal structure
and disorientated relative to each other.
There are 2 figures and 2 tables.
ASSOCIATION: Institut metallovedeniya i fiziki metallov TsNIIChM
             (Institute of Science of Metals and Physics of
             Metals, TsNIIChM)
SUBMITTED: October 18, 1961

Card 2/2

TYAPKIN, Yu.D.; BAGARYATSKIY, Yu.A.; GAVRILOVA, A.V.

Study of changes in the crystalline structure of the alloy
nickel-beryllium at an early stage of aging. Kristallografiia
6   no.4:560-567 Jl-Ag '61.   (MIRA 14:8)

l. Institut metallovedeniya i fiziki metallov TSentral'nogo
nauchno-issledovatel'skogo instituta chernoy metallurgii.
                    (Nickel-beryllium alloys)

18.1250   2208, 1416, 2808

24.7/00 (1160, 1142, 1153)

25892
S/070/61/006/004/004/007
E021/E406

AUTHORS: Tyapkin, Yu.D., Bagaryatskiy, Yu.A. and Gavrilova, A.V.

TITLE: Study of the changes in crystal structure of nickel-beryllium alloys in the early stages of ageing

PERIODICAL: Kristallografiya, 1961, Vol.6, No.4, pp.560-567 + 3 plates

TEXT: Single crystals of Ni-Be alloys containing 2.2% Be were quenched from 1100°C and aged at 425 or 500°C. The change in hardness (Rockwell B) with the total soaking time during tempering (in minutes and hours) is shown in Fig.1. The alloys were studied by X-ray analysis to elucidate the changes in structure. In the early stages of ageing (30 min to 2 hours at 425°C) the formation of Guinier-Preston zones considerably enriched in beryllium occurs. They are in a plate-form of 1 to 2 atomic layers thick and parallel to the (100) planes in the matrix. At the same time all the solid solution is less-rich in beryllium and approaches to the equilibrium state. The depleted matrix divides into separate blocks which at first have different orientations one from another. The blocks are elastically distorted. There are cracks with thickness of the order of 20 to 30 Å in the matrix

Card 1/3

25892

Study of the changes in crystal ...   S/070/61/006/004/004/007
E021/E406

along the (110) planes.   At 500°C, the G.P. zones increase in size,
regions with structure close to β phase appear and orientated
rotation of the blocks occurs around one axis of the [100] type.
This rotation reaches 8 to 10° after 32 hours at 500°C.   The high
hardness values of aged Ni-Be alloys is connected not with elastic
distortion in the matrix but, in the main, with the division of the
matrix into blocks and with their rotation relative to one another.
All the observed changes result from the large difference in
atomic volumes of the matrix and the precipitating phase (NiBe)
which reaches 20%.   There are 10 figures and 22 references:
16 Soviet and 6 non-Soviet.   The three references to English
language publications read as follows: M.Hansen, K.Anderko.
Constitution of Binary Alloys. 290. New York - London, 1958;
A.H.Geisler. Phase Transformation in Solids, 454. New York -
London, 1951;   R.B.Nicholson, G.Thoma, J.Natting. J.Inst.Metals,
87, 12, 429, 1959.

ASSOCIATION: Institut metallovedeniya i fiziki metallov TsNIIChM
             (Institute of Metals Science   and Physics of Metals,
Card 2/3   TsNIIChM)

BAGARYATSKIY, Yu.A.; TYAPKIN, Yu.D.

Supplementary structural data on the decomposition of
supersaturated solid solutions of titanium in nickel
and nichrome. Kristallografiia 5 no. 6:882-890 N-D '60.
(MIRA 13:12)

1. Institut metallovedeniya i fiziki metallov "TSentral'nogo
nauchno-issledovatel'skogo instituta chernoy metallurgii.
(Chromium-titanium-nickel alloys)
(Titanium-nickel alloys)

87805

S/070/60/005/006/003/009

18.7500   1418, 1413, 1145   E021/E306

AUTHORS: Bagaryatskiy, Yu.A. and Tyapkin, Yu.D.

TITLE: Additional Structural Data on the Decomposition of Supersaturated Solid Solutions of Titanium in Nickel and Nichrome

PERIODICAL: Kristallografiya,' 1960, Vol. 5, No. 6, pp. 882 - 890 + 1 plate

TEXT: A detailed study has been carried out of the crystal structure of nickel-titanium and nickel-chromium-titanium alloys during the decomposition of the supersaturated solid solutions from the initial stage when the titanium distribution is nonuniform, to the final stage when a hexagonal phase is precipitated. The binary alloys containing 11.8 and 14.1 at.% titanium and the ternary alloys containing 16.5 at.% chromium and 8.5 at.% titanium were investigated by ageing at 700 and 800 °C for various times. In the initial stage of decomposition, microregions rich and poor in titanium were formed. Both the titanium-rich and titanium-poor regions

Card 1/4

67805

S/070/60/005/006/003/009
E021/E306

Additional Structural Data on the Decomposition of Super-
saturated Solid Solutions of Titanium in Nickel and Nichrome

could deviate from cubic symmetry and could become tetragonal.
‑ ‑ the binary alloy containing 14 at.% titanium and in the
ternary alloy, the titanium-poor regions became tetragonal
with a c/a ratio of 0.999 ± 0.001. In the binary alloy
containing 12% titanium, the titanium-rich regions were
tetragonal with $c/a = 1.003 \pm 0.001$. Thus, the tetragonal
structure was not caused by metastable Ni_3Ti compound, as has

been proposed (Refs. 3, 7). When the precipitate of the
hexagonal η-phase Ni_3Ti first appears, the regions of both

types became tetragonal with the above axial ratios. The
c-axes of all the regions were in the same direction so that
the initial monocrystal as a whole appeared to be tetragonal.
As precipitation of the hexagonal phase occurred,
recrystallisation of the regions poor in titanium also occurred,
which resulted in part or the whole of the monocrystal becoming
Card 2/4

67805

S/070/60/005/006/003/009
E021/E306

Additional Structural Data on the Decomposition of Super-
saturated Solid Solutions of Titanium in Nickel and Nichrome

polycrystalline. After several thousand hours the binary
alloy with 14% titanium remained monocrystalline but the
ternary alloy did not. The transformation to a polycrystal
did not occur for the ternary alloy at 850 $^{\circ}$C.
Recrystallisation was explained by stresses arising in the
monocrystal.
Acknowledgments are made to B.A. Mel'nikov for his assistance
in the experimental part of this work.
There are 5 figures, 1 table and 20 references: 10 Soviet
and 10 non-Soviet.

Card 3/4

S/070/60/005/006/003/009
E021/E306
87805

Additional Structural Data on the Decomposition of Super-
saturated Solid Solutions of Titanium in Nickel and Nichrome

ASSOCIATION: Institut metallovedeniya i fiziki metallov
               TsNIIChM (Institute of Metallurgy and
               Physics of Metals of TsNIIChM)

SUBMITTED.   April 19, 1960

Card 4/4

BAGARYATSKIY, Yu.A.; TYAPKIN, Yu.D.

