GUREVICH, Yu.G., inzh.

Neutralizing the effect of nitrogen on the quality of steels. Izv.
vys.ucheb.zav.; chern.met. no.10:31-35 O '58. (MIRA 11:12)

1. Chelyabinskiy politekhnicheskiy institut.
    (Steel--Metallography) (Steel--Defects) (Titanium)

ANTROPOV, O.F., inzh.; GUREVICH, Yu.G., inzh.; MOKHIR, Ye.D., inzh.

Effect of vacuum refining on steel properties. Izv. vys. ucheb.
zav.; chern. met. no.12:17-20 D '58.   (MIRA 12:3)

1.Zlatoustovskiy metallurgicheskiy zavod i Chelyabinskiy
politekhnicheskiy institut.
              (Vacuum metallurgy) (Steel--Testing)

AUTHOR: Gurevich, Yu. G.

TITLE: Interaction of Titanium With Nitrogen and Carbon in Liquid Steel

PERIODICAL: Izvestiya yysshikh uchebnykh zavedeniy, Chernaya metallurgiya,
              1960, No. 6, pp. 59-67

TEXT: There is only a limited number of literature data on the nature of
titanium-containing impurities and their chemical composition, presented by
Yu. T. Lukashevich-Duvanova (Ref. 3, I. C. Milton and K. H. Henke (Ref. 4),
K. A. Perkins and W. O. Binder (Ref. 5) N. F. Lashko and N. I. Yeremin (Ref. 6).
These data indicate the diverse nature and the complicated mechanism of the
formation of non-metallic impurities combined with titanium. The character
of titanium interaction with oxygen, carbon and nitrogen in liquid metal was
studied by B. K. Lyaudis, D. F. Komstok (Ref. 8), A. N. Morozov and A. I.
Stroganov (Ref. 7), Pearson and Ursula Ende (Ref. 9) who, however, provided
only general data. The author determined the composition of the non-metallic
impurities and investigated conditions of the interaction of nitrogen and carbon
with titanium in liquid steel. He used a constitutional diagram on the
titanium-carbide/iron system studied by V. N. Yeremenko (Ref. 1) and

Card 1/3

S/148/60/000/006/001/010

Interaction of Titanium With Nitrogen and Carbon in Liquid Steel

established that nitrogen had a higher affinity to titanium than carbon. Data available and thermodynamical calculations show that the spontaneous crystal- lization of titanium carbides in liquid steel can not take place, whereas the formation of nitrides is very well possible. The author carried out experimental investigations into the composition of the nitride phase, the conditions of its formation and the determination of the optimum crystallization temperature. For this purpose experimental melts were performed in a 30-kg high-frequency induction furnace. The charge was composed of mild iron, chromium metal, ferromanganese, 75%-ferrosilicon, nickel and ferrotitanium. In certain cases chromium nitride (1-2% N) previously nitrated in the same furnace, was added instead of chromium. The mean chemical composition of experimental melts is given in Table 1. It was observed that titanium nitrides are formed in the liquid metal and, under certain conditions, emerged on the surface, accumulating in slag layers. It was established that titanium in liquid steel interacted vigorously with nitrogen, forming titanium nitrides whose composition, independent of the relation between Ti and N, approached the stoichiometric composition. The formation of titanum nitrides takes place when the Ti content in the liquid steel exceeds the double amount of carbon. Ti nitrides emerging in the slag appear as an independent phase. Intensified processes of Ti

Card 2/3

S/148/60/000/006/00:/010

Interaction of Titanium With Nitrogen and Carbon in Liquid Steel

nitride formation and their emersion into the slag occur at 1,560°C and below;
the temperature was determined by means of a platinum   rhodium- platinum
immersion thermocouple. Titanium carbonitrides and carbides do not crystallize
in the liquid metal, independent of the %Ti/%C and the %Ti/%N ratios; this
occurs apparently later on, i. e. when the metal temperature approaches the
solidification point or during other periods of the solidification point or
during periods of the crystallization of steel. Further studies must be
concentrated on the described processes and on the possibility of changing the
chemical composition of Ti nitrides during subsequent cooling of a steel ingot.
There are 3 tables, 3 graphs, 2 microphotos, 1 radiogram and 14 references:
10 Soviet and 4 English.

ASSOCIATION: Chelyabinskiy politekhnicheskiy institut (Chelyabinsk Polytechnic
               Institute)

SUBMITTED: December 22, 1959.

