85094

S/070/60/005/003/023/024/XX
E132/E460

26. 2420

AUTHORS: Andriyevskiy, A.I. and Nabitovich, I.D.

TITLE: On the Structure of the β-Cubic Modification of Selenium

PERIODICAL: Kristallografiya, 1960, Vol.5, No.3, pp.465-466

TEXT: From earlier studies of selenium (Dokl. Akad.Nauk SSSR, 124, 321, 1959) the existence of two hitherto unknown forms of Se were established. These were α-Se with a simple cubic cell (a = 2.970 Å) and β-Se with a face centred cubic lattice (a = 5.775 Å). The proof of the latter form was open to the criticism that the possibility that it might really be Cu_2Se with a = 5.840 had not been eliminated. This has now been done by preparing the Se film by evaporation as an amorphous film on to a collodion film at 20°C. The collodion was then dissolved away and the Se film was slid over a 1 mm aperture in a Ta foil. Heat treatment of the Se film in the electron beam or otherwise then produced crystalline forms of Se. The lattice constant of the β-cubic form was redetermined as 6.04 ± 0.01 Å. This gives 8 Se atoms per cell. The extinctions indicate the space group $Fd3m = O_h^7$. The intensity curve obtained from multiple exposure

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On the Structure of the β-Cubic Modification of Selenium

electron diffraction patterns agrees well with one calculated from the diamond lattice according to $I = \Phi^2 \cdot d^2 \cdot p$ where $\Phi = 8\ f_{Se}$ for $h+k+l = 4n$ and $\Phi = 4\sqrt{2}\ f_{Se}$ for $h+k+l = 4n+1$ and where f_{Se} is the atomic scattering factor, d is the inter-planar spacing and p is the multiplicity factor. At temperatures above 130°C the β-modification transforms to the hexagonal form. Micrographs of crystallites of the various forms are reproduced. The existence in thin films (1000 Å thick) of a modification with the diamond structure is thus established. Acknowledgments are expressed to S.A.Semiletov. There are 2 figures and 3 Soviet references.

ASSOCIATION: L'vovskiy politekhnicheskiy institut
(L'vov Polytechnical Institute)

SUBMITTED: November 28, 1959

Card 2/2

ANDRIYEVSKIY, A.I., doktor tekhn.nauk, prof.; KARELIN, N.N., kand.
    tekhn.nauk; YUSKEVICH, Yu.G., inzh.

    Dependency of the Curie point on the composition of copper-zinc
    ferrites. Elektrichestvo no.10:66-68 O '61.   (MIRA 14:10)

    1. L'vovskiy politekhnicheskiy institut.
            (Ferrates)   (Semiconductors)

24.7200

1144, 1160, 3309, 1158

26643
S/070/61/006/005/001/011
E036/E518

AUTHORS: Andriyevskiy, A.I., Nabitovich, I.D. and
Voloshchuk, Ya.V.

TITLE: The structure of thin layers of semiconductors of the
type A_2B_3 in the amorphous state

PERIODICAL: Kristallografiya, 1961, Vol.6, No.5, pp.662-667

TEXT: The structure of thin layers of the compounds As_2Se_3
and As_2Te_3 in the amorphous state are studied by an electron
diffraction method. The samples were prepared by evaporation onto
a Zapon substrate in vacuum. The deposition was carried out at
various rates and the layer thicknesses in the range 500 to 1200 Å.
The layers were subjected to heat treatment at various temperatures
and durations up to one hour. It is shown that the structure of
the compounds changes during temperature ageing, and markedly so as
crystallization commences. As the properties of the compounds are
dependent on the structure of the compound any information on the
structure is desirable. During evaporation the substrate was
maintained at -10 or 20°C. The substrate was dissolved off in
acetone and the diffraction patterns taken with various exposures

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The structure of thin layers of ...
26643
S/070/61/006/005/001/011
E036/E518

up to 16 sec. Other samples were maintained at various temperatures
up to one hour. The analysis of the intensity of the curves is
based on earlier papers by L. I. Tatarinova (Refs.4 and 5:
Tr.In-ta kristallogr. AN SSSR, 11, 104-114, 1955; Kristallografiya,
2,2,260-267, 1957) and by S. A. Lashko (Ref.6: K metodike
rasshifrovki rentgenogramm amorfnykh tel. Izd-vo Dnepropetr. un-ta,
1940 (On a method of interpreting X-ray data of amorphous bodies
etc.)). From the data the coordination number can be obtained as a
function of the temperature and are shown in Figs. 3 and 4 for
As_2Se_3 and As_2Te_3, respectively. The upper curve gives $n_{As,Se}$
and the lower curve $n_{Se,As}$ in both figures. The reproducibility
of the results was about 2% for As_2Se_3. The coordination number
was independent of thickness in the range 500 to 1200 Å and of the
rate of evaporation. No other thickness range was investigated.
The best reproducibility for As_2Te_3 was $\sim$ 4-5% achieved for very
rapid evaporation. The slower the evaporation rate the more
strongly the components As and Te are separated out and the
longer the time required for homogenization. The presence of

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The structure of thin layers of ...   26643
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E036/E518

negative portions of the radial distribution curves, which should
not be present according to theory, cannot be entirely explained
by methods of calculating the background. The conclusions are that
the structure depends on the temperature and the order increases
irreversibly with increasing temperature, particularly in the first
two coordination spheres, as far as the crystallization temperature
($100°C$ for As_2Te_3 and $180°C$ for As_2Se_3, or $\sim 120°C$ and $230-240°C$
respectively on the substrate). The degree of order, in fact,
increases almost linearly with increasing temperature up to some
value ($160°C$ for As_2Se_3 and $85°C$ for As_2Te_3) at which the coordina-
tion number is a maximum. As the crystallization temperature is
approached the structure rapidly relaxes. It is supposed that in
the latter stage of the process the crystallization is completely
destroyed and there is no analogy between the structure in the
amorphous state, even in the maximum degree of order, and arrange-
ment of the atoms peculiar to the crystal lattice of the material.
There are 4 figures, 1 table and 6 references: 5 Soviet and
1 non-Soviet.
ASSOCIATION: L'vovskiy politekhnicheskiy institut
             (L'vov Polytechnical Institute)
Card 3/4

26528
S/105/61/000/010/001/002
E036/E335

$\mathcal{2}\,4,\mathcal{2}\mathcal{2}o\,0$

AUTHORS: Andriyevskiy, A.I., Doctor of Technical Sciences
Professor, Karelin, N.N., Candidate of Technical
Sciences and Yuskevich, Yu.G., Engineer

TITLE: Dependence of the Curie point of copper-zinc
ferrites on composition

PERIODICAL: Elektrichestvo, 1961, No. 10, pp. 66 - 68

TEXT: The Curie point of ferrites of the composition
$m(CuOFe_2O_3)n(ZnOFe_2O_3)$ was determined for a range of values
of the ratio m/n. The basic materials were ground in a mill
for twenty hours. As a binder 5% of a 10% solution of
polyvinyl alcohol was added. The samples were compressed into
toroidal form at a pressure of 3 tons/cm^2 and sintered in air
at 1 150 $^\circ$C for six hours and then cooled in the furnace. The
Curie point was determined by a simple method: two coils were
wound on the ferrite toroid, one supplied from the secondary
of a transformer, the other connected to an oscilloscope used
as a sensitive detector. The sample temperature was raised

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26528

S/105/61/000/010/001/002

Dependence of the Curie point ... E036/E335

and monitored by a thermocouple. On passing through the Curie
point a characteristic trace on the oscilloscope disappeared,
showing that the magnetic flux in the ferrite had also dis-
appeared. It is claimed that the Curie point is determined to
an accuracy of 4-6 $^{\circ}$C and agrees well with the value determined
by other methods. It was found that over the range -160 to
460 $^{\circ}$C the dependence of the Curie point (θ) on composition
can be expressed by the formula:

$$\theta = a + b \lg \frac{m}{m + n}$$

where a = 460 $^{\circ}$C, the value of the Curie point for pure copper
       ferrite (Abstracter's note - presumably 'Q' in the
       original text is a misprint for 'a', or vice versa)
   b = 900 $^{\circ}$C for θ in the range from -160 $^{\circ}$C to a
       temperature of approximately 300 $^{\circ}$C (m/n = 0.25 - 1.7)
       and b = 700 $^{\circ}$C for θ greater than 300 $^{\circ}$C
       (m/n greater than 1.7).

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26528

S/105/61/000/010/001/002

Dependence of the Curie point E036/E335

Over a limited range, 0 - 200 ^{o}C, a linear relation may be used:

$$\theta = - 285 + 950 \frac{m}{m + n} .$$

The behaviour can be understood on the basis of Néel's theory. Ferrites with m/n values of 3/2 and 2 had the best magnetic properties at room temperature. As with copper-nickel ferrites the permeability close to the Curie point increased then dropped sharply. A simple thermal relay using these ferrites is des- cribed in which, by choice of suitable ferrites and mechanical parameters, the temperature of switching can be controlled. The apparatus is reliable and simple and the operating temperature of the relay is accurate within a few degrees. A.G. Smolenskiy is mentioned in the article. There are 4 figures and 6 references: 5 Soviet and 1 non-Soviet.