More on X-ray diagrams with satellites. Kristallografiia 5 no.4:
535-539 Jl-Ag '60.
(MIRA 13:9)

1. Institut metallovedeniya i fiziki metallov TSentral'nogo nauchno-
issledovatel'skogo institut chernoy metallurgii.
(Solutions, Solid—Spectra)   (Alloys—Spectra)

TYAPUNINA, N.A.; PREDVODITELEV, A.A.

Investigations of spiral etching figures in cadmium polycrystals.
Izv. AN SSSR. Ser. fiz. 22 no.10:184-189 O '58. (MIRA 12:3)

1.Moskovskiy gosudarstvennyy universitete im. M.V. Lomonosova.
(Cadmium--Etching)

D-4

USSR/Statistical Physics - Heat

Abs Jour   : Referat Zhur - Fizika, No 5, 1957, 11455

Author   : Mikryukov, V.Ye.; Tyapunina, N.A.

Inst   : Moscow State University, USSR

Title   : Investigation of the Temperature Dependence of Heat Conduc-
             tion, Electric Conductivity, and Specific Heat of Bi and
             Pb in a System of Bi-Pb Alloys.

Orig Pub   : Fiz. metallov i metallovedenuye, 1956, 3, No 1, 31-41

Abstract   : The heat conduction λ and the electric conductivity $\varkappa$
             were measured by the Kohlrausch method by means of a setup,
             described earlier by one of the authors (Midryukov, V.Ye.
             Uch. zap MGU, 1944, No 74, Vestn. MGU, 1949, No 3). The
             use of a balanced method for the measurement of the elec...
             tric quantities made it possible to bring the accuracy of
             measurement of λ to 3%, and that of $\varkappa$ to 1%. Alloys of

Card 1/3

D-4

USSR/Statistical Physics - Heat

Abs Jour   : Ref Zhur - Fizika, No 5, 1957, 11455

22 different concentrations were investigated at temperatu-
res to 242°. The alloys with a lead concentration up to
33.67% have (at various temperature ranges for various con-
centrations) a positive temperature coefficient at a value
of $\varkappa$ less than that of pure bismuth. These phenomena are
explained by the presence of a solid solution of lead in
the bismuth, and obviously, by the presence of an α phase.
The dependence of λ on the temperature differs from the
dependence of $\varkappa$ on the temperature, this being explained
by the heat transfer not only the electrons, but also by
the lattice. Assuming that for the electronic portion of
the conduction the Wiedemann-Franz law is valid, the au-
thors have subdivided the obtained values of λ into λ_{el},
which in pure metals diminishes, and increases in alloys,
and λ_{lat}, which always diminishes with increasing tempera-
ture. However, this separation leads to the conclusions
that λ_{lat} predominates over λ_{el}, and consequently

Card 2/3

USSR/Statistical Physics - Heat

Abs Jour   :   Ref Zhur - Fizika, No 5, 1957, 11455

doubt is expressed concerning the applicability of the
Wiedemann-Franz law for this system. The experimental
values of are in good agreement with the equation
$\lambda/C = A \pm B/T$, where A and B are constants, C is the
atomic heat capacity, T the absolute temperature. C was
measured by the method of cooling in a Torovskiy-Bartenev
type setup. A slow increase in C of lead and bismuth with
increasing temperature was obtained. The isotherm of C
has a minimum at 4.82% and a maximum at 65.70% lead.
This can be explained by the influence of the α phase for
small concentrations of lead and of the β phase for large
concentrations of lead (C of the α phase is smaller than
C of lead and bismuth, and that of the β phase is greater.)

Card 3/3

MIKRYUKOV, V.Ye.; TYAPUNINA, N.A.; CHERPAKOV, V.P.

Thermal and electric conductivities of bismuth-cadmium alloys.
Vest.Mosk.un.Ser.mat.,mekh.,astron,fiz.,khim.11 no.1:127-136 '56
(MIRA 10:12)
1. Kafedra molekulyarnoy fiziki Moskovskogo universiteta.
(Heat--Conduction) (Bismuth-cadmium alloys--Electric properties)

ACC NR: AP6036999   (A,N)   SOURCE CODE: UR/0181/66/000/011/3442/3444

AUTHOR: Tyapkina, N. D.

ORG: Moscow State University im. M. V. Lomonosov (Moskovskiy gosudarstvennyy universitet)

TITLE: Electric properties of p-type germanium strongly doped with beryllium

SOURCE: Fizika tverdogo tela, v. 8, no. 11, 1966, 3442-3444

TOPIC TAGS: germanium semiconductor, beryllium, impurity level, ionization, carrier density, impurity center, Hall effect, temperature dependence

ABSTRACT: This is a continuation of earlier investigations of the properties of beryllium-doped germanium (FTT v. 6, 2193, 1964, and earlier). The present investigation was aimed at determining the influence of the compensating impurity on the ionization energy of the impurity conductivity of the upper acceptor level (for non-hydrogenlike centers). To this end, temperature measurements were made of the carrier density and the electric conductivity in the temperature interval 300 - 55K. The procedure for obtaining the samples and of the temperature measurements was described in the earlier paper. The results show that for most samples the carrier density depends exponentially on the reciprocal temperature. The ionization energy of these samples at higher temperatures is calculated and the values are listed in a table. An analysis of the temperature dependence of the Hall mobility has shown that at low temperatures scattering of the carriers by charge centers predominates.

Card 1/2

ACC NR: AP6036999

The densities of the beryllium and of the phosphorus calculated from these data are
also listed. In spite of the fact that the ionization energies were obtained for
samples with different acceptor densities, the dependence of the ionization energy
of the impurity conductivity on the concentration of the donor impurity agrees well
with the standard theoretical formula. It is proposed on this basis that the change
of the ionization energy occurring with increasing donor density is due to the action
of the negatively singly-charged acceptors. At higher temperatures, the ionization
energy is a function of the temperature, this being due to a reduction in the screen-
ing of the acceptors. The author thanks V. S. Vavilov, N. A. Penin, and V. V. Ostro-
borodova for a discussion of the results. Orig. art. has: 2 figures, 1 formula, and
1 table.

SUB CODE: 20/   SUBM DATE: 30May66/   ORIG REF: 005/   OTH REF: 003

Card 2/2

KUROVA, I.A.; KALASHNIKOV, S.G.; TYAPKINA, N.D.

Kinetics of extrinsic photoconductivity in n-germanium with gold.
Fiz. tver. tela 4 no.6:1503-1509 Je '62.   (MIRA 16:5)

1. Moskovskiy gosudarstvennyy universitet imeni M.V.Lomonosova.
              (Germanium) (Gold) (Photoconductivity)

a-c current with a light .... a number of minima sep----- ..... ----

, r.. — 70 May indicated .... range of ou—... ...