Card 3/3

S/133/60/000/012/005/015
A054/A027

AUTHORS: .Gurevich,Yu. G., Engineer, Rozin, B.B., Engineer, Geyfman, R.S.,
           Engineer, Khasin, G.A., Engineer, and Okhrimovich, B.P., Engineer

TITLE: Pouring 1X18H9T (1Kh18N9T) Type Steel in Ingot Molds Coated
           ith Petrolatum

PERIODICAL: Stal', 1960, No. 12, pp. 1096-1098

TEXT: Since 1959, the Zlatoust Metallurgical Plant, when melting
the 1Kh18N9T brand steel by bottom casting, has applied petrolatum instead of
carbontetrachloride for the "self-coating" of the 2.7 ton ingot molds without
changing their form and their weight. In the establishment of the new techno-
logy, P.P. Menushenkov, A.K. Petrov, S.K. Filatov, P.I. Vasil'yev, V.N. David-
yuk, and M.V. Loktionov took part. The smoothness of the ingot surface was
assessed by the specific labor spent on removing surface defects from 1 sq m
of the metal (by reference to photochronometric observations) and the test
results were analyzed by computers. Altogether 472 tests were carried out in
the course of which the influence of several factors: temperature, holding time
of the metal in the ladle, the velocity of pouring into the ladle, were in-
vestigated, for both kinds of coating separately.
Card 1/3

S/133/60/000/012/005/015
A054/A027

Pouring 1X18H9T (1Kh18N9T) Type Steel in Ingot Molds Coated With Petrolatum

The tests showed that when the 2.7 ton ingot molds were coated with petrolatum (maintaining the conventional technology used for the 1Kh18N9T brand steel in other respects) the surface of the improved and the time required for removing surface defects decreased by 15-20%. As regards the time required for defects removal, the following data were obtained in two shops:

A/

Temperature:	$< 1,550°C$	$1,580-1,600°C$	$> 1,600°C$
with petrolatum coating, min/m²	40.1	51.0	88.7
with CCl_4 coating "	77.5	66.0	68.9

B/

with petrolatum coating, min/m²	100.8	100.9	113.0
with CCl_4 coating "	117.1	134.0	148.7

These figures show that petrolatum coating is superior to CCl_4 coating under 1,600°C. The relationship between the quantity of metal to be subsequently scoured and the time of pouring into the ladles coated with petrolatum was also investigated and it was found that if the pouring time was under 2 minutes, 40 and 71% of the metal had to be subsequently scoured, if between 2-3 minutes:

Card 2/3

S/133/60/000/012/005/015
A054/A027

Pouring 1X18H9T (1Kh18N9T) Type Steel in Ingot Molds Coated With Petrolatum

26.0-55.5% and above 3 minutes: 0.0- 31.8% (the first figures stand for Shop A, the second for Shop B). These data show that if the pouring time is shorter the ingot surface deteriorates rather suddenly, which can also be proved by the defects removal times in function of pouring time:

Pouring time, min	< 2	2-3	> 3
Average cleaning time, min/m^2			
shop A			
with petrolatum coating	60.4	46.9	35.5
with CCl$_4$ coating	78.0	75.5	45.7
shop B			
with petrolatum coating	116.0	109.2	95.0
with CCl$_4$ coating	129.0	145.4	114.0

Thus, when pouring time is longer than 2 minutes, the labor required for cleaning the ingot surface decreases by 25%. Tests carried out on the same subject in roll shops yielded analogous results. There are 3 figures and 4 Soviet references.

ASSOCIATION: Zlatoustovskiy metallurgicheskiy zavod (Zlatoust Metallurgical Plant), Chelyabinskiy politekhnicheskiy institut (Chelyabinsk Polytechnical Institute).

Card 3/3

KHASIN, G.A.; MENUSHENKOV, P.P.; PETROV, A.K.; OKHRIMOVICH, B.P.; DAVIDYUK, V.N.; FILATOV, S.K.; VASIL'YEV, P.V.; LOKTIONOV, M.V.; GUREVICH, Yu.G.

New method of mold coating with petrolatum. Metallurg 5 no.5:21-24
My '60.   (MIRA 14:3)

1. Zlatoustovskiy metallurgicheskiy zavod i Chelyabinskiy
politekhnicheskiy institut.
                    (Ingot molds)   (Petrolatum)

24204
S/148/61/000/001/001/015
A161/A133

18 3210

AUTHOR: Gurevich, Yu. G.