Card 3/4

33354

S/181/62/004/001/026/052
B102/B104

24.7600   1043   1035

AUTHORS: Andriyevskiy, A. I., Dimarova, Ye. N., and Pidorya, M. M.

TITLE: Thermal conductivity of Cu_2O single and polycrystals

PERIODICAL: Fizika tverdogo tela, v. 4, no. 1, 1962, 163-167

TEXT: A comparison of published results shows that the heat conduction
coefficient of Cu_2O differs by 100 % with the use of different measuring
methods. Kh. I. Amirkhanov (Izv. AN Az.SSR, 1, No. 4, 1946) has shown that
λT = const for Cu_2O between 93 and $763^{\circ}K$, which is indicative of pure
phonon heat conduction. It was now studied inhowfar the crystal structure
and the impurity concentration affect the thermal conductivity, since,
e.g., phonon scattering from grain boundaries and impurity centers may
play a role. The specimens investigated were prepared from M-0 (M-0)
copper and subjected to different kinds of heat treatment in air or
vacuo. The experimental arrangement for heat-conduction measurement
(Fig. 1) had a measuring accuracy of 0.02°. The maximum error in λ
measurement was $\leqslant 3$ %. Electrical conductivity σ and carrier concentra-

Card 1/3

Thermal conductivity of Cu_2O single...

tion were determined as usual. Monocrystalline specimens were found to have λ values independent of σ: $\lambda = 8.4 \cdot 10^{-3}$ cal/cm·sec·deg though the carrier concentrations differed from one another by 2-3 orders of magnitude. For polycrystalline specimens, λ was found to decrease with increasing number of grains, and λ was lower for specimens annealed in air, i.e., λ increases with increasing σ. The phonon mean free path can be estimated using the gas-kinetic relation $\lambda = cv l_{ph}/3$, where c = specific heat of Cu_2O, and v = sonic velocity. For $\lambda = 8.4 \cdot 10^{-3}$ cal/cm·sec·deg, $l_{ph} = 17 \cdot 10^{-8}$ cm, i.e., $l_{ph} \sim 4a$; the lattice constant a = $4.26 \cdot 10^{-8}$ cm. The results can be explained when assuming that the impurity centers in Cu_2O are not only vacancies of Cu ions but also excess oxygen atoms. The phonons are scattered by them as well as from the grain boundaries. There are 3 figures, 1 table, and 10 references: 7 Soviet and 3 non-Soviet. The two references to English-language publications read as follows: W. Moore, B. J. Selikson. J. Chem. Phys. 19, 1951; J. Bardeen et al. Chem. Phys. 14, No. 12, 1945.

Card 2/3

S/070/62/007/006/006/020
E132/E435

AUTHORS: Andriyevskiy, A.I., Nabitovich, I.D., Voloshchuk, Ya.V.

TITLE: Electron diffraction examination of the amorphous
             structures of the compounds of Ga, In and Sb with
             Se and Te

PERIODICAL: Kristallografiya, v.7, no.6, 1962, 865-872

TEXT: Amorphous thin layers of the compounds Ga_2Se_3, Ga_2Te_3,
In_2Se_3, In_2Te_3, Sb_2Se_3 and Sb_2Te_3 have been studied by electron
diffraction.   All specimens were prepared by vacuum evaporation
(as alloys) on to celluloid substrates at 20°C.   Various speeds
of evaporation were used.   Some specimens were annealed in vacuo.
Multiple exposure electronograms were taken and photometered.
Using Beevers-Lipson strips the scattering curves were converted to
give radial density distributions.   Tables of the coordination
numbers at different distances are given.   The amorphous
structure of all the compounds studied varies with temperature over
the range in which it is amorphous.   These changes are of three
types: (a) Ga_2Se_3 and In_2Se_3 where the amorphous structure at
room temperature and at moderate temperatures (200°C) is close to
Card 1/2

Electron diffraction ...

S/070/62/007/006/006/020
E132/E435

the crystalline structure but which, at temperatures near to the crystallization temperature, is strongly broken up;
(b) the compounds Ga_2Te_3 and In_2Te_3 where the amorphous structure near to the crystallization temperature is like the crystalline structure and is strongly broken up at room and at moderate temperatures;   (c) the compounds Sb_2Se_3 and Sb_2Te_3 (and also As_2Se_3 and As_2Te_3 which were known earlier) where the amorphous structure is significantly different at all temperatures from the crystalline structure.'   There are 6 figures and 1 table.

ASSOCIATION: L'vovskiy politekhnicheskiy institut
             (L'vov Polytechnic Institute)

SUBMITTED: February 20, 1962

Card 2/2

ANDRIYEVSKIY, A. I.; NABITOVICH, I. D.; VOLOSHCHUK, Ya. V.

A method for taking the background into account in electron
diffraction studies of the structure of amorphous substances.
Kristallografiia 7 no.3:350-352 My-Je '62.

(MIRA 16:1)

1. L'vovskiy politekhnicheskiy institut.

(Electron diffraction examination)

L 18117-63   EWP(q)/EWT(m)/BDS   AFFTC/ASD   JD
ACCESSION NR: AP3003902   S/0181/63/005/007/2007/2009

AUTHORS: Andriyevskiy, A. I.; Mocharnyuk, G. F.; Pidorya, M. M.

TITLE: Thermal vacuum etching of single cuprous oxide crystals

SOURCE: Fizika tverdogo tela, v. 5, no. 7, 1963, 2007-2009

TOPIC TAGS: etching, thermal etching, vacuum etching, crystal, Cu, O, dislocation
structure, edge dislocation, etch pit

ABSTRACT: The authors have studied dislocations on the (100) and (111) faces of
cuprous oxide crystals after heating them in a vacuum. The initial samples were
obtained from cupric oxide at high temperatures. Plates of mineral specimens were
placed in a quartz tube in which the temperature and pressure were chosen to allow
heat treatment in the enivronments in which copper and cuprous oxide exist. The
experiments were thus carried out under two different sets of conditions: 1) a
temperature of 1000C and an oxygen pressure of 10^{-4} mm Hg (the environment of Cu),
and 2) a temperature of 800C and an oxygen pressure of 1 mm Hg (the environment of
Cu_2O). Heating of samples up to 8 hours under the first set of conditions produced
only insignificant changes on the surfaces of the samples, but prolonged heating
produced etch figures on both the (111) and (100) faces, reminiscent of chemical

Card 1/2

L 18117-63
ACCESSION NR: AP3003902

etching. The figures on the (100) face were characteristic of edge dislocations.
Etching under the second set of conditions produced three-sided pyramidal pits with
well-defined peaks, corresponding to dislocations emerging on the (111) face. The
thermal etching of cuprous-oxide crystals makes it possible to study dislocation
structure of these crystals at high temperature. Together with this, vacuum etching
may prove to be an aid in this process of studying the mechanism by which the
concentration of oxygen changes during the heat treatment of cuprous oxide. Orig.
art. has: 2 figures.

ASSOCIATION: L'vovskiy politekhnicheskiy institut (Lvov Polytechnical Institute)

SUBMITTED: 02Jan63   DATE ACQ: 15Aug63   ENCL: 00

SUB CODE: PH, ML   NO REF SOV: 004   OTHER: 005

Card 2/2

S/070/63/008/001/023/024
E132/E460

AUTHORS: Andriyevskiy, A.I., Mocharnyuk, G.F.

TITLE: The observation of dislocations in single crystals of
              cuprous oxide

PERIODICAL: Kristallografiya, v.8, no.1, 1963, 120-122

TEXT: Plates of Cu, 0.5 to 1 mm thick, vacuum treated, were
oxidized at $1040°C$ and consisted of groups of single crystals
emerging at the surface with different faces.   There was a
certain amount of preferred orientation.   The most interesting
plane is (111) and this occurred most frequently when the
crystallites were not too large (0.2 to 5 mm).   Copper was
dissolved in 25% nitric acid until half the acid was expended and
the resulting solution was used as a selective etch for the Cu_2O.
The usual etching time was 10 to 60 sec.   If there was a layer of
CuO then another etch of composition 30% HCl, 30% NaCl and
30% $FeCl_3$ in equal quantities was first applied.   After etching
the (111) and (110) planes of the Cu_2O remain shining, but
microscopic examination shows that they carry etch figures.
(100) Planes look dark.   Laue photographs show that (111) planes
Card 1/2

The observation of ...   S/070/63/008/001/023/024
                                          E132/E460

were only rarely exactly parallel to the surface but were usually
1 to 2° away.   On (111) faces the etch pits are sharp-edged
triangular pyramids which are characteristic for pits formed on
dislocations.   The dislocation density on Cu_2O was estimated at
10^6 to 10^8 / cm^2.   To check the correspondence of pits with
dislocations, the surfaces at various depths through a crystal were
compared.   The dislocation density estimated from the etch pits
corresponded with that estimated from the line width in X-ray
diffraction.   The dislocations are thought to arise from the
volume change on oxidation, which causes strains and from thermal
strains on cooling from the temperature of oxidation.
There are 3 figures.

ASSOCIATION: L'vovskiy politekhnicheskiy institut
             (L'vov Polytechnical Institute)

SUBMITTED: April 2, 1962

Card 2/2

ANDRIYEVSKIY, A.I.; MOCHARNYUK, G.F.