38913

S/181/62/004/006/019/051
B104/B112

24.7700

AUTHORS: Kurova, I. A., Kalashnikov, S. G., and Tyapkina, N. D.

TITLE: The kinetics of impurity conduction in Au-doped n-type
              germanium

PERIODICAL: Fizika tverdogo tela, v. 4, no. 6, 1962, 1503 - 1509

TEXT: The trapping of electrons on the E_4 level of gold in Au-doped
n-type germanium was investigated at hydrogen temperature. The
photoconduction of single-crystal specimens was determined in a He
cryostat evacuated to $\sim 10^{-2}$ mm Hg. The heat emission of a crucible furnace
was filtered through Ge and Sb-In filters. The damping periods of the
photoconduction of the specimens were measured for two different directions
of current passage. If the contacts of the samples are of high quality,
the damping of photoconduction can be described by $\exp(-t/\tau)$. The
coefficients $\alpha_n^=$ of electron trapping on the E_4 level of gold were
determined from measured values of τ, using the relation $\tau = (\alpha_n^= N_3)^{-1}$.

Card 1/2

The kinetics of...

S/181/62/004/006/019/051
B104/B112

(Table), where N_3 is the dark concentration of $Au^=$ ions. The temperature dependence of the trapping cross section is described by $s \cdot \exp(-E/kT)$, where E is the activation energy. The dependence of τ on T increases with increasing Sb content. This confirms the authors' conclusions as to the effect of electron adhesion to Sb ions. The temperature dependence of the trapping cross section shows no signs of a strong influence of the potential barrier around the centers upon the trapping processes. There are 5 figures and 1 table.

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

SUBMITTED: January 25, 1962

Card 2/2

KUROVA, I.A.; TYAPKINA, N.D.

Electrical conductivity of germanium containing lithium impurities
at low temperatures. Fiz. tver. tela 3 no. 12:3166-3169 D '61.
(MIRA 14:12)

1. Fizicheskiy fakul'tet Moskovskogo gosudarstvennogo universiteta.
(Germanium—Electric properties)

ACCESSION NR: AP4041733 ·   S/0181/64/006/007/2192/2194

AUTHORS: Tyapkina, N. D.; Krivopolenova, M. M.; Vavilov, V. S.

TITLE: Electric properties of beryllium doped p-type germanium

SOURCE: Fizika tverdogo tela, v. 6, no. 7, 1964, 2192-2194

TOPIC TAGS: germanium, beryllium, electric conductivity, carrier density, temperature dependence

ABSTRACT: In order to determine the upper acceptor energy level of beryllium in compensated and higher-resistivity germanium specimens, the authors measured the temperature dependence of the carrier density and of the electric conductivity of doped germanium plates 2 x x 3 x 15 mm in the temperature range 300--55K. The compensating impurity was phosphorus. The plates were cut from the ingot perpendicular to the [111] crystal growth axis. The measurements were made in a double metallic cryostat. A null method was used with a

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ACCESSION NR: AP4041733

high-resistance potentiometer. The magnetic field reached 4600 Oe.
Eight samples from four ingots were tested. The results show that
in all samples the carrier density is exponential in the reciprocal
temperature. The ionization energy was determined from the slope of
plots of $\ln(pT)^{3/2}$ against $10^3/T$, and its value (0.064 ± 0.003 eV)
is close to that obtained by others and also close to that calcula-
tion by the "helium" model, which is thus shown to be applicable to
beryllium in germanium. Orig. art. has: 1 figure and 1 table.

ASSOCIATION: Moskovskiy gosudarstvenny*y universitet im. M. V.
Lomonosova (Moscow State University)

SUBMITTED: 13Feb64   ENCL: 02

SUB CODE: SS, EC   NR REF SOV: 002   OTHER: 004
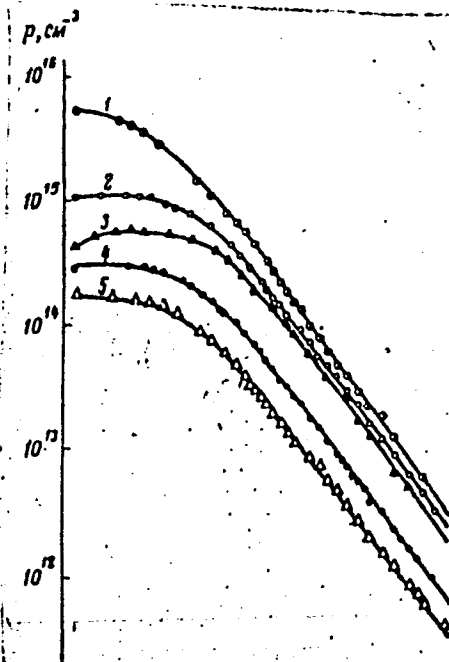
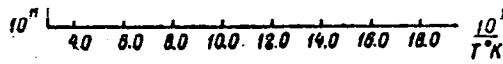Card   2/4

ACCESSION NR: AP4041733   ENCLOSURE: 01

Dependence of carrier density on
the temperature for different
samples
Sam

P, cm^{-3}

10^{16}

10^{15}

10^{14}

10^{13}

10^{12}

Card   3/4

$$10^n \quad \overline{\quad 4.0 \quad 6.0 \quad 8.0 \quad 10.0 \quad 12.0 \quad 14.0 \quad 16.0 \quad 18.0 \quad} \frac{10^3}{T°K}$$

ACCESSION NR: AP4041733

ENCLOSURE: 02

Values of ionization energy in the investigated samples

1 № образца	2 Концентрация бериллия $N_{Be} \cdot 10^{-19}$ см$^{-3}$	3 Концентрация фосфора $N_p \cdot 10^{-19}$ см$^{-3}$	$\frac{N_p}{N_{Be}}$	4 Энергия иони- зации ΔE, эв
157 (2)	0.8	1.4	1.75	0.064
169 (1)	0.83	1.5	1.81	0.064
169 (5)	0.75	0.9	1.20	0.063
184 (5)	1.2	1.4	1.17	0.064
181 (6)	6.8	8.4	1.24	0.064

1 - sample no. 2 - beryllium density in 10^{-5} cm^{-3}, 3 - phosphorus density
4 - ionization energy, eV

Card 4/4

87916

S/181/60/002/012/016/018
B006/B063

9.4300
24.7700

AUTHORS: Kurova, I. A. and Tyapkina, N. D.