TITLE: Investigating the denitration of liquid chrome-nickel steel by titanium under laboratory conditions

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Chernaya metallurgiya, no. 1, 1961, 21 - 30

TEXT: Titanium has been suggested for some time for the denitration of liquid steel, and it had been observed in some previous investigations, including the author's own, that titanium nitrides forming in liquid metal are floating and carrying nitrogen away with them. The purpose of the described investigation was to study the effect of titanium under laboratory conditions. Steel was smelted in an electric 30-kg high-frequency laboratory furnace; its composition was (in %) - 0.10 C; 0.76 Mn; 0.74 Si; 0.025 P; 0.012 S; 18.6 Cr; 10.2 Ni; 0.25 - 2.0 Ti. The nitrogen content was varied from 0.060 to 0.24%. Denitration was achieved by producing basic slag after the fusion of metal, and deoxidizing the slag by ground ferrosilicon and calcium borate, then adding ferrotitanium to the heat. In

Card 1/7

single heats ferrotitanium was added with the whole charge. Nitrogen in
steel specimens was determined by the "dissolving and separating" method
(Ref. 9: V. G. Speranskiy, G. M. Borodulin. Tekhnologiya proizvodstva ner-
zhaveyushchey stali, Metallurgizdat, 1957). Nonmetallic inclusions were
investigated by petrographic, X-ray and metallographic analysis. It was
found that the nitrogen content decreased in liquid metal only when metal
was deoxidized and held at 1,490 - 1,550°C. At 1,620°C and higher nitrogen
was practically not eliminated at all. The nitrogen elimination apparently
consists of two stages - the formation of titanium nitrides in liquid metal,
and the floating up of nitrides. The titanium nitrides formation reaction
at temperatures above 1,155°K is expressed by the equation (from Ref. 10:
Izv. vyssh. uch. zavedeniy. Chernaya metallurgiya, no. 10, 1958):

$$Ti_{in\ liquid\ Fe} + N_{0.01\%\text{-solution}} \rightleftarrows TN_{solid}; \tag{1}$$
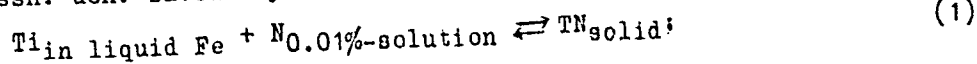
$$\lg \frac{0.01}{[\%Ti] \cdot [\%N]} = \frac{20790}{T} - 9.72$$

Curves of the nitrogen content equilibrium at different Ti-contents in liq-

Card 2/7

uid steel and at different temperature (Fig. 2) were calculated using the equation (1). Equilibrium was not reached in any of the experiment heats. As the reaction (1) is heterogeneous, its rate according to Frenkel's theory (Ref. 11: Ya. I. Frenkel', Izvestiya sektora fiziko-khimicheskogo analiza, v. 16, no. 1, 1943) depends on the formation of titanium nitrides in liquid metal. A stable existence of the nitride nuclei is only possible when their size is larger than the critical one. The critical nucleus size is directly proportional to the surface tension on the boundary of two phases and inversely proportional to the difference of the chemical poten- tials of the component in solution and in the pure phase. The equilibrium curves (Fig. 2) indicate an increasing affinity of titanium to nitrogen with a decreasing temperature. The denitration rate during 10 - 50 min holding remained constant in time, about 0.0022%/min, which shows that the size of nitrides floating up in the liquid metal was the same in all heats. At %Ti : %Ni ratio of 2 - 6 the titanium consumption for the elimination of 1 cm^3 nitrogen was close to the theoretical. Aluminum in metal apparantly prevents titanium from oxidation. The average size of titanium nitride crys- tals varied between 0.010 and 0.030 mm. The relative concentration of ni- tride inclusions in the metal layer at a certain level (h) at any time mo-

Card 3/7

24204
S/148/61/000/001/001/015
A161/A133

Investigating the denitration of liquid...

ment (t) could be expressed by the formula:

$$\frac{C}{C_c} = k \left(1 - \frac{t}{h} v_{min} \right)$$

(9)

where C_0 is the nitride concentration in the layer at the beginning of the period; C - the concentration during time (t); k - a constant factor -