Appearance of dislocations on the cleavage planes of cuprous
oxide. Kristalografiia 8 no.5:793-795 S-O '63.   (MIRA 16:10)

1. L'vovskiy politekhnicheskiy institut.

BUTSKO, N.I. [Butsko, M.I.]; ANDRIYEVSKIY, A.I. [Andriievs'kyi, O.I.]

Effect of impurities on certain physical properties of mercury sulfide. Ukr. fiz. zhur. 8 no.9:975-978 S '63.

(MIRA 17:8)

1. L'vovskiy politekhnicheskiy institut.

ACCESSION NR: AT4040558   S/2564/64/004/000/0122/0124

AUTHOR: Sandulova, A.V.; Andriyevskly, A. I.; Dronyuk, M. I.

TITLE: Forms of growth of germanium and silicon crystals grown from a gaseous solution

SOURCE: AN SSSR. Institut kristallografii. Rost kristallov, v. 4, 1964, 122-124

TOPIC TAGS: germanium, silicon, germanium crystal, silicon crystal, crystal growth, gas phase crystallization, germanium monocrystal, silicon monocrystal

ABSTRACT: Sulfur, selenium, bromine, tellurium and iodine were used as solvents in a study of the crystallization of germanium and silicon at 800-900 and 1000-1200C, respectively. Octahedrons with well developed (111) faces were the most frequent form among a great variety of crystal shapes obtained. Other forms included cubes with more or less pronounced octahedral faces and spherolites. The shape of the crystal could be changed by changing the solvent, its vapor pressure or the temperature. Lauegrams of the thread-shaped crystals demonstrated their monocrystalline nature. The simple forms

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ACCESSION NR: AT4040558

(011) and (013) commonly in germanium and silicon crystals grown from the gaseous phase by other methods were not observed. Orig. art. has: 4 figures.

ASSOCIATION: Institut kristallografii AN SSSR (Institute of Crystallography, AN SSSR)

SUBMITTED: 00   DATE ACQ: 02Jul64   ENCL:00

SUB CODE: IC, EC   NO REF SOV: 002   OTHER: 001

Card   2/2

L 44726-65   EWT(1)/EED-2

ACCESSION NR: AP5010403   UR/0226/65/000/004/0044/0049

AUTHOR: Andriyevskiy, A. I.   Karelin, N. N.; Yuskevich,
Yu. G.

TITLE: Effect of the addition of different oxides on the electric and magnetic
properties of cupro-manganese ferrites

SOURCE: Poroshkovaya metallurgiya, no. 4, 1965, 44-49

TOPIC TAGS: cupro manganese ferrite, metal oxide, coercive force, petrographic
test, magnetic property, magnetic permeability, maximum inductance, residual induc-
tance, electrical conductivity, dynamic hysteresis loop, ferrograph, activation
energy

ABSTRACT: The introduction of small amounts of various metal oxides may in some
cases improve such important properties of ferrites as the coercive force, maximum
and residual inductance, magnetic permeability, etc. Accordingly, the authors in-
vestigated the effect, on cupro-manganese ferrites, of the addition of the following
metal oxides, in the amount of 10%: PbO_2, V_2O_5, MgO, SrO, NiO, Co_2O_3, BeO, CdO,
Sb_2O_3, MoO_3, BaO, ZnO, TiO_2, Al_2O_3, Bi_2O_3, Cr_2O_3, CaO as compared with pure cupro-

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L 44726-65

ACCESSION NR: AP5010403

manganese ferrite of the same composition (0.15 $Cu_2O \cdot 0.2 MnO_2 \cdot 0.5 Fe_2O_3$. In each case the specimens were prepared by the conventional powder-metallurgical techniques (pulverization, sintering, cooling). The finished specimens were subjected to petrographic tests, measurements of electrical conductivity as a function of temperature, with the activation energies being calculated on this basis, measurements of magnetic parameters by photographing the dynamic hysteresis loops observed on the screen on a cathode-ray ferrograph at 500 cps. It was found that some of the metal-oxide additives deteriorate, rather than improve, the magnetic parameters of ferrites (BeO, CdO, BaO, Co_2O_3, SrO, Al_2O_3). The following metal oxides may be used as additives to improve the magnetic properties of cupro-manganese ferrites: Bi_2O_3, Sb_2O_3, TiO_2, Cr_2O_3, ZnO, CaO. Orig. art. has: 1 figure, 1 table.

ASSOCIATION: Kafedra fiziki L'vovskogo politekhnicheskogo instituta (Chair of Physics, L'vov Polytechnic University)

SUBMITTED: 29Dec63   ENCL: 00   SUB CODE: EC, EM

NO REF SOV: 008   OTHER: 000

Card 2/2

L 1351-66

ACCESSION NR: AP5021933

AUTHOR: Andriyevskiy, A. I.; Mocharnyuk, G. F.; Yuskevich, Yu. G.

TITLE: X-ray study of certain mixed ferrite cores

SOURCE: Fizika metallov i metallovedeniye, v. 20, no. 2, 1965, 216-220

TOPIC TAGS: ferrite core, stoichiometry, ceramic product, zinc, copper, crystal
lattice parameter, solid solution

ABSTRACT: The authors present the results of a X-ray study of the phase composi-
tion and lattice parameter of Cu-Mn and Cu-Zn ferrite cores of different stoichio-
metric composition, synthesized by techniques used in the production of semicon-
ductor ceramics. Pure oxides of iron, copper, and zinc, and magnesium peroxide
were finely pulverized, mixed in the required proportions, compression-molded, and
fired at 700-1250°C and investigated by X-ray and metallographic techniques. The
cubic phase was found in all the specimens corresponding to copper ferrite and ob-
tained from $CuO + Fe_2O_3$ and $1/2 Cu_2O + Fe_2O_3$. Tetragonal modification could not
be detected in any one of the specimens. Measurements of lattice parameter as a

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L 1351-66

ACCESSION NR: AP5021933

function of composition for a series of specimens of different ferrites revealed
that the parameter continually varies with the composition, e.g. increasing with
increasing content of zinc ferrite ($ZnFe_2O_4$) in copper ferrite ($CuFe_2O_4$). Thus,
a continuous series of solid solutions exists in the system of Cu-Zn ferrites
with different stoichiometric compositions, which is in agreement with the find-
ings of other investigators. Continuous mutual solubility has also been estab-
lished for the system of Cu-Mn ferrites. The lattice parameter depends on the fer-
ritization temperature and, given a fixed firing time, increases with this tempe-
rature until it reaches a maximum at 1100°C. It is shown that the Curie tempera-
ture of Cu-Zn ferrites decreases with increasing lattice parameter. The curve of
Curie point as a function of this constant may be represented by two rectilinear
segments. Orig. art. has: 3 figures.

ASSOCIATION: L'vovskiy politekhnicheskiy institut (L'vov Polytechnic Institute)

SUBMITTED: 13Jul64   ENCL: 00   SUB CODE: MM, SS

NO REF SOV: 012   OTHER: 015

Card   2/2

ANDRIEVSKIY, A. I.

ANDRIEVSKII, A. I. —

RT-146 (The TsNIIME univeraal sharpening and jointing machine). Universal'nyi
zatochnofugorochnyi stanok TsNIIME.
Lesnaia Promyshlennost', 11(9): 15-17, 1951.

Saws
Improving circular saws. Ler. prom. 12 no. 4, 1962.

SO: Monthly List of Russian Accessions, Library of Congress, August, 1962. Unclassified.

ANDRIYEVSKIY, Aleksandr Illarionovich; UTKIN, N.A., redaktor; AGAPOV,
F.F., tekhnicheskiy redaktor

[Sawing in lumbering] Pilopravnoe delo na lesozagotovkakh. Moskva,
Goslesbumizdat, 1954, 142 p.   (MLRA 8:7)
        (Saws)

ANDRIYEVSKIY, Aleksandr Illarionovich; DMITROVSKIY, S.A., red.;
POLTEVA, B.Kh., red.izdatel'stva; BACHURINA, A.M., tekhn.red.

[Operation of saws in lumbering] Pilopravnoe delo na leso-
zagotovkakh. Izd.2-oe, ispr.i dop. Moskva, Goslesbumizdat, 1957.
165 p.   (MIRA 11:1)
                        (Saws)

ANDRIYEVSKIY, A.I.; MOCHARNYUK, G.F.; YUSKEVICH, Yu.G.