TITLE: Electrical Conductivity of Lithium-doped Germanium at Low
               Temperatures

PERIODICAL: Fizika tverdogo tela, 1960, Vol. 2, No. 12, pp. 3106-3109

TEXT: Germanium specimens containing impurities of elements of the
third and fifth groups have been studied repeatedly at the temperatures
of liquid helium (Refs. 1-9), but there are no data available on the
variations of ionization energy of lithium in germanium and on the electri-
cal conductivity of lithium-doped germanium at low temperatures. This
work was intended to fill this gap. As Li in Ge has a diffusion coef-
ficient of $D=1.10^{-6}$ cm^2/sec at 500°C, diffusion of Li into Ge at
elevated temperature is the best method of introducing lithium. The
germanium specimens were ground, etched, purified, and annealed in vauo
at 490°C for 4-8 hrs, depending on the size of the specimen. The annealing
was done with an Li-Pb alloy, from which Li diffused into Ge. Starting
materials were p-type and n-type germanium having a resistivity of

Card 1/3

87916

Electrical Conductivity of Lithium-doped
Germanium at Low Temperatures

S/181/60/002/012/016/018
B006/B063

~50 ohm.cm. The specimens were cut perpendicularly to the growth axis [111], and had a size of $3 \cdot 4 \cdot 15$ mm. After the diffusion, the specimens were ground anew and etched with boiling H_2O_2. Li-Pb spots were left as contacts. Lithium concentration varied from $2.3 \cdot 10^{14}$ and $2.9 \cdot 10^{15}$ cm^{-3}, resistivity at 300°K from 6.5 to 0.58 ohm.cm, and ionization energy from 9.3 to 9.4 kev. The Hall constant (R) and the variation of resistivity under the action of a magnetic field were measured as well. This was done in liquid helium; the temperature of the specimens was determined from the saturation pressure. The measurements in the magnetic field were made at 1200 oe; the electric field inside the specimens did not exceed 0.2 v/cm and thus remained within the range of validity of Ohm's law. The curves $\rho = f(1/t)$ and $R = f(1/T)$ are reproduced here. They show that only specimens with 6.5 and 4.45 ohm.cm and lithium concentrations of $(2.3 \div 3.9) \cdot 10^{14}$ cm^{-3} have regular (exponential) functions, whereas specimens with higher lithium concentrations and lower resistivity exhibit an anomalous temperature dependence of ρ and R, R(1/T) curves, for example have peaks. The authors thank S. G. Kalashnikov for discussions, and A. I. Shal'nikov for putting his laboratory at their disposal. There ar

Card 2/3

87916

Electrical Conductivity of Lithium-doped
Germanium at Low Temperatures

S/18Y/60/00Y/012/016/018
B006/B063

2 figures, 1 table, and 23 references: 2 Soviet, 16 US, 1 German, 1 Dutch,
1 French, 1 Canadian, and 1 Czechoslovakian.

ASSOCIATION: Fizicheskiy fakul'tet Moskovskogo universiteta (Division
              of Physics of Moscow State University)

SUBMITTED: May 5, 1960

Card 3/3

TYAPKINA, N.D.; KRIVOPOLENOVA, M.M.; VAVILOV, V.S.

Electric properties of p-germanium with beryllium impurity. Fiz. tver.
tela 6 no.7:2192-2194 Jl '64.   (MIRA 17:10)

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

STUPAK, N.K.; TYAPKINA, K.F.

Logaritmic overlay for determining the depth of occurence of
magnetized rock seams. Razved.i ohr.nedr 22 no.3:39-41 Mr '56.
(Prospecting--Geophysical methods)   (MIRA 9:7)

BANAYAN E.G., inzh.; MOROZ, A.P., inzh.; TYRYSHKIN, V.G., kand.tekhn.nauk

Principal results of testing experimental and industrial GT-700-5 gas
turbine systems manufactured by the V.I.Lenin Neva Machinery Plant.
Energomashinostroenie 9 no.12:24-28 D '63.   (MIRA 17:1)

TYAPKINA, V. V.   Cand. Chem. Sci.

Dissertation: "Structure of the Primary Layers on Silver and the
Mechanism of Their Formation." Inst of Physical Chemistry, Acad Sci
USSR, 5 May 47.

SO: Vechernyaya Moskva, May, 1947 (Project #17836)

Orientation of crystals of silver and of potassium iodide on mica. N. K. Andrushchenko, V. V. Tyapkina, and P. D. Dankov (Inst. Phys. Chem. Acad. Sci. U.S.S.R., Moscow). *Doklady Akad. Nauk S.S.S.R.* 59, 1113-16 (1945).—Electron-diffraction patterns by transmittance of 20-100-A. Ag films condensed in a high vacuum on unheated mica freshly cleaved under water, showed, besides the Debye rings of face-centered cubic Ag, six spots on the (220) ring indicating orientation parallel to [111], normal to the surface of the mica; the (111) plane of Ag lies parallel to the (001) plane of the mica. Another type of diffraction pattern showed the presence of a single-crystal Ag film with a hexagonal lattice without change of the at. radius 1.44 A.; the (001) plane of the hexagonal Ag lies parallel to (001) of mica. The findings fit a distribution wherein Ag atoms are disposed over the O atoms of the (001) plane of the monoclinic muscovite (*a* 5.17, *b* 8.94, *c* 20.12 A., *β* 95.6°) in such a way that each Ag occupies a hole formed by 3 or 6 O ions; the *b* axis of the mica axis is parallel to one of the sides of the triangular configuration formed by Ag atoms, whereas the *a* axis forms an angle of 30° with the other 2 sides. In the case of KI, crystd. on mica from a 0.1 N soln., the triangular crystals are disposed in such a way that one edge is parallel to the *a* axis, the other two form an angle of 30° with the *b* axis. In this case, I⁻ ions occupy only holes formed by 6 O⁻⁻ ions in the plane of the mica.   N. Thon

TYAPKINA, V. V.

PA4779

USSR/Chemistry - Silver
Chemistry - Oxidation

1 Mar 1948

"Kinetics of the Oxidation of Silver by Molecular Oxygen in Electrical Gaseous Discharge," V. V. Tyapkina, P. D. Dankov, Lab Structures of Surface Layers, Inst Phys Chem, Acad Sci USSR, 3 pp

"Dok Akad Nauk SSSR, Nova Ser" Vol LIX, No 7

Authors' experiments show that in oxidation of layers of silver, previously condensed in volume in electrical gas discharge, film of cubic oxide of Ag_2O formed with cuprite-type lattice. Thus discovered that active particles arising in conditions of electrical discharge in oxygen capable of leading to thorough

USSR/Chemistry - Silver (Contd)

1 Mar 1948

4779

oxidation of silver. To explain mechanism of phenomenon of formation of polymolecular layers of the oxide, authors studied dependence of the speed of oxidation of silver on the time of processing it in the electrical discharge. Submitted by Academician V. A. Kistyakovskiy, 20 Dec 1947.