$\frac{1}{1-\mu}$ depending on the nitride crystal size; v_{min} - the minimum floating velocity. The formula shows that the relative concentration of inclusions follows hyperbolic law. The relation of concentration and holding time (t) is expressed by a rectilinear function. Equation (9) may be used for approximate calculations of relative nitrogen concentrations, assuming that the nitrogen content is proportional to the titanium nitride content. After 50 min holding time the relative nitrogen concentration did not change any more, and it was not possible to decrease the nitrogen content below 0.20%. This may be due to an insufficient accuracy of the experiments during long holding. No denitration during pouring was stated in heats poured at high

Card 4/7

S/148/61/000/001/001/015
A161/A133

Investigating the denitration of liquid...

temperatures, but a considerable denitration was found in pouring at low
temperature. It is supposed that slag particles, ladle lining and the
forming oxides of impurities may provide additional crystallization centers
for titanium nitrides. Besides, nitrides can stick to large slag particles
of a certain chemical composition and float faster. It seems that liquid
slag inclusions moist titanium nitrides better than metal. Groups and
strings of nitrides revealed in metal were covered with very thin slag films.
A photo-micrograph from a heat (no. 515) in which denitration was exception-
ally rapid and nitrogen content dropped to 0.15 shows large globular slag
inclusions with titanium nitrides inside. It is obvious that the slag com-
position must be so selected as to decrease the surface tension on the
nitride - metal boundary. Conclusions: 1) Denitriding properties of tita-
nium appear in well deoxidized metals at temperatures below 1,560°. At
high temperature titanium nitrides may not form, and a denitration of liquid
steel may not take place. 2) Titanium nitrides stick well to slag particles.
The elimination of titanium nitrides from liquid steel may be improved by
treating metal in ingots with slags of certain composition. 3) The deter-
mined analytical dependence of relative concentration of particles of a
certain size on the height of layer and the holding time coincides suffi-

Card 5/7

24204

S/148/61/000/001/001/015
A161/A111

Investigating the denitration of liquid ...

ciently with the test data and can be used to calculate the distribution of
any nonmetallic inclusions in liquid metal. There are 7 figures and 13 ref-
erences: 10 Soviet-bloc and 3 non-Soviet-bloc. The references to English-
language publications read as follows: G. F. Comstock, Metal Progress, 1948,
54; K. H. Colin, G. H. Shelling, Electric Furnace Steel Proceedings, 1957;
C. E. Sims. Electric Furnace Steel Proceedings, 1957.

ASSOCIATION: Chelyabinskiy politekhnicheskiy institut (Chelyabinsk Poly-
technic Institute)

SUBMITTED: July 25, 1960

Card 6/7

S/148/61/000/006/005/006
K071/K180

AUTHORS: Gurevich, Yu.G. and Mokhir, Ye.D.

TITLE: The formation of titanium carbonitrides in steel

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Chernaya
             metallurgiya, no.4, 1961, 107-113

TEXT: It appears that titanium carbonitrides observed in
specimens of cast and particularly rolled steel are most likely
formed during the cooling of ingots and during its heating and
cooling in the rolling process. This work was carried out in
order to study the process of titanium carbonitride formation in
solid steel 1Х18Н9Т (1Kh18N9T), smelted under the normal
conditions of the Zlatoust Works. The study was done on specimens
of steel taken from the usual heats and on specimens of the same
steel but with synthetic titanium carbides and nitrides of a
stoichiometric composition artificially introduced into the steel.
The samples of steel were cast into 3 kg ingots, cooled in water
and after various thermal treatments the metal was investigated by
chemical, metallographic, petrographic and X-ray methods. On the
basis of the experimental results obtained, it is deduced that

Card 1/2

The formation of titanium ...   S/148/61/000/004/005/008
E071/E480

titanium nitrides formed in the liquid steel serve as nuclei for
titanium carbides during the crystallization of ingots.   On the
subsequent interaction of these two phases, titanium carbonitrides
of variable composition are formed.   On heating and cooling of the
steel during rolling, titanium nitrides and carbides can be
transformed into carbonitrides.   During this transformation, well
dispersed fine nitride inclusions form coarser carbonitrides which
increase the degree of contamination of the steel by non-metallic
inclusions.   In order to decrease the amount of titanium
carbonitride inclusions in steel, slow cooling after rolling should
be prevented.   There are 3 figures, 3 tables and 6 references:
4 Soviet and 2 non-Soviet.   The two references to English language
publications read as follows:
Ref.2: A.M.Pottevin and R.Castro. J. Iron and Steel Institute,
p.1, 1937, 223.
Ref.5: A.G.Guy. Transactions of the A.S.M., 1952, 582.