      X-ray study of certain mixed ferrites. Fiz. met. i metalloved. 20
      no.2:216-220 Ag '65.   (MIRA 18:9)

      1. L'vovskiy politekhnicheskiy institut.

L 9554-66   EWT(1)/EWP(m)/EWT(m)/EWA(d)/EWP(j)/T/FCS(k)/EWA(h)/EWA(c)   RPL

ACC NR: AP5026061   WW/JW/WE/RM   SOURCE CODE: UR/0405/65/000/002/0003/0011

AUTHOR: Dremin, A. N. (Moscow); Savrov, S. D. (Moscow); Andriyevskiy, A. N. (Moscow)

ORG: none

TITLE: Initiation of nitromethane detonation by a shock wave

SOURCE: Nauchno-tekhnicheskiye problemy goreniya i vzryva, no. 2, 1965, 3-11

TOPIC TAGS: detonation theory, high speed detonation, shock wave detonation, nitromethane, mass velocity profile, detonation wave velocity, shock wove, high speed photography, explosive

ABSTRACT: Previous studies of high-speed phenomena in shock wave detonations of explosives are discussed. To obtain data for calculating the pressure developed in a high-speed detonation wave in a nitromethane charge, an improved version of the previously described electromagnetic method for registering mass velocity profiles (A. N. Dremin, K. K. Shvedov, V. A. Veretennikov. Sb. "Vzryvnoye delo", Gosgortekhizdat, 1963, No. 52/9) was used. To maintain a constant initiation delay time of 2—3 μsec, charges with constant parameters were used in all cases. The mass velocity in the initiating shock wave was 1.6 km/sec at a distance of 5 mm from the partition and 1.55 km/sec at a distance of 10 mm. The additional mass velocity behind the ultrasonic detonation wave was 1.2 km/sec. The reaction zone behind the detonation wave was probably very narrow, since it did not register on the oscillograms. The wave velocities in the high-speed detonation were studied by high-speed photography. Using

Card 1/2   UDC: 532.593+534.222.2

Andriyevskiy, A.P.

G-3

Category : USSR/Electricity - Semiconductors

Abs Jour : Ref Zhur - Fizika, No 2, 1957, No 4192

Author   : Andriyevskiy, A.P., Tret'yak, I.D.
Title   : Temperature Dependence of the Electric Conductivity of the $Cu_2O-Ni_2O_3$ System

Orig Pub : Dokl. L'vovsk. politekhn. in-ta, 1955, 1, No 2, 13-18

Abstract : Specimens were prepared by pressing a mixture of 25% Ni_2O_3 and 75% Cu_2O, followed by sintering in an oven for 60 minutes at $1020 \pm 20°$. The electric conductivity σ was measured in a vacuum at various temperatures with a Wheatstone bridge. The value of the activation energy, calculated from the temperature dependence of σ, is 0.700, 0.907 and 1.106 ev in the ranges of 50 -- 100, 150 -- 200, and 250 -- 300° respectively.
        The thermal inertia of the specimen was measured by heating it in an evacuated tube to 300° and cooling the tube with the specimen in water. It turned out that the rate of change of specimen temperature, related to the temperature difference between the specimen and the surrounding medium at a given instant, was 0.44% per second. When

Card   : 1/2

Card   : 2/2

ANDRIYEVSKIY,B., inzhener; GLOTOV,Yu., inzhener; BARON,V., inzhener

Methods of deadwood gland repairs on "Ul'ian Gromov" type vessels.
Mor.flot 15 no.9:24 S'55.   (MLRA 8:11)
        (Ships—Maintenance and repair)

ANDRIYEVSKIY, B. S., Cand Med Sci -- "Lymphatic vessels of
the ~~nasal cavity's mucous membrane in man~~ *mucous membrane of the human nasal cavity*." Ternopol', 1961.

(Min of Health UkSSR. Crimean State Med Inst im I. V. Stalin)

(KL, 8-61, 258)

- 429 -

SPIROV, Mikhail Sergeyevich, prof.; SVIRIDOV, Aleksandr Ivanovich, doktor
med. nauk; ANDRIYEVSKIY, Boris Stepanovich, assistent; BESPALOVA,
L.S., red.; BYKOV, N.M., tekhn. red.

[Lymphatic vessels of the respiratory organs] Limfaticheskie sosudy
organov dykhaniia. Kiev, Gos. med.izd-vo USSR, 1961. 161 p.

(LYMPHATICS)   (RESPIRATORY ORGANS)   (MIRA 14:11)

ANDRIYEVSKIY, B.S. (Ternopol', ul.Kiyevskaya, d.1, kv.59)

Topographic anatomical classification of the parotid and submaxillary
lymph nodes in man. Nov. khir. arkh. no.9:62-66 S '61.
                                                (MIRA 14:10)
1. Kafedra normal'noy anatomii (zav. - dotsent N.Ya.Polyankin)
Ternopol'skogo meditsinskogo instituta.
                    (LYMPHATICS)

Subject	: USSR/Aeronautics	AID P - 3481
Card 1/1	Pub. 135 - 16/20	
Author	: Andriyevskiy, D., Col., Kand. of Tech. Sci.	
Title	: The influence of the turn of the aircraft on the deviation of bombs	
Periodical	: Vest. voz. flota, 12, 78-82, D 1955	
Abstract	: In an answer to a reader's question, the author explains the problem of the calculation of the deviation of bombs, gives formulae and examples.	
Institution	: None	
Submitted	: No date	

BLAZHKEVICH, B.I.; ANDRIYEVSKIY, B.A.

Using magnetic modulation pickups in measuring temperature
coefficients for magnetic moments of permanent magnets. Avtom.
kont. i izm. tekh. no.1:117-128 '57.   (MIRA 11:6)
                         (Magnetic measurements)

FUKS, Boris Abramovich, prof.; BAKHSHIYAN, F.A., prof.; ANDRIYEVSKIY
    F.P., dotsent; MIROSHKOV, R.K., dotsent; NAGAYEVA, V.M., dotsent;
    SOBOLEV, N.A., dotsent; SOKOLOV, A.M., dotsent; SHAPIRO, Z.Ya.,
    dotsent; SHUSHARA, G.N., dotsent; KAPLAN, I.B., starshiy pre-
    podavatel'; POLOZKOV, A.P., starshiy prepodavatel'; POLOZKOV,
    D.P., starshiy prepodavatel'; TOPAZOV, N.G., starshiy prepoda-
    vatel'; SHCHERBAKOV, S.S., starshiy prepodavatel'; Prinimali
    uchastiye: GOL'DENVEYZER, A.L., prof.; BARANENKOV, G.S., dotsent;
    BERMAN, Ya.R., dotsent; LUNTS, G.L., dotsent; SHESTAKOV, A.A.,
    dotsent; GMURMAN, V.Ye., starshiy prepodavatel'; Rozental', M.I.,
    assistent; SOKOLOVA, L.A., assistent. ROZANOVA, G.K., red.izd-va;
    KUZ'MINA, N.S., tekhn.red.   (Continued on next card)

FUKS, Boris Abramovich--(continued)   Card 2.
[Higher mathematics; methodological instructions and control
assignments for the students of correspondence technical
schools of university level] Vysshaia matematika; metodi-
cheskie ukazaniia i kontrol'nye zadaniia dlia studentov zaochnykh
vysshikh tekhnicheskikh uchebnykh zavedenii. Izd.9. Pod red.
B.A.Fuksa. Moskva, Gos.izd-vo "Sovetskaia nauka," 1958. 179 p.
(MIRA 12:9)

1. Russia (1923- U.S.S.R.) Ministerstvo vysshego obrazovaniya.
Metodicheskoye upravleniye.
        (Mathematics--Study and teaching)

ANDRIYEVSKIY, F.P., dotsent

[Course of lectures on higher mathematics] Kurs lektsii po
vysshei matematike. Izd.3., dop. i perer. Moskva, Mosk.
zaochnyi poligr.in-t. Book 1. [Analytic geometry] Analiti-
cheskaia geometriia. 1959. 342 p.   (MIRA 13:8)
              (Geometry, Analytic)

ANDRIIEVSKIY, Feodosiy Petrovich; SMIRNOVA, Kh.A., dots.,
    red.; MAKOVSKAYA, R.P., red.

    [Elementary theory of Fourier series. Fourier integrals;
    supplementary chapters to a course in higher mathematics]
    Nachal'nye svedeniia o riadakh Fur'e. Integral Fur'e; do-
    polnitel'nye glavy k kursu vysshei matematiki. Moskva,
    Mosk. poligraficheskii in-t. No.2. 1964. 39 p.
                                        (MIRA 18:6)

Andriyevskiy, I-F.

AUTHOR: Andriyevskiy, I.F., Engineer   117-2-5/29

TITLE: Mechanized Blank Feed for Thread-Rolling (Mekhanizatsiya
              podachi zagotovok dlya nakatyvaniya rez'by)

PERIODICAL: Mashinostroitel', 1958, # 2, pp 13 - 14 (USSR)

ABSTRACT: This article gives a detailed drawing of a thread rolling
              attachment with mechanized feed of screw blanks. The blank
              feed device (bunker), was designed by locksmith O.V. Darabun
              of the Kiyev Control-and-Measurement Instruments Plant (Kiyevs-
              kiy zavod kontrol'no-izmeritel'nykh priborov). The attach-
              ment is not only applicable with a shaper but can be actuated
              by a simple crank mechanism. With 40 crosshead double strokes
              per minute, which is the most practical work rate, the capacity
              of the attachment would be 20 screws per minute.
                 There is 1 drawing.