4779

M

*Electron-Diffraction Investigation of Primary Sulphide Films on Silver. V. V. Tyapkina and P. D. Dankov (*Doklady Akad. Nauk S.S.S.R.*, 1948, 59, (8), 1461-1463).—[In Russian]. Thin polycryst. Ag films condensed in vacuo on celluloid were exposed for a few hr. at 20° C. to wet H₂S contaminated by air. Films 100 Å. thick entirely converted to sulphide were studied by electron diffraction (electron velocity 40-45 kV.). It was found that the primary sulphide has the form of minute crystals of the acanthite type (rhombic modification of Ag₂S). Whereas the orientation of Ag atoms in the oxidation of f.c.c. Ag crystals to Ag₂O remains unchanged, the cubic structure is changed to rhombic in the formation of Ag₂S. Thus, even the apparently cubic argentite (mineral form of Ag₂S) is always found in the rhombic acanthite form and takes the cubic form only above 180° C. This difference between Ag₂O and Ag₂S is due to a change in the magnitude of the radius of the anion (r₂ = 0·34), whereby the non-cubic modification becomes the equilibrium form.   10 ref.—A. G.

TYAPKINA, V. V. and DANKOV, P. D. (DECEASED)

"Kinetic of Oxydation of Silver by Molecular Oxygen and in an Electric
Discharge in a Gaseous Environment", a report presented at the 5th Conference
on Chemical Physics, Paris, 1956.

L 36440-66   EWT(m)/T/EWP(t)/ETI   IJP(c)   JW/JD

AUTHOR: Tyapkina, V. V.; Guseva, N. S.

ORG: Institute of Physical Chemistry, Academy of Sciences SSSR (Institut
fizicheskoy khimii akademii nauk SSSR)

TITLE: Investigation of the interaction processes between the surface of silicon
and fluorine and hydrogen fluoride

ABSTRACT: The kinetics of interaction of the oxidized silicon surfaces with fluo-
rine and hydrogen fluoride was studied at room temperature using the microbalance
technique. The object of the work was to fill the gap in the pertinent literature.
Samples of silicon n-type single crystals were cut out along the 111-plane,
polished, etched with a HNO_3-HF mixture, and washed with double distilled water.
The surface of the silicon samples was oxidized either by treatment with dry oxygen

Card 1/2   UDC: 541.124/.128

L 36440-66

ACC NR: AP6018070   ○

at 1100°C (oxide layer thickness 0.15-0.20 μ) or treatment with steam in argon at
1200°C (oxide layer thickness 1-2 μ). Fluorine pressures varied from 11 to 44 mm Hg
and the HF pressure was less than 100 mm Hg. In the range up to 0.5 g, the accuracy
of the microbalance measurements were approximately $1.8-2 \times 10^{-6}$ g. Prior to treat-
ment with HF, samples of oxidized silicon were treated with fluorine. The depend-
ence of the removal of the oxide layer from the silicon surface upon the duration of
the HF treatments is graphed. In the case of surface oxidation with dry oxygen,
pretreatment with fluorine had very small effect on the rate of oxide removal by
subsequent treatment with HF. In the case of surface oxidized with steam in argon,
the average rate of oxide removal was $0.04 \cdot 10^{-6}$ g/cm^2·min in the case of pretreat-
ment with fluorine and $12 \cdot 10^{-6}$ g/cm·min without such pretreatment. The effect of
the pretreatment with fluorine is traced to the removal of moisture from the oxide
layer. Orig. art. has: 7 figures.

SUB CODE: 07/ SUBM DATE: 19Dec64/ ORIG REF: 003/ OTH REF: 003

20/

Card 2/2

TYAPKINA, Ye.

Problems in the further intensification of agricultural production.
Vop. ekon. no.2:37-45 F '62.   (MIRA 15:1)
                        (Agriculture)

TYAPKINA, Ye.

Differentiation of purchase prices by zones. Vop. ekon. no.7:
143-148 Jl '61.   (MIRA 14:7)
                    (Produce trade)

TYAPKINA, Yevdokiya Petrovna; RYBAKOVA, V.D., red.

[Collective-farm income and its distribution] Kolkhoznye
dokhody i ikh raspredelenie. Moskva, Ekonomika, 1964. 158 p.
(MIRA 17:3)

TYAPKOV, S.S.

Increasing the efficiency of drqwing machines. Biul. TSIIN tevet.
met. no.9:23-30 '58.   (MIRA 11:6)

(Drawing (Metalwork))

VULITSKIY, Z.; TYAPTIN, A.

More about interdepartmental control. Fin.SSSR 21 no.6:
73-75 Je '60.   (MIRA 13:6)

1. Revizor Krymskoy kontory Gosbanka (for Vulitskiy). 2. Glavnyy
kontroler-revizor Kontrol'no-revizionnogo upravleniya Ministerstva
finansov USSR po Krymskoy oblasti (for Tyaptin).
                (Crimea--Auditing)

TYAPTIN, M.T.

Fisheries--Estonia

On 1952's quota.   Ryb.khoz. 28, no. 2, 1952.

MAY 1952

9. Monthly List of Russian Accessions, Library of Congress, _____ ~~1953~~ Uncl.

KOLYANDR, L.Ya.; TYAPTINA, M.I.; FOMENKO, G.M.

Composition and yield of coal-tar xylene. Koks i khim. no.8:
41-44 '60.   (MIRA 13:8)

1. Khar'kovskiy nauchno-issledovatel'skiy uglekhimicheskiy institut.
          (Xylene)

S/068-x/60/000/008/001/003
E071/E435

AUTHORS: Kolyandr, L.Ya., Tyaptina, M.I. and Fomenko, G.M.

TITLE: The Composition and Yield of Xylole, a By-Product of
             the Coal Carbonization Process

PERIODICAL: Koks i khimiya, 1960, No.8, pp.41-44

TEXT: The composition of technical xylole, a by-product of the
coal carbonization process, was little investigated, mainly due to
lack of reliable methods and the lack of demand for the individual
isomers.   In the paper, the yield and composition of xylole
produced on 9 coking works was investigated using mean dynamic
samples for the fourth quarter of 1957.   In addition to xylole
fraction a part of xylole remains in heavy benzole and solvent
naphtha;   it was therefore necessary to determine the content of
xylole in the above two products (Table 1).   The determination of
the xylole content was done by careful rectification using a
column equivalent to 30 theoretical plates at reflux ratio of 5 - 6,
whereupon the fraction boiling at 135.0 to 144.5°C was considered
as xylole.   The distribution of xylole between the individual
products was found to be as follows: 78.8% pure xylole fraction

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S/068-x/60/000/008/001/003
E071/E435

The Composition and Yield of Xylole, a By-Product of the Coal
Carbonization Process