ASSOCIATIONS: Chelyabinskiy politekhnicheskiy institut (Chelyabinsk
Polytechnical Institute); Zlatoustovskiy metallurgi-
cheskiy zavod (Zlatoust Metallurgical Works)
SUBMITTED: May 4, 1960
Card 2/2

GUREVICH Yu. G., CAND TECH Sc.I, "IMPROVEMENT OF THE
QUALITY OF AN INGOT OF RUSTPROOF TITANIUM-CONTAINING
STEEL." MOSCOW, 1961. (MIN OF HIGHER AND SEC SPEC ED
RSFSR, MOSCOW ORDER OF LABOR RED BANNER INST OF STEEL
IM I. V. STALIN). (KL, 3-61, 214).

23989
S/148/61/000/005/002/015
E071/E135

18 3200

AUTHOR: Gurevich, Yu. G.

TITLE: Denitrogenation of liquid steel with titanium under
            industrial conditions

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy,
            Chernaya metallurgiya, 1961, No.5, pp. 58-67

TEXT: Previous investigations of the author (Ref.1: present
journal, 1960, No.6; Ref.2: present journal, 1961. No.1) showed
that in liquid, well deoxidized steel, titanium interacts with
nitrogen forming nitrides which can float on the surface of metal,
thus removing nitrogen. The process of formation of titanium
nitrides and denitrogenation of steel was observed during
retention of liquid steel in a laboratory induction furnace at
temperatures of 1550-1560 °C and below. Therefore, during smelting
of steel in electric arc furnaces conditions for the formation of
titanium nitrides are absent. The above process is likely to take
place in the ladle after tapping if the metal is well mixed with
slag. If the metal temperature on tapping was high. then the main
mass of titanium nitrides will apparently form in the mould during

Card 1/ 9

Denitrogenation of liquid steel with ... EO71/E135

cooling of the steel and crystallization of the ingot. The
validity of the above view was checked during the production of
steel in 12 ton electric arc furnaces. Ferrotitanium was added
during various smelting periods, taking samples after melt out
(sample 1), at the end of the refining period, 15-20 minutes after
making basic slag (sample 2), before tapping (sample 3) and in the
ladle after the end of the tap (sample 4). Samples from the ladles
were taken from the upper layer of the metal. The types of steel
smelted, the period during which ferrotitanium was added and the
method of smelting, are given in Table 1. No relationship between
the nitrogen content of liquid steel and the period during which
ferrotitanium was added was observed. The chemical composition of
the slags shows that titanium oxidizes during all periods of
smelting, enriching the slag with its oxides. A petrographic
analysis of slags gave no indications of the presence of titanium
nitrides. Not in all heats was decrease in the nitrogen content
observed during tapping; in some heats the nitrogen content of the
ladle sample was higher than that before tapping. This can be
explained by the fact that ladle samples were taken from the upper
layers of the metal. The content of nitrogen in the last portions
Card 2/ 9

23989
S/148/61/000/005/002/015

Denitrogenation of liquid steel with...E071/E135

of the metal in the ladle can increase. The sharp increase in the nitrogen content in the upper layers of the metal in the mould (Table 4) shows that the formation of titanium nitrides in this period is most intense. The determination of the amount and composition of non-metallic inclusions in samples taken during the course of smelting and from rolled metal showed that the main mass of inclusions containing titanium is formed during crystallization. Investigation of electrolytically separated inclusions as well as metallographic studies of samples of metal confirmed these conclusions. Electrolytically separated residue from samples taken before tapping and from the ladle consisted mainly of grains of corundum, while those separated from rolled metal consisted mainly of titanium nitrides. Micro-section cut from rolled metal also showed inclusions of titanium carbonitrides. In addition some pink inclusions, elongated along the direction of rolling, were observed; these were related to titanium sulphides of a complex type. Thus, under industrial conditions the most advantageous conditions for degassing of steel with titanium are in the ladle and in the mould. After observation of a non-uniform distribution of nitrogen in small ingots, some authors concluded that the segregation of