AVAILABLE: Library of Congress

Card 1/1

ANDRIYEVSKIY, I. I. Major, Veterinary Corps

"Treatment of Necrobacillosis of Horses with Potassium Permanganate" IV

Bolezni Loshadey (Equine Diseases), Sbornik Rabot (Collection of Work), Ogiz-Sel'khozgiz, 1947 Chapter V - Tests and Practice, p 259 TAB CON

Compiled by A. Yu. Branzburg and A. Ya. Shapiro under Editorship of A. M. Laktionova, State Press for Agricultural Literature

The book is composed of works on epizootology, surgery, therapy and laboratory and clinical practice in treatment of equine diseases. In the majority of cases, these works previously had been published in the journal Veterinariya or in one of the manuals issued by the Veterinary Administr tion of the Armed Forces USSR

-W-9922, 1 May 1950 p 6

ANDRIYEVSKIY, I. I.

ANDRIYEVSKIY, I. I. (Lieutenant Colonel, Veterinary Service) and RESHETNIAK, V. Z. (Captain, Veterinary Service.) On the problem of virus abortion of horses.

So: Veterinariya; 24; 9; September 1947; Uncl. p 18
TABCON

1. ANDRIYEVSKIY, I. [I.]

2. USSR (600)

4. Abortion in Animals

7. Infectious abortion of mares and its control, Konevodstvo 23 no. 3, 1953.

9. <u>Monthly</u> <u>List</u> <u>of</u> <u>Russian</u> <u>Accessions</u>, Library of Congress, ___APRIL___ 1953, Unclassified.

ANDRIYEVSKIY, I.I.

NATADZE, T.G.(Tibilisi); SYSAK, N.S.(Kazan'); Andriyevskiy, I.I.(Novocherkassk)

Discussions. Arkh.pat. 16 no.2:65-72 Ap-Je '54.   (MLRA 7:5)
(DAVYDOVSKII, IPPOLIT VASIL'EVICH, 1887-   ) (STRUKOV, A.I.)
(ANATOMY, PATHOLOGICAL)

Name: ANDRIYEVSKIY, Ivan Ivanovich

Dissertation: Etiology, Pathological Morphology and Pathogenesis of the Mass Abortion of Mares in the Northern Caucasus

Degree: Doc Vet Sci

Affiliation: Novocherkassk Zoovet Inst

Defense Date, Place: 6 Jun 55, Council of Kazan' Vet Inst imeni Shaumyan

Certification Date: 12 Jan 57

Source: BMVO 7/57

1. ANDRIYEVSKIY, I. V., YELISEYEV, L.N.

2. USSR (600)

4. Jerboas

7. Data on the ecology of jerboas in the territory of the Kamyshin-Stalingrad state shelterbelt.   Biul. MOIP. Otd. biol   N . 5   1952.

9. Monthly List of Russian Accessions, Library of Congress, _____April_____1953, Uncl.

TREUS, V.D., kand.biol.nauk; LOBANOV, N.V.; ANDRIYEVSKIY, I.V.

Askaniya-Nova. Priroda 50 no. 3:42-49 Mr '61.   (MIRA 14:2)

1. Zoopark "Askaniya-Nova."
                              (Askaniya-Nova Preserve)

ANDRIYEVSKIY, I.V., nauchnyy sotrudnik; TREUS, V.D., kand.biolog. nauk

Game, and ornamental birds in the Askaniya-Nova Zoological Garden.
Nauch. trudy "Ask.-Nov." 13:30-86 '63.   (MIRA 17:2)

TREUS, V.D., kand.biolog. nauk; STEKLENEV, Ye.P., kand.biolog. nauk; VOLKOV, S.A.,
    kand.veterin. nauk; ANDRIYEVSKIY, I.V., nauchnyy sotrudnik

Hybridization of musk ducks with domestic ducks and some characteristics
of the hybrids. Nauch. trudy "Ask.-Nov." 13:107-119 '63. (MIRA 17:2)

PLATOV, P.I., inzh.; AND.IYEVSKIY, ..A., ine..

Laying pipes under operatin, railroad tracks. Transp. stroi. 11
no.2:23-24 F '61.   (MIRA 14:2)
                    (Culv rts)

ANDRIYEVSKIY, M.

    Designers are striving for technical progress in river transportation.
    Rech.transp. 20 no.4:24-26 Ap '61.   (MIRA 14:5)

    1. Nachal'nik TSentral'nogo tekhniko-konstruktorskogo byuro.
        (Shipbuilding) (Inland water transportation)

ANDRIYEVSKIY, M.

Results of trials of "Volgo-Don" type motorships. Rech.
transp. 21 no.9:27-28 S '62.   (MIRA 15:9)

1. Nachal'nik TSentral'nogo tekhniko-konstruktorskogo byuro
Ministerstva rechnogo flota.
                    (Ship trials) (Motorships)

ANDRIYEVSKIY, M.; ZYAZEV, V.

    Efficient sugar beet transportation. Avt.transp. 40 no.4:15-16
    Ap '62.   (MIRA 15:4)
            (Tambov Province—Sugar beets—Transportation)

ANDRIYEVSKIY, M., inzh.

Effect of hatch arrangements on the intensity of mechanizing
loading operations. Rech. transp. 22 no.10:33 0 '63.
(MIRA 16:12)

ANDRIYEVSKIY, Mikhail Davydovich; FILIPPOV, Vitaliy Konstantinovich;
MALYSHEV, A.I., red.; DONSKAYA, G.D., tekhn.red.

[Operation of automobile trains] Ekspluatatsiia avtopoezdov.
Moskva, Nauchno-tekhn.izd-vo M-va avtomobil'nogo transp. i
shosseinykh dorog RSFSR, 1960. 38 p.   (MIRA 14:4)
            (Automobile trains)

ANDRIYEVSKIY, M.

Some organizational problems of transportation and loading work
in agriculture. Avt.transp. 32 no.9:3-4 S '54.   (MLRA 7:11)
        (Transportation, Automotive) (Farm produce--Transportation)

ANDRIYEVSKIY,M., inzhener

Thorough preparation necessary for centralized freight transportation
Avt.transp.33 no.7:11-12 Jl'55.   (MIRA 8:12)
               (Transportation, Automotive)

ANDRIYEVSKIY, N.G.,prepodavatel' (Tashkent)

    Studying the action of anticreepers. Put' i put.khoz. no.12:
    20-21 D '58.   (MIRA 12:1)

    1. Tashkentskiy institut inzhenerov zheleznodorozhnogo transporta.
                        (Railroads--Track)

ANDRIYEVSKIY, M.G., inzh.

Tie spacing and track stability. Put' i put.khoz. 4 no.3:
30-31 Mr '60.   (MIRA 13:5)
          (Railroads--Track)

ANDRIYEVSKIY, M.

New method of covering the hatches of freighters. Mor. i rech.flot
14 no.9:6-8 S '54.   (MLRA 7:10)
        (Freighters)

ANDRIYEVSKIY, M.I., inzh.

Complete mechanization of cargo-handling operations in the mer-
chant marine. Rech.transp. 18 no.12:16-18 D '59.
                                             (MIRA 13:4)

(Cargo handling) (Cranes, derricks, etc.)

ANDRIYEVSKIY, M.

Mechanically operated hatch covers. Mor.flot 19 no.10:
8-10 0 '59.   (MIRA 13:2)

1. Nachal'nik TSentral'nogo tekhnicheskogo i konstruktorskogo
byuro Ministerstva rechnogo flota.
                    (Freighters)
            (Ships--Equipment and supplies)

BUTOMA, B.Ye.; SOKOLOV, P.A.; BALAYEV, D.N.; SERGEYEV, N.M.; SHUMSKIY, K.A.;
    TYAPKIN, M.Ya.; SMIRNOV, V.A.; PIROGOV, N.I.; FEDOROV, N.A.;
    GOLYASHKIN, G.S.; KUZ'MIN, A.P.; AKULINICHEV, V.P. brigadir; GORBENKO,
    Ye.M.; BYSTREVSKIY, L.M., inzh.; STEPANOV, P.S., brigadir; Us, I.S.,
    brigadir-sudosborshchik, deputat Verkhovnogo Soveta SSSR; USTINOV,
    P.D., slesar'-sborshchik; FINOGENOVA, N.Ya., tokar'; LERNER, M.;
    ALEKSEYEV, R.Ye.; SIVUKHIN, K., starshiy master; OSTAF'YEV, A.I.;
    TROFIMOV, B.A., inzh.; KOVRYZHKIN, V.F., inzh.; MOISEYEV, A.A. , prof.;
    GOLUBEV, N.V.; MOGILEVICH, V.I.; ANDRYUTIN, V.I.; ANDRIYEVSKIY, M.I.;
    MATSKEVICH, V.D., dots.

Shipbuilders prepare for the 21st Extraordinary Congress of the CPSU.
Sudostroenie 25 no.1:1-25 Ja '59.   (MIRA 12:3)

1. Predsedatel' Gosudarstvennogo komiteta Soveta Ministrov SSSR po
sudostroyeniyu, ministr SSSR (for Butoma). 2. Nachal'nik upravleniya
sudostroitel'noy promyshlennosti Lensovnarkhoza (for Sokolov).
3. Direktor Baltiyskogo sudostroitel'nogo zavoda im. S.Ordzhonikidze
(for Balayev). 4. Nachal'niki tsekhov Baltiyskogo sudostroitel'nogo
zavoda im. S. Ordzhonikidze (for Sergeyev, Shumskiy). 5. Nachal'nik
mekhanicheskogo tsekha Baltiyskogo sudostroitel'nogo zavoda im. S.
Ordzhonikidze (for Tyapkin).   (Continued on next card)

BUTOMA, B.Ye.---(continued) Card 2.