(GOST 10465-39), 13.1% solvent naphtha (GOST 1923-50) and
8.1% heavy benzole.   The content of the individual isomers in
technical xylole as well as in xylole separated from solvent
naphtha and heavy benzole was determined by the spectrophotometric
method.   In addition, paraxylole was determined cryoscopically
and methaxylole was determined by the usual method through
trinitromethaxylole.   Non-aromatic admixtures (paraffins and
naphthenes) were determined spectrophotometrically (the difference
between 100 and the sum of determined aromatics) and by the usual
method; sulphonation with 98% sulphuric acid (at 20° for 20 min).
The content of toluol was determined by rectification.   The
composition of xyloles from the individual works was found to be
similar and is given in Table 2.   On the average, the composition
of technical xylole was as follows, in % :   ethylbenzene 4.8;
paraxylene 21.1; methaxylene 58.0; orthoxylene 13.5;
toluene 1.5; non-aromatic and other admixtures 1.3.   The
composition of xyloles separated from solvent naphtha and heavy
benzole was, on average, as follows: 3.6% ethylbenzene;
Card 2/3

S/068-x/60/000/008/001/003
E071/E435

The Composition and Yield of Xylole, a By-Product of the Coal
Carbonization Pr cess

16.5% paraxylene; 48.5% methaxylene; 28.5% orthoxylene;
2.9% unsaturated and other admixtures (for individual work see
Table 3).   The average overall composition of xylole was:
4.5% ethylbenzene; 20.1% paraxylene; 56% methaxylene;
17% orthoxylene; 2.4% unsaturated and other admixtures; it
differs from the equilibrium composition (given in Table 4).
The following yield of the individual isomers was obtained from
raw benzole (mean sample for the fourth quarter 1957):
0.23% ethylbenzene; 0.97% paraxylene; 2.70% methaxylene;
0.82% orthoxylene.   There are 4 tables and 5 references:
3 Soviet, 1 English and 1 German.

ASSOCIATION: UKhIN

Card 3/3

KOLYAHDR, L. Ya.; TYAPTINA, M.I., FOMENKO, G.M.

Impurities in pure benzene. Koks i khim. no.3:42-47 '60.

(MIRA 13:6)

1. Ukrainskiy uglekhimicheskiy institut.
(Benzene)

Tyaptina M.I.

AUTHORS: Kolyandr, L.Ya., Orlov, M.L., Tyaptina, M.I. and   68-58-2-10/21
             Fomenko, G.M.

TITLE: Production of High-quality Benzole for Organic Synthesis
             (Polucheniye vysokokachestvennogo benzola dlya
             organicheskogo sinteza)

ABSTRACT: A new standard for benzole for synthesis I, introduced
             in September, 1957, required a very low concentration of
             thiophene (0.005%). An investigation was carried out in order
             to study the process of purification of benzole-toluole fraction
             up to the limits required for the benzole synthesis I and to
             develop the optimum scheme for the production of such benzole.
             The investigation of the appropriate fractions from Zaporozhe
             and Bagleysk Coke Oven Works (Table 1) under laboratory
             conditions was carried out. At first, a direct washing of the
             whole fractions was tested (Table 2); the results obtained
             indicated that this method of purification is unprofitable.
             Therefore, the following investigations were carried out:
             1) Separation of BTX (mixed) fraction into a narrow benzole
             fraction and a toluole-xylole fraction with their subsequent
             treatment to a required purity; 2) The usual washing of
             mixed fraction to limits required to obtain pure products
Card1/2

Production of High-quality Benzole for Organic Synthesis   68-58-2-10/21

(bromine numbers benzole ≤ 0.6; toluole ≤ 0.3) with subsequent washing of pure benzole to the required standard. Experimental results are given in Tables 3-5. It is concluded that for Southern works, the second scheme is most suitable, but for Eastern works, which deal with low-sulphur products, the first scheme may be more rational. It is pointed out that both methods of production of benzole for synthesis are imperfect and that further research is necessary. There are 5 tables and 6 references, 2 of which are Soviet, 2 English, 1 French and 1 German.

ASSOCIATION: UKhIN

AVAILABLE: Library of Congress
Card 2/2

1. Benzole - Production   2. Benzole - Purification
3. Benzole - Synthesis

SOV/68-58-11-13/25

AUTHORS: Kolyandr L.A., Tyaptina M.I., and Fomenko G.M.

TITLE: The Composition of Crude Benzole (Sostav Syrogo Benzola)

PERIODICAL: Koks i Khimiya, 1958, Nr 11, pp 38-42 (USSR)

ABSTRACT: Chemical composition of crude benzole is discussed taking as an
example of crude benzoles obtained by coking of Donets
coals. The influence of coking temperature within ranges
950, 1000-1050 and 1050-1100°C on the composition of
crude benzole is given in Table 1, typical composition
of raw benzole in Table 2, the distribution of
unsaturated hydrocarbons between the individual benzole
fractions in Table 3, and its dependence on coking
temperature in Table 4; the types of sulphur compounds
and their distribution between various benzole fractions
in Tables 5-7, the distribution of saturated compounds
between various benzole fractions in Table 8 and their

Card 1/2

The Composition of Crude Benzole   SOV/68-58-11-13/25

influence on the properties of benzole and xylole
fractions in Tables 9 and 10 respectively.
There are 10 tables and 5 references (3 Soviet and
2 German)

ASSOCIATION: UKhIN

Card 2/2

S/068/60/000/003/002/003
E071/E233

AUTHORS: Kolyandr, L. Ya., Tyaptina, M. I., and Fomenko, G.M.

TITLE: Impurities in Pure Benzole

PERIODICAL: . Koks i khimiya, 1960, No. 3, pp. 42-47

TEXT: The nature of impurities present in pure benzole and sensitivity of methods of their determination are discussed in the light of the author's own and literature data. The sensitivity of methods of determination of the individual sulphurous compounds was tested by using samples of pure benzene with addition of known proportion of the corresponding sulphur compounds (thiophene - Table 1; elemental sulphur - Table 2; mercaptons - Table 3). It is concluded that the sensitivity of methods of determining the individual sulphur compounds as percent of sulphur is as follows: Thiophene (isatin tests) down to 0.00005% elemental sulphur (copper strip) - down to 0.0005%; mercaptons (doctor's test) - down to 0.0002; carbon disulphide (reaction with diethylamine) - down to 0.0001%. The main impurities in pure benzole are hydrocarbons of paraffin and cycloparaffin series, n-heptane, cyclohexane, dimethylpentanes and methyl cyclopentane (Table 4). The

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S/068/60/000/003/002/003
E071/E233

Impurities in Pure Benzole

determination of non-aromatic impurities can be done cryoscopically
using the following formula: $x = 1.80 \cdot \Delta t$, where x – content of
non-aromatic hydrocarbons in wt.%, and Δt – temperature depression.
The accuracy of the equation in which the mean molecular weight of
non-aromatic impurities was taken as 92 is sufficient for the
purpose (Table 5). On careful rectification non-aromatic compounds
are concentrated in the head and final fractions (Table 6) and by
combining various fractions the quality of the pure benzole can be
controlled (Table 7). The influence of the toluene content on the
boiling range of benzole is shown in Table 8. By limiting the
boiling range of benzene to 0.5-0.6°C, the content of toluene
below 0.1% can be guaranteed. The content of nitriles in various
pure benzoles expressed in mg of ammonia per litre (Table 9)
varies from 5-10 mg/l. In the content of naphthalene in pure
benzole on average about 0.01%. The synthesis grade of benzole
obtained by redistillation the naphthalene content should not
exceed 0.001%. There are 9 tables and 18 references: 5 Soviet
and 13 non-Soviet.