Card 3/ 9

23989
S/148/61/000/005/002/015

Denitrogenation of liquid steel with   E071/E135

nitrogen and titanium in large ingots will be even more pronounced.
The present author showed by calculations, Fig.4, (1 - ingot 30 kg.
R = 5.5 cm, H = 34 cm, t_{cryst} = 3.3 min; 2 - ingot 200 kg,
R = 10 cm, H = 66 cm, t_{cryst} = 11.2 min; 3 - ingot 500 kg,
R = 15 cm, H = 80 cm, t_{cryst} = 23.5 min; 4 - ingot 2700 kg,
R = 25 cm, H = 140 cm, t_{cryst} = 62.0 min; body of ingot (00.00 -
100.00, shrinkage head; C_o - nitride concentration at the height
h at the initial instant of time; C - same at the time t min.),
and experimental determination of the distribution of nitrogen
along the height of a 500 kg ingot (Fig.5) of steel containing 20%
Cr and 0.5% Ti that the reverse applies.   The majority of
titanium alloyed structural steels are tapped with a temperature
of 1580-1630 °C. Under such conditions the main part of titanium
nitrides is formed in the ingot mould. The calculated degree of
nitrogen removal during the period of crystallization showed that
the decrease in the relative concentration of nitrogen is within
the limits of experimental error in nitrogen determination and
therefore cannot be taken into consideration. Thus, under
industrial conditions during smelting and teeming of titanium
containing steels the denitrogenating properties of titanium may
Card 4/9

23989

S/148/61/000/005/002/015

Denitrogenation of liquid steel with..E071/E135

not appear at all; in fact as titanium can increase the
solubility of nitrogen in steel, the content of nitrogen in such
steels may be higher than in corresponding steels without
titanium. The latter was confirmed by a frequency curve of the
nitrogen content in steels 20 ХГ (20KhG) and 18 ХГГ (18KhGT)
smelted under industrial conditions. It is concluded that during
smelting of steel, titanium cannot remove nitrogen but on the
contrary may increase the solubility of this gas in the metal.
The processes of formation of titanium nitrides are more
intensive during cooling of steel in ingot moulds. It was shown
experimentally and by calculations that the volume segregation of
nitrogen and titanium along the height of large ingots takes place
practically only in the upper part (shrinkage head).
There are 7 figures, 7 tables and 10 references: 9 Soviet and
1 English: as follows:
Ref.7: G.F. Comstock, Metal Progress, 1948, 54.

ASSOCIATION: Chelyabinskiy politekhnicheskiy institut
             (Chelyabinsk Polytechnical Institite)
Card 5/ 9

SUBMITTED: November 9, 1960

GUREVICH, Yu.G.

Denitrification of liquid steel by titanium in industrial conditions.
Izv.vys.ucheb.zav.; chern.met. 4 no.5:58-67 '61.   (MIRA 14:6)

1. Chelyabinskiy politekhnicheskiy institut.
         (Steel ingots)   (Titanium nitride)

SHUSTER, M.D., inzh.; GUREVICH, Yu.G.

From practices of the heat-treating shop of the Chelyabinsk
Tractor Plant. Metalloved. i term.obr.met. no.12:30-38 D '61.
(MIRA 14:12)

(Chelyabinsk---Tractor industry)
(Furnaces, Heat-treating)

GUREVICH, Yu.G.

Effect of remelting on steel contamination by titanium nitrides.
Izv. vys. ucheb. zav.; chern. met. 5 no.7:71-77 '62.
(MIRA 15:8)

1. Chelyabinskiy politekhnicheskiy institut.
            (Steel—Metallurgy) (Titanium nitride)

BELOSHABSKIY, V.I., kand.tekhn.nauk; GUREVICH, Yu.G., kand.tekhn.nauk

Continuous measurement of metal level in casting molds during
steel teeming. Biul.tekh.-ekon.inform.Gos.nauch.-issl.inst.
nauch.i tekh.inform. 16 no.10:3-5 '63.   (MIRA 16:11)

ROZIN, B.B., inzh.; GEYMAN, R.S., inzh.; DANILOV, A.M., inzh.;
    SLASHCHEVA, V.M., inzh.; GUREVICH, Yu.G., kand. tekhn. nauk

Statistical analysis of causes for changes in the impact
toughness of 30KGSA steel with the use of punched card
computer machines. Stal' 24 no.1:74-77 Ja '64.
                                        (MIRA 17:2)

1. Zlatoustovskiy metallurgicheskiy zavod i Chelyabinskiy
politekhnicheskiy institut.

ACCESSION NR: AP4040388   S/0133/64/000/006/0540/0544

AUTHORS: Okhrimovich, B. P. (Engineer); Tishchenko, O. I. (Engineer); Filatov,
S. I. (Engineer); Kolyasnikova, R. I. (Engineer); Gurevich, Yu. G. (Candidate
of technical sciences)

TITLE: Dark crust in the macrostructure of stainless heat resistant alloyed
structural steels