6. Brigada kommunisticheskogo truda Baltiyskogo sudostroitel'nogo zavoda im. S. Ordzhonikidze (for Smirnov). 7. Glavnyy inzhener Admiraltey-skogo sudostroitel'nogo zavoda, Leningrad (for Pirogov). 8. Glavnyy inzhener sudostroitel'nogo zavoda im. A.A. Zhdanova (for Fedorov). 9. Nachal'nik elektrodnogo tsekha Sudostroitel'nogo zavoda im. A.A. Zhdanova (for Golyashkin). 10. Nachal'nik tsekha kommunisticheskogo truda sudostroitel'nogo zavoda im. A.A. Zhdanova (for Kuz'min). 11. Malyarnyy tsekh sudostroitel'nogo zavoda im. A.A. Zhdanova (for Akulinichev). 12. Glavnyy inzhener Nikolayevskogo sudostroitel'nogo zavoda im. I.I. Nosenko (for Gorbenko)13. Nikolayevskiy sudostroitel'nyy zavod im. I.I. Nosenko (for Bystrevskiy, Us, Ustinov, Finogenova). 14. Slesarno-sborochnaya brigada Nikolayevskogo sudostroitel'nogo zavoda im. I.I. Nosenko (for Stepanov). 15. Zamestitel'nachal'nika konstruktorskogo byuro sudostroitel'nogo zavoda "Krasnoye Sormovo" (for Lerner). 16. Glavnyy konstruktor konstruktorskogo byuro sudo-storitel'nogo zavoda "Krasnoye Sormovo" (for Aleksoyev). 17. Sudo-stroitel'nyy zavod "Krasnoye Sormovo" (for Sivukhin). 18. Direktor sudostroitel'nogo zavod "Leninskaya kuznitsa" (for Ostaf'yev). 19. Sekretar' partkoma TSentral'nogo nauchno-issledovatel'skogo instituta (for Trofimov). (Continued on next card)

BUTOMA, B.Ye.--(continued) Card 3.
    20. Predsedatel' Leningradskogo oblastnogo pravleniya Nauchno-tekhniche-
skogo otdela sudostroitel'noy promyshlennosti (for Moiseyev). 21. Glav-
nyye inzhenery Konstruktorskogo byuro (for Golubev, Andryutin).
22. Glavnyy konstruktor Konstruktorskogo byuro (for Mogilevich).
23. Nachal'nik TSentral'nogo tekhniko-konstruktorskogo byuro (for
Andriyevskiy). 24. Zamestitel' direktora Leningradskogo korable-
stroitel'nogo instituta po uchebnoy chasti (for Matskevich).
                      (Shipbuilding)

ANDREYEVSKIY (fnu), (Possible M. I. ANDRIYEVSKIY)

"Application of low-sitting hydro-jets ships on the USSR waterways"

report to be submitted for the United Nations Conference on the
Application of Science and Technology for the Benefit of the Less
Developed Areas - Geneva, Switzerland, 4-20 Feb 63.

SHTEYN, Nukhim Iosifovich; ANDRIYEVSKIY, M.N., retsenzent; KULANIN, V.S.,
retsenzent; KEL'ZON, V.S.; red.; GRIGOR'YEV, Ye.N., red.;
VOIKOVA, E.M., red.; KORUZEV, N.N., tekhn. red.; SMUROV, B.V.,
tekhn. red.

[Elements of calculating ultra-shortwave transmitters] Elementy
rascheta radioperedatchikov ul'trakorotkikh voln. Moskva, Izd-vo
"Sovetskoe radio," 1958. 461 p.   (MIRA 11:10)
            (Radio, Shortwave--Transmitters and transmission)

VORONYANSKIY, kand.tekhn.nauk; ANDRIYEVSKIY, P.

Machines prepare organomineral fertilizers on livestock farms.
Nauka i pered.op.v sel'khoz. 9 no.11:60-61 N '59.
(MIRA 13:3)

1. Direktor sovkhoza "Buchanskiy" (for Andriyevskiy).
   (Fertilizers and manures) (Agricultural machinery)

SOV/137-58-10-20800

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 10, p 64 (USSR)

AUTHOR: Andriyevskiy, R.A.

TITLE: The Status of Some Questions in the Theory of the Sintering of
Metal Powders (Sostoyaniye nekotorykh voprosov teorii
spekaniya metallicheskikh poroshkov)

PERIODICAL: V sb.: Vopr. poroshk. metallurgii i prochnosti materialov.
Nr 5. Kiyev, AN UkrSSR, 1958, pp 54-72

ABSTRACT: A survey of current trends in the solution of the problem as
to the nature of compacting occurring in the sintering of metal
powders. A critical presentation is made of the studies of
M.Yu. Bal'shin, V.A. Ivensen, G.A. Meyerson, B.Ya. Pines,
I.M. Fedorchenko, Ya.I. Frenkel', Kuczinski, Clark, and
White, Mackenzie and Shuttleworth, and other investigators.
Light is shed on some problems of activated sintering, and the
significance of recrystallization in sintering. It is noted that
none of the shrinkage mechanisms (surface diffusion, ductile
diffusive creep, plastic flow) may be regarded as confirmed,
nor have they been convincingly refuted. To create a theory of
sintering there is need for a differential study of the influence

Card 1/2

SOV/137-58-10-20800

The Status of Some Questions in the Theory of the Sintering (cont.)

of the surface and body properties of powder particles in the course of sintering; an investigation of the role of surface diffusion, diffusive flow, and plastic flow. Further experimental and theoretical study of the principles of activated sintering is also required. Bibliography: 82 references.

R.A.

1. Metal powders--Sintering

Card 2/2

21-58-5-16/28

AUTHORS: Andriyevskiy, R.A., and Fedorchenko, I.N., Member Correspon-
              dent of the AS UkrSSR

TITLE: On the Presence of Plastic Deformation in the Shrinkage of
              Sintered Silver Powder Bodies (O nalichii plasticheskoy de-
              formatsii pri spekanii poristykh tel iz serebra)

ABSTRACT: There are three possible mechanisms of shrinkage in sintering
              metal powders: surface migration, spatial diffusion creep,
              and plastic deformation. In order to clarify the role of
              plastic deformation, the authors investigated the effect of
              uniaxial strains on the shrinkage kinetics, especially during
              the first stages of sintering. Silver powder was selected
              for the experiments. The temperature of sintering was 900°C.
              The dependence of linear and volume shrinkage on the stress
              applied was found to be non-linear, a phenomenon which is
              interpreted as an evidence of plastic deformation manifested
              during the application of a load to the sintered body. On
Card 1/2   the basis of these data, a conclusion has been drawn that

21-58-5-16/28

On the Presence of Plastic Deformation in the Shrinkage of Sintered Silver
Powder Bodies

> plastic flow is absent under conditions of "free" sintering
> of metal-ceramic bodies.
> There are 4 graphs and 7 references, 3 of which are Soviet,
> 1 German, 2 American and 1 English.

ASSOCIATION: Institut metallokeramiki i spetssplavov AN UkrSSR (Institute
of Metallo-Ceramics and Special Alloys of the AS UkrSSR)

SUBMITTED: January 22, 1958

NOTE: Russian title and Russian names of individuals and institu-
tions appearing in this article have been used in the trans-
literation

1. Powders--Sintering

Card 2/2

ANDRIYEVSKIY, R.A.; FEDORCHENKO, I.M.

Kinetics of property changes during the isothermic sintering
of iron powders. Vop.por.met.i prochn.mat. no.6:19-28 '58.
(MIRA 13:4)

(Powder metallurgy)

ANDRIYEVSKIY, R.A.

Simple method of determining the peak density of powder metals.
Vop.por.met.i prochn.mat. no.6:29-31 '58.
                                        (MIRA 13:4)

    (Powder metallurgy) (Densitometers)

ANDRIYEVSKIY, R. A. Cand Tech Sci -- (diss) "Study of certain problems of the

mechanism of variation of density and properties during the caking of single-

component metalloceramic bodies solids." Kiev, 1959. 16 pp (Min of Higher

Education UkSSR. Kiev Order of Lenin Polytechnic Inst), 100 copies (KL, 43-59, 123)

-38-

SOV/21-59-3-12/27

AUTHORS: Fedorchenko, I.M., Corresponding Member   of the AS UkrSSR, and Andriyevskiy, R.A.

TITLE: On the Effect of Compressive Stresses Upon Shrinkage in the Sintering of Porous Bodies (O vliyanii szhimayushchikh napryazheniy na usadku pri spekanii poristykh tel)

PERIODICAL: Dopovidi Akademii nauk Ukrains'koi RSR, 1959, Nr 3, pp 281-283 (USSR)

ABSTRACT: In this article the authors report on their experiments in the study of the effect of uneven compressive stresses on the volumetric shrinkage of sintered bodies consisting of silver, copper and nickel powders (pressure 110-120 kg/cm^2, temperature 600-800°C, time 5 minutes). Experiments were performed outdoors, yet the degree of oxidation was negligible because of the burning of graphite in the graphite press forms. Figure 1 shows the influence of compressive stresses (σ) upon the volumetric shrinkage $\frac{\Delta v}{v}$ at sintering. The dependence of the

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On the Effect of Compressive Stresses Upon Shrinkage in the
Sintering of Porous Bodies

shrinkage on the stress, allowing for the geometri-
cal factor, proved to be nonlinear in the case of
annealed powders, which is due to a plastic deform-
ation arising on application of the load to the
sintered body. Upon attaining a porosity 13-14%,
the deformation speed slows down. The inference
is, that under conditions of "free" sintering, the
processes occurring are not plastic strain proces-
ses, but diffusion processes. There are 4 graphs,
1 table and 10 references, 5 of which are Soviet,
5 English.