ASSOCIATION: UKhIN
Card 2/2

KOLYANDR, L.Ya.; TYAPTINA, M.I.; RASHKEVICH, I.Ya.; OMELECHKIN, K.S.
    ITKINA, R.A.

Composition of crude benzol and the quality of pure products.
Koks i khim. no.4:43-45 '61.   (MIRA 14:3)

1. Khar'kovskiy nauchno-issledovatel'skiy uglekhimicheskiy institut
(for Kolyandr, Tyaptina). 2. Dnepropetrovskiy koksokhimicheskiy
zavod (for Rashkevich, Omelechkin, Itkina).
        (Benzene)   (Coke industry—By-products)

TYAPUGIN, Nikolay Petrovich, kand.med.nauk, zasluzhennyy vrach RSFSR;
GOTOVTSEV, P.I., red.; ZUYEVA, N.K., tekhn.red.

[Stammering] Zaikanie. Izd.3, perer. i dop. Moskva, Gos.
izd-vo med.lit-ry Medgiz, 1960. 141 p.   (MIRA 13:12)
          (STAMMERING)

TYAPUGIN, N.P.

KUTEPOVA, A.

"Care for mental patients in a psychoneurological hospital." N.P.
Tiapugin. Reviewed by A. Kutepova. Zhur.nevr.i psikh. 55 no.6:
478-479 '55.   (MLRA 8:8)
          (TIAPUGIN, N.P.) (HOSPITALS, PSYCHIATRIC)

TYAPUGIN, N.P.

[Care of the mentally ill in a psychoneurological hospital] Ukhod
za psikhicheski bol'nymi v psikhonevrologicheskoi bol'nitse.
Moskva, Medgiz, 1954.   (MLRA 8:2)
        (Mentally ill--Care and treatment)

S/126/62/014/004/015/017
E193/E383

AUTHORS: Tyapunina, N.A.; Predvoditelev, A.A., Yurasova, V.Ye.,
Gusarova, S.M. and Zakharov, V.M.

TITLE: Distribution of impurities and dislocations in cadmium
crystals

PERIODICAL: Fizika metallov i metallovedeniye, v. 14, no. 4,
1962, 582 - 588

TEXT: It has been established by Borovskiy et al (Kristallo-
grafiya, 1962, 7, no. 4) that zinc tends to segregate at dis-
locations in cadmium crystals, the points of emergence of
idslocations on the surface of a polished specimen being revealed
by etching pits. It has also been found that in some specimens
two systems of etch figures can be observed, their dimensions.
being about 1 - 2 μ and about 0.1 μ, respectively. The object of
the present investigation was to elucidate the causes of the
appearance of these two systems of etch figures by studying the
effect of the zinc concentration on the size and shape of the
etching pits. The concentration of zinc in the experimental
cadmium-zinc alloy specimens ranged from 0.01 - 10%. Electrolytic
Card 1/4

S/126/62/014/004/015/017
E193/E383

Distribution of impurities ....

and ion-bombardment etching techniques were used to produce the
etching pits. The etch figures were examined with the aid of an
optical microscope in the case of alloys containing less than
4% Zn, an electron microscope being also used to examine the
alloys with lower Zn contents. In some cases, cine-photography
was employed to study the process of formation of etch figures.
The angle between the surface of the polished specimen and the
basal plane (0001) of cadmium ranged from $0 - 90°$. Rows of small
etching pits were observed in specimens with the zinc content
lower than 1%. Both small and coarse etching pits were formed as
the zinc concentration increased. In specimens with 4% Zn the
formation of isolated hexagonal pits was observed. Starting from
the zinc concentration of 6%, plate-like pits of regular hexagonal
shape formed in the (0001) plane were observed only. The density
of the small and coarse etch figures was practically independent
of the zinc concentration, which supported the view that the etch
pits corresponded to the points of emergence of the dislocations
on the surface of the specimens. The results of measurements
of the etch pits formed on various alloys are reproduced in Fig.6,
where the relative number $(n_i / \Sigma n_i)$ of pits in a given specimen
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Distribution of impurities S/126/62/014/004/015/017
                                                E193/E383

is plotted against the etch-pits dimensions (d, μ), the various
graphs relating to alloys with the Zn content indicated.
Comparison of these distribution curves with the constitution
diagram of the cadmium/zinc system shows that alloys with a Zn
content lower than the limit of its solid solubility in Cd at
room temperature are characterized by one system of (small) etch
figures. Two systems of etch figures are formed in two-phase
alloys, each with a characteristic size of etching pit. It can be
postulated that the system of the coarse etch figures corresponds
to dislocations decorated by the second-phase precipitates,
whereas the fine etch figures correspond to dislocations with
increased solute concentration, i.e. to Cottrell atmospheres. The
results of the present investigation were taken as a proof that
the presence of dislocations considerably affected the distribution
of Zn in the alloys studied.
There are 6 figures and 1 table.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im.
               M.V. Lomonosova (Moscow State University im.
               M.V. Lomonosov)
SUBMITTED: October 2, 1961
Card 3/4

ACC NR: AP6036988   (A,N)   SOURCE CODE: UR/0181/66/008/011/3375/3377

AUTHOR: Belozerova, E. P.; Tyapunina, N. A.; Kazak, F. A.

ORG: Moscow State University im. M. V. Lomonosov (Moskovskiy gosudarstvenny universitet)

TITLE: Frequency dependence of the internal friction of lithium fluoride single crystals

SOURCE: Fizika tverdogo tela, v. 8, no. 11, 1966, 3375-3377

TOPIC TAGS: lithium fluoride, internal friction, crystal dislocation phenomenon, plastic deformation

ABSTRACT: In view of the contradictory published data on the frequency dependence of internal friction in the kilocycle frequency range, the authors have measured the internal friction in lithium fluoride single crystals using the method of double piezoelectric oscillator (Ye. G. Shvidkovskiy and A. A. Durgaryan, Nauchn. dokl. vysshey shkoly no. 5, 211, and 217, 1958). The frequency range covered was from 40 to 300 kcs and harmonics. The results showed a linear dependence of the internal friction on the frequency, which agrees well with the dislocation theory of dynamic losses for the case when the frequency of the driving force is much lower than the natural frequency of the dislocation loop. The linear dependence of the frequency remains if the samples are plastically deformed before the tests. A study of the dependence of the internal friction on the prior deformation at different frequencies has shown

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ACC NR: AP6036988

that with increasing frequency the maximum of internal friction shifts toward the
region of larger deformations. The results were similar for the fundamental and
for the third harmonics. This shift can also be explained from the point of view of
dislocation theory. The authors thank Ye. G. Shvidkovskiy for continuous interest,
valuable advice, and hints. Orig. art. has: 2 figures and 1 formula.

SUB CODE: 20/   SUBM DATE: 07Feb66/   ORIG REF: 004/   OTH REF: 004

Card 2/2

L 06440-67   EWT(m)/EWP(t)/ETI   IJP(c)   JD

ACC NR: AP6026719   SOURCE CODE: UR/0181/66/008/008/2494/2496

AUTHOR: Tyapunina, N. A.; Shaskol'skaya, M. P.; Lerner, M. D.

ORG: Moscow State University im. M. V. Lomonosov, (Moskovskiy gosudarstvennyy univer-
sitet); Moscow Institute of Steel and Alloys (Moskovskiy institut stali i splavov)

TITLE: Change in the photosensitivity of silver chloride crystals under the influence
of high-frequency vibration and dependence of internal friction on prior illumination
of the crystal

SOURCE: Fizika tverdogo tela, v. 8, no. 8, 1966, 2494-2496

TOPIC TAGS: silver chloride, photosensitivity, hf vibration, internal friction

ABSTRACT: AgCl single crystals in glass ampoules were subjected to longitudinal
mechanical vibrations in a resonance oscillator at a frequency of ~100 kc. The ampli-
tude of relative deformation was varied from ~0.5 to ~30 g/mm^2. The maximum
stresses during the vibration did not exceed the yield stress of AgCl. It was noted
that if the ampoule was not protected from daylight, the colors of the crystals dark-
ened. This increased photosensitivity persisted after the vibration was discontinued.
Following the action of light, the internal friction not only decreased in magnitude,
but its dependence on the deformation amplitude changed. It is concluded that the
photosensitivity of AgCl crystals increases if they are subjected to high-frequency
vibration, and that prior illumination of the crystals affects the internal friction.

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ACC NR: AP6026719

Orig. art. has: 2 figures.

SUB CODE: 20/ SUBM DATE: 18Feb66/ ORIG REF: 002/ OTH REF: 001

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L 18750-66 EWT(1)/T   IJP(c)   GG

ACC NR: AP6003781   SOURCE CODE: UR/0181/66/008/001/0166/0171

AUTHORS: Zagoruyko, N. V.; Reznikov, B. A.; Tyapunina, N. A.;
Khamidova, N. I.

ORG: Moscow State University im. M. V. Lomonosov (Moskovskiy
gosudarstvennyy universitet)

TITLE: Occurrence and motion of dislocations in NaCl crystal under
the influence of thermoelastic stresses

SOURCE: Fizika tverdogo tela, v. 8, no. 1, 1966, 166-171

TOPIC TAGS: sodium chloride, crystal dislocation phenomenon,
thermoelasticity, stress distribution

ABSTRACT: The main purpose of the study was to determine whether
the dislocation structure of a crystal is affective by non-uniformity
of the temperature field and heating or cooling conditions and to
determine the connection between the dislocation structure and the
thermoelastic stresses which occur in NaCl crystals of small size
heated to low temperatures (from room temperature to 40 -- 180C).

Card   1/2

L 18750-66

ACC NR: AP6003781   2

These conditions are least favorable for the occurrence of consider-able stresses. The crystals contained 10^4 cm^{-2} dislocations in the initial state. The dislocations were disclosed by selective etching. The thermoelastic stresses were measured by a polarization-optical method. Measurements of the residual stresses in the samples show that even for the small sizes ($\sim 3 \times 5 \times 20$ mm) and low temperatures, the thermoelastic stresses that can arise exceed the elastic limit and cause motion and multiplication of dislocations. The authors thank Ye. G. Shvidkovskiy for interest in the work and a discussion of the results, and V. L. Indenbom for valuable advice and remarks. Orig. art. has: 5 figures and 2 formulas.

SUB CODE: 20/ SUBM DATE: 22Apr65/ ORIG REF: 010/

Card 2/2 smu

TYAPUNINA, N.A.; ZINENKOVA, G.M.

Study of dislocations in tabular cadmium single crystals.
Kristallografiia 9 no.6:893-901 N-D '64.   (MIRA 18:2)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova.

PREDVODITELEV, A. A. and TYAPUNINA, N. A.

"Role of Increase of Dislocations in Plastic Deformation Process."

report presented at the 3rd Conference of Higher Educational Institutes on Strength
and Plasticity of Metals, Petrozavodsk State University, 24-29 June 1963

AUTHOR: Tyapunina, N. A.; Predvoditelev, A. A.; Marty*nyuk, G. K.; Shvidkovskiy,
Ye. G.

TITLE: Investigation of dislocation structure and the propagation of dislocations
in cadmium crystals

SOURCE: Kristallografiya, v. 8, no. 3, 1963, 405-412

TOPIC TAGS: Frank-Read source, hexagonal crystals, Cd, dislocations, Burgers
vector, slip band

ABSTRACT: Because the literature is unclear on how points are provided for
pinning dislocations to supply a beginning for a Frank-Read source, the authors
have undertaken an analysis of possible intersections and interactions of dis-
locations in hexagonal crystals. They have made experimental tests by selective
etching to determine dislocations, and they conclude that hexagonal crystals have
favorable conditions for the formation of points that pin dislocations during
plastic deformation. They conclude further that the restraint on dislocation
to move in planes of the prism or the second-order pyramid considerably exceeds
the restraint on movement in the basal plane, which impedes transverse slipping.
Thus, during plastic deformation in hexagonal crystals, dislocations apparently
Card 1/2

L 12797-63
ACCESSION NR: AP3000773   /

occur chiefly by operation of a Frank-Read source, and this leads to the experi-
mentally observed localization of slip bands. Orig. art. has: 4 figures, 3
formulas, and 2 tables.

ASSOCIATION: Moskovskiy gosudarstvenny*y universitet im. M. V. Lomonosova
(Moscow State University)

SUBMITTED: 06Jul62   DATE ACQ: 21Jun63   ENCL: 00

SUB CODE: 00   NO REF SOV: 007   OTHER: 014

Card 2/2

SHVIDKOVSKIY, Ye. G.; TYAPUNINA, N. A.; BELOZEROVA, E. P.

Effect of an electric field on the behavior of charged dislo-
cations. Kristallografiia 7 no.3:471-472 My-Je '62.
(MIRA 16:1)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova.

(Dislocations in crystals)
(Electric fields)