SOURCE: Stal', no. 6, 1964, 540-544

TOPIC TAGS: steel, stainless steel, heat resistant steel, crust formation, steel
13Kh12NVMFA, steel 13Kh14NVFRA, steel 20Kh15N3MA, steel Kh17N2, steel 4Kh9S2,
steel Kh28, steel Kh17, steel Kh25, structural steel 18KhNVA, structural steel
15KhGNTA, structural steel 18KhNT, structural steel 40KhNMA

ABSTRACT: This study is a continuation of a previous investigation on the nature
of dark crusts common on stainless heat-resistant steels of the types 13Kh12NVMFA,
13Kh14NVFRA, 20Kh15N3MA, Kh17N2, Kh17, Kh25, 4Kh9S2, Kh28 and on the alloyed
structural steels 18KhNVA, 15KhGNTA, 18KhNT, 40KhNMA. The investigation consisted
of metallographic analysis of samples cut from "healthy" and from defective sec-
tions of ingots, and the comparison of their compositions and structures. Metal-

Card 1/2

ACCESSION NR: AP4040388

lographic study showed that defective sections were richer in carbon, aluminum, and aluminum oxides. Large silicate inclusions of complex composition with multiple aluminate inclusions were found to be distributed regularly in the direction of deformation. Corundum represented the basic part of the precipitate and occurred in the form of transparent colorless grains (N_g = 1.767). Spinel and titanium were less common. The precipitate also contained colored anisotropic inclusions with N_g = 1.775. The experiments revealed that the dark crust originated in the deadhead zone and penetrated the body of casts during the crystallization period. Defects caused by crust formation were eliminated by preventing the chipping of the crust and its subsequent sinking into the metal. This was achieved by decreasing the heat of flux by sprinkling lunkerite 28, vermiculite powder, or chamotte over the ingots (2 kg per ton of metal). Orig. art. has: 1 table, 6 figures, and 1 formulas.

ASSOCIATION: Zlatoustovskiy metallurgicheskiy zavod i Chelyabinskiy politekhnicheskiy institut (Zlatoust Metallurgical Plant and Chelyabinsk Polytechnic Institute)

SUBMITTED: 00   DATE ACQ: 24Jun64   ENCL: 00

SUB CODE: MM   NO REF SOV: 015   OTHER: 000

Card 2/2

EL'YASBERG, Pavel Yefimovich; GUREVICH, Yu.G., red.

[Introduction to the theory of flight of artificial
earth satellites] Vvedenie v teoriiu poleta iskusstven-
nykh sputnikov zemli. Moskva, Nauka, 1965.   540 p.
(MIRA 19:1)

ACCESSION NR: AP4043488

S/0133/64/000/008/0736/0738

AUTHOR: Mokhir, Ye. D(Engineer); Gurevich, Yu. G. (Candidate of technical sciences)

TITLE: Titanium sulfides in titanium-containing stainless steel

SOURCE: Stal', no. 8, 1964, 736-738

TOPIC TAGS: steel, stainless steel, titanium steel, titanium sulfide, austenite, grain boundary

ABSTRACT: In a discussion of reactions between titanium and sulfur and the formation of sulfide inclusions in titanium-containing stainless steel 18-8, the authors present the results of a metallographic examination of the steel and draw the following conclusions: 1. three types of titanium sulfide inclusions occur in steel, differing in color, properties and, probably, chemical composition; 2. the silverly-pink to dark-pink, highly reflective and readily polished inclusions with a hardness of 180-200 H_v, which are anisotropic in polarized light, are most probably titanium sulfides; 2. the larger, more convex, greyish-pink to bluish-pink inclusions with a hardness of 200-250 Hv should be identified as a multi-phase combination of titanium sulfides and carbides with carbonitrides; 4. the grey-colored isotropic inclusions found rarely in faulty sample areas may consist of a solid

Card 1/2

ACCESSION NR: AP4043488

solution of titanium and manganese sulfides. The effect of heating steel at 1220-1270C
for 2-4 hrs. with subsequent slow or rapid cooling is discussed in relation to the free
energy of formation of TiC, TiS, TiN, TiS_2 and TiO_2. Slow cooling is found to increase
the amount of complex inclusions and favor movement of titanium sulfide to the grain
boundaries, resulting in the appearance of specific defects. Photomicrographs of such
inclusions are presented. Orig. art. has: 5 figures.

ASSOCIATION: Zlatoustovskiy metallurgicheskiy zavod (Zlatoustovsk Metallurgical
Plant); Chelyabinskiy politekhnicheskiy institut (Chelyabinsk Polytechnical Institute)

SUBMITTED: 00   ENCL: 00

SUB CODE: MM   NO REF SOV: 006   OTHER: 007

Card 2/2

OKHRIMOVICH, B.P., inzh.; TISHCHENKO, O.I., inzh.; FILATOV, I.I., inzh.;
    KOLYASNIKOVA, R.I., inzh.; GUREVICH, Yu.G., kand.tekhn.nauk

Dark crust in the macrostructure of stainless, heat-resistant
structural steel alloys. Stal' 24 no.6:540-544 Je '64. (MIRA 17:9)

1. Zlatoustovskiy metallurgicheskiy zavod i Chelyabinskiy
politekhnicheskiy institut.

L 45976-66   EWT(m)/EWP(t)/ETI   IJP(c)   JD

ACC NR: AR6028429   SOURCE CODE: UR/0137/66/000/005/V051/V051

AUTHOR: Gurevich, Yu. G. ; Mokhir, Ye. D.

TITLE: Nature of the segregation area in stainless steel

SOURCE: Ref. zh. Metallurgiya, Abs. 5V324

REF SOURCE: Tr. Chelyab. politekhn. in-ta, vyp. 28, 1965, 20-25

TOPIC TAGS: stainless steel, metal etching, segregation, segregation area, etching

ABSTRACT: For solution to the problem of the nature of segregation of the area of increased etching in stainless steel, the distribution of titanium sulfides has been investigated by metallographic analysis along the cross section of rolled blanks. The results of the investigation show that in the range of increased etching there is a microliquation of sulfur carbon, and titanium in the form of sulfides and titanium carbosulfides. In connection with this, the square of increased etching appears to be the segregation area. The formation mechanism of the latter is associated with a change in the solubility of sulfides and titanium carbosulfides in

Card 1/2   UDC: 669.18-412:621.746.753

L 45976-66

ACC NR: AR6028429

austenite and in their precipitation from solution on slow cooling. The segregation area in blanks can be eliminated by heat treatment of the steel: heating the metal to 1200—1250C, holding for 2—3 hr at this temperature, and subsequent quick cooling in water. D. Kashayeva. Orig. art. has: 1 figure and 2 tables. Bibliography of 11 titles. [Translation of abstract]   [NT]

SUB CODE: 11/

Card 2/2   JS

ACC NR: AP6030050   SOURCE CODE: UR/0133/66/000/001/0042/0044

AUTHOR: Gurevich, Yu. G. (Candidate of technical sciences); Rozin, B. B. (Engineer);
Geyfman, R. S. (Engineer)

ORG: Chelyabinsk Polytechnical Institute (Chelyabinskiy politekhnicheskiy institut);
Zlatousk Steel Plant (Zlatoustovskiy metallurgicheskiy zavod)

TITLE: Use of punch-card tabulators in statistical analysis of operating conditions
for electric furnaces

SOURCE: Stal', no. 1, 1966, 42-44

TOPIC TAGS: arc furnace, statistic analysis, punched card, industrial management,
data analysis

ABSTRACT: The authors use the simplified method proposed by Sokolov (A. N.
Sokolov, "High Speed Steel Smelting in Arc Furnaces," Mashgiz, 1960) for
establishing electrical characteristics of arc furnaces from observations
of melts. The initial information is subjected to statistical analysis on
punch card tabulators so that production data may be used to account for
the effect which variable operating conditions have on the principal techni-
cal and economic indices of the furnace. A program is briefly described
for organizing the information on punch cards for mechanical data analysis.
The machine output is in the form of tables for relationships between the
basic parameters of the furnace (e.g., melting time as a function of input
power). The tabular data are then used for plotting empirical regression
lines. These curves are then used as a basis for derivation of optimizing
equations. The proposed method of analysis may be used for various types of electric
furnaces and various grades of steel. Orig. art. has: 2 figures, 7 formulas and
2 tables. [JPRS: 35,681]

SUB CODE: 09, 13, 11 / SUBM DATE: none / ORIG REF: 003 / OTH REF: 001
UDC: 669.187.2

Card 1/1

L 05777-67   EWT(1)   IJP(c)   GG/AT

ACC NR: AP6031445   SOURCE CODE: UR/0056/66/051/002/0536/0555

56
B

AUTHOR: Bass, F. G.; Gurevich, Yu. G.