ASSOCIATION: Institut metalokeramiki i spetsialnykh splavov AN
UkrSSR (Institute of Metaloceramics and Special
Alloys of the AS UkrSSR)

PRESENTED: December 10, 1958

Card 2/2

18(5)

AUTHORS: Andriyevskiy, R.A. and Fedorchenko, I.M.,
Corresponding Member of the AS UkrSSR

TITLE: Comparative Examinations of Various Methods of Acti-
vated Sintering of Reduced Iron

ABSTRACT: This is an account of the results of the studies con-
ducted by the authors of the changes in magnetic
properties of iron porous bodies subjected to two
hours of sintering at 1200°C, under various condi-
tions, such as : sintering in dry hydrogen (0.022%
H_2O); sintering in damp hydrogen (2% H_2O); sintering
in 10% H_2O; sintering of oxidized briquettes (1% O_2);
cyclic sintering; sintering in an atmosphere H_2 +HCl;

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Comparative Examinations of Various Methods of Activated
Sintering of Reduced Iron

sintering in a charge of Al_2O_3 + 1% NH_4Cl; sintering
of oxidized specimens in an atmosphere of H_2 + HCl;
sintering in a charge of Al_2O_3 + 0.1% NH_4F. Heating
and cooling were made in dry hydrogen. The table on
page 392 shows the results of measurements of speci-
fic surface of open pores S and of changes in the
chemical composition of sintered specimens. The
best results were obtained when sintered in atmospheres
supplemented with HCl, which, in the authors' opinion,
is accounted for by intensive spheroidization of
pores and partly by refining of chemical composition.
There are 1 table, 1 set of graphs and 11 references,
5 of which are Soviet, 1 Japanese 2 American and 3
Card 2/3   unidentified.

SOV/21-59-4-11/27

Comparative Examinations of Various Methods of Activated
Sintering of Reduced Iron

ASSOCIATION: Institut metallo-keramiki i spetsial'nykh splavov
AN UkrSSR (Institute of Metal-Ceramics and
Special Alloys of the AS UkrSSR)

SUBMITTED: December 10, 1958

Card 3/3

ANDRIYEVSKIY, R.A., FEDORCHENKO, I.M.

Sintering of iron with cyclical temperature changes in the
critical point range. Inzh.-fiz.zhur. no.2:71-73 F '60.
(MIRA 13:7)

1. Institut metallokeramiki i spetsial'nykh splavov AN USSR,
Kiyev.
(Iron--Magnetic properties)

ANDRIYEVSKIY, R.A.; KHOLYAVENKO, K.M., PILYANKEVICH, A.N.

Comparative investigation by various methods of the specific surface of metal powders. Vop. por. met. i prochn. mat. no.8:3-7 '60.   (MIRA 13:8)

(Metal powders)   (Surface chemistry)

ANDRIYEVSKIY, R. A.; FEDORCHENKO, I. M.

Creep processes during the sintering of ceramic metal compacts.
Vop. por. met. i prochn. mat. no.8:24-37 '60.
(MIRA 13:8)
(Ceramic metals) (Sintering)   (Creep of metals)

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'R 6200

S/129/60/000/012/007/013
E073/E235

AUTHORS: Andriyevskiy, R. A., Engineer and Fedorchenko, I. M.,
               Corresponding Member of AS UkrSSR

TITLE: Activation of the Process of Sintering of Cermet
               Iron

PERIODICAL: Metallovedeniye i termicheskaya obrabotka metallov,
               1960, No. 12, pp. 36-39

TEXT: The authors carried out comparative investigations
of the effectiveness of various methods of activation. The
experiments were carried out on toroidal specimens of reduced iron
АПЖМ (APZhM) containing 0.1% C; 0.3% Mn; 0.095% P; 0.045% S;
0.06% Si. The dependences of the magnetic properties on the
density of the porous iron sintered under various conditions at
1200°C for 2 hours are graphed. The graphs show the following
values as a function of the density g/cm^3 (from top to bottom):
H_c oersted, μ, gauss/oersted, B_{15} and Br, gauss. Sintering was
effected: (1) in dry hydrogen, (2) in hydrogen of 2% humidity,
(3) in hydrogen of 10% humidity, (4) preliminarily oxidized
specimens (about 1% O_2) were sintered in dry hydrogen, (5) in

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E073/E235

Activation of the Process of Sintering of Cermet Iron

hydrogen the humidity of which was periodically varied (hydrogen
- 7 min, water - 3 min), (6) in an atmosphere of H_2 + HCl, (7)
oxidised specimens were sintered in an H_2 + HCl atmosphere, (8)
inside Al_2O_3 + 0.1% NH_4Cl, (9) sintering inside Al_2O_3 + 0.1% NH_4F.
The heating and cooling (6 to 10 min) was effected in dry hydrogen.
In the sintering conditions (5) to (7) the last 20 minutes of
holding was in an atmosphere of dry hydrogen. It can be seen from
the graph that the most favourable susceptibility and coercive
force values were obtained after sintering according to the
conditions (6) and (7), i.e. using additions of HCl. The other
sintering conditions did not lead to any intensification of the
magnetic properties. Sintering in hydrogen with variable humidity
led to an improvement of the μ and H_c values, particularly
for low specimen densities. In all cases of activated sintering
the content of closed pores increased, particularly in the case of
low porosities. This indicates intensive development of surface
diffusion and transfer of atoms in the gaseous phase. The magnetic

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Activation of the Process of Sintering of Cermet Iron

induction in a field of 15 oersted, B_{15} and the residual induction, are determined mainly by the density of the sintered specimens. Additions of HCl to the sintering atmosphere have a favourable influence on the properties of the sintered iron but its hydrogen content has an unfavourable effect on the corrosion behaviour. It is concluded that the sintering process is activated most effectively by applying an H_2 + HCl atmosphere. The improvement in the properties in this case is attributed to intensive smoothing of the surface of the pores and partial refining of the chemical composition. There are 1 figure and 10 references; 4 Soviet and 6 non-Soviet.

ASSOCIATION: Institut metallokeramiki i spetsial'nykh splavov
              AN UkrSSR   (Institute of Cermets and Special
              Alloys, AS, UkrSSR)

Card 3/3

/8.6200

AUTHORS: Andriyevskiy, R. A., Fedorchenko, I. M.

TITLE: The Influence Exerted by a Previous Deformation on Densifica-
              tion in the Sintering of Powder Bodies

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, 1960, Vol. 3, No. 3,
              pp. 83-86

TEXT: In the present paper the influence exerted by the deformations
caused in powder metallurgy by the pressing of briquets upon subsequent
sintering is investigated. In the course of the experiments, copper- and
nickel powders were pressed into briquets of different degrees of porosity.
These briquets were sintered in a hydrogen atmosphere at 600, 700, and
$800^{\circ}C$, after which they were pressed to a certain density. For copper, sec-
ond sintering was carried out at a temperature of $800^{\circ}C$, for nickel at
$800-900^{\circ}C$. From the results obtained by the investigations, which are shown
in Tables 1 and 2, the following may be seen: Previous sintering at $600^{\circ}C$,
and especially at $700^{\circ}C$, reduces densification by second sintering in com-
parison to the densification of the briquets without intermediate sintering.
The higher the sintering temperature in first sintering, the less is densi-
ty changed in second sintering. Pressing the briquets sintered once does
not lead to greater changes in density by second sintering compared to
briquets which, though pre-sintered, have nevertheless not been pressed be-
Card 1/2

The Influence Exerted by a Previous Deformation   S/170/60/003/03/13/034
on Densification in the Sintering of Powder   B014/B007
Bodies

fore the second sintering. Furthermore, the causes of the decrease of densi-
fication by sintering after previous annealing of the powders, and the above
shown decrease of densification of the pre-sintered pressed briquets by
the second sintering are discussed. Two causes are mentioned: The first is
the decrease of the concentration of nonequilibrium defects occurring in
pre-sintering. The second is the increasing "cross section" due to surface
diffusion, evaporation, and condensation of atoms. The authors discuss the
result, according to which total densification is lower after two sinterings
than after sintering only once on the basis of thermodynamic considerations.
The results given here agree with the investigations made on iron dust
(Refs. 6-8). The conclusion is drawn that in the case of most materials,
pressing does not influence the change in the properties of powdered bodies
in sintering. Finally, the limits of the statement made are investigated.
There are 2 tables and 14 references: 10 Soviet, 1 German, 1 French, and

ASSOCIATION: Institut metallokeramiki i spetsial'nykh splavov AN USSR,
               g. Kiyev (Institute of Powder Metallurgy and Special Alloys
               of the AS UkrSSR, City of Kiyev)

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86458

S/073/60/026/005/010/019
B004/B063

186200 (നില 2209)

AUTHORS: Andriyevskiy, R. A. and Fedorchenko, I. M.

TITLE: Variation of Open and Closed Porosity During the Sintering of Porous Bodies

PERIODICAL: Ukrainskiy khimicheskiy zhurnal, 1960, Vol. 26, No. 5, pp. 616-620

TEXT: The study of the variation of open and closed porosity is of great importance to the theory of powder sintering and to the efficiency of high-temperature catalysts. As the effect of temperature and duration of sinter-ing on porosity, as well as other factors had not yet been studied, the present work is intended to make a contribution to this subject. Open and closed porosity were determined by soaking the sintered specimens with benzyl alcohol. Calculation was made using the equation suggested by G. Arthur in Ref. 2. Density was determined by a method described in Ref. 4. Fig. 1 shows a curve of the isothermal variation of the total porosity (Curves 1 and 2) and of closed porosity (Curve 3) obtained when sintering briquettes from copper powder in hydrogen at 900°C. Curve 1 refers to

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86458

Variation of Open and Closed Porosity During   S/073/60/026/005/010/019
the Sintering of Porous Bodies   B004/B063

quick heating (temperature rise to 900°C in 2-3 min). Curve 2 refers to
slow heating (1.5 - 2 h). Porosity varies chiefly at the expense of open
pores. The original content of closed pores was 2-3%. During heating the
number of closed pores increased, and all pores were closed when porosity
reached 6-8%. This rule was found to hold also for Ag, Cu, and Fe briquet-
tes, and holds for all briquettes with an original porosity of 20% and
more. Experiments with copper and iron powders have shown that a content
of oxides and the use of hydrogen with an admixture of hydrogen chloride
increases the number of closed pores in all briquettes with a high initial
density. Text to Fig. 1: Variation of Total and Closed Porosity (Curve 3)
During the Sintering of Copper Briquettes (900°C); 1: Heating for 2-3 min;
2: Heating for 1.5-2 h; 3: Porosity; 4: hrs.
There are 4 figures, 1 table, and 11 references: 8 Soviet, 2 British, and
1 Czechoslovakian.

ASSOCIATION: Institut metallokeramiki i spetsial'nykh splavov AN USSR
               (Institute of Powder Metallurgy and Special Alloys of the
               AS UkrSSR)
SUBMITTED: May 22, 1959

Card 2/3

ANDRIYEVSKIY, A. A.

PHASE I BOOK EXPLOITATION   SOV/5954

Fedorchenko, Ivan Mikhaylovich, and Rostislav Aleksandrovich Andriyevskiy.

Osnovy poroshkovoy metallurgii (Principles of Powder Metallurgy) Kiyev,
Izd-vo AN UkrSSR, 1961. 420 p. 10,000 copies printed.

.Sponsoring Agency: Akademiya nauk Ukrainskoy SSR. Institut metallokeramiki
i spetsial'nykh splavov.

Ed. Z. S. Pokrovskaya; Tech. Ed.: O. A. Kadashevich.

PURPOSE: This book is intended for technical and scientific research personnel
working in the field of powder metallurgy or related branches of industry.
It may also be used as a textbook by students specializing in powder metallurgy,
metal science, and heat treatment at schools of higher education and tekhnikums.

COVERAGE: The book presents information on the theory and practice of powder-
metallurgy processes. Attention is given to methods of producing metal powders,
the properties of metal powders, the principles of compacting and sintering

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Principles of Powder Metallurgy   SOV/5954

metal powders, problems connected with the additional processing of sintered
products, and problems of safety techniques in powder metallurgy. The authors
thank G. A. Vinogradov, Candidate of Technical Sciences, A. I. Raychenko, Candi-
date of Technical Sciences, V. V. Skorokhod, N. A. Filatova, M. Yu. Bal'shin,
Candidate of Technical Sciences, B. A. Borok, Candidate of Technical Sciences,
Ya. Ye. Geguzin, Professor and Doctor of Physics and Mathematics, and G. V.
Samsonov, Professor and Doctor of Technical Sciences, for their comments regard-
ing the book. There are 17 references: 8 Soviet, 5 English, 2 German, and
2 Czech.

TABLE OF CONTENTS [Abridged]:

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S/137/62/000/001/039/237
A060/A101

AUTHOR: Andriyevskiy, R. A.

TITLE: Powder-Metallurgy Conference in Moscow, 26 - 29 October, 1960

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 1, 1962, 35, abstract 1G253
               ("Poroshk. metallurgiya", 1961, no. 1, 110 - 111)

TEXT: This is a short account of the conference on powder metallurgy
(October 1960). Approximately 400 persons, representing over 150 organisations,
took part in the conference. Some forty lectures were heard on the theory and
technology of powder metallurgy processes, and on the introduction of metallo-
ceramic articles in industry. The principal papers are enumerated.

                                                    R. Andriyevskiy

[Abstracter's note: Complete translation].

Card 1/1

1.6000   also 1045, 1555, 1454

22976

S/180/61/000/003/004/012
E021/E135

AUTHORS: Andriyevskiy, R.A., and Fedorchenko, I.M. (Kiyev)

TITLE: Influence of small additions of nickel and cobalt
             on the sintering of iron powder

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh
             nauk, Metallurgiya i toplivo, 1961, No.3, pp. 50-54

TEXT: Powdered iron (0.03% C, 0.002 Si, 0.4 Mn, 0.043 S,
0.002 P) was added to solutions of nickel or cobalt nitrate with
continuous evaporation of moisture. After evaporation the additions
were precipitated on the surface of the particles. After mixing the
powder and adding pure iron, the oxides were reduced in hydrogen at
800 °C for one hour. The density of pressed briquettes was
5.30 - 5.35 g/cm^3 and sintering was carried out in purified
hydrogen.   Fig.1 shows the influence of Ni and Co content,
together with the effect of temperature and time (τ, min) on the
densification ($\Delta V/V$, %) during the sintering of iron powder. The
addition of nickel considerably increased the densification and
cobalt had a much less marked effect. It was shown that the use of
a low temperature preliminary heat treatment (200-300 °C) enables

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S/180/61/000/003/004/012.
E021/E135

Influence of small additions of nickel and cobalt on the
sintering of iron powder

even more intensive densification in the subsequent sintering
process.   Fig.3 shows the influence of the initial porosity
(x-axis) on the densification (y-axis) on sintering at 1200 °C for
2 hours.   Curve 1 is for Fe + 5% Ni obtained by precipitation from
nitrate, curve 2 is for a mechanical mixture of Fe + 5% Ni, and
curve 3 for powdered Fe.   It can be seen that the effect of Ni was
maintained over a wide range of initial porosity.   The chemical
method of mixing gave better results than the mechanical method.
It is proposed that the decisive role in the sintering is played
by defects in the surface layers of the powdered particles.   A
good addition must have a greater coefficient of diffusion than the
basic metal and must have a lower heat of evaporation.   In this
case a defect structure is formed in the surface layers of the
particles as a result of mutual diffusion.   It was shown by
calculation that the concentration of vacancies arising from the
unequal diffusion rates in Fe + 5% Ni is about 1%.   With increase
in time the concentration of vacancies decreases.

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S/180/61/000/003/004/012
E021/E135

Influence of small additions of nickel and cobalt on the
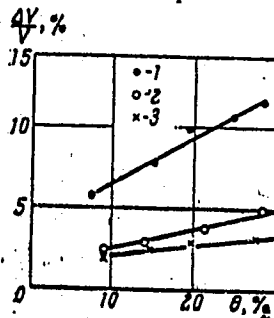sintering of iron powder

There are 3 figures and 19 references: 14 Soviet, 1 Czech, 2 German
and 2 English.   The English language references read as follows:
Ref.10:   J.M. Fedortchenko and R.A. Andriyevskiy.
     Powder Metallurgy, London, 1959, 3, p. 147.
Ref.13: L. Harrison and S. Marton.
     Symposium on Powder Metallurgy, London, 1956, p. 159.
SUBMITTED: June 27, 1960

Fig. 3

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18 1142

S/129/61/000/007/013/016
E073/E535

AUTHORS: Andriyevskiy, R.A., Candidate of Technical Sciences,
Panichkina, V.V., Engineer and Fedorchenko, I.M.,
Academician AS UkrSSR

TITLE: Sintering of Iron Powder in Hydrogen with
Additions of Hydrogen chloride

PERIODICAL: Metallovedeniye i termicheskaya obrabotka metallov,
1961, No 7, pp 48-52

TEXT: Data on the influence of various methods of
activated sintering on the magnetic properties of sintered
briquettes and also on their specific surface (s) and carbon
content are quoted from earlier work of the authors (Ref.1:
Metallovedeniye i termicheskaya obrabotka metallov No.12, 1960).
It was found that introduction of hydrogen chloride into the
sintering atmosphere has the most favourable influence on the
magnetic properties of the sintered iron and this is attributed
to smoothing the relief of the pores and refining the admixtures.
The experiments were carried out with an iron powder of the
following composition: 0.06% C, 0.3% Mn, 0.4% Si, 0.009% P,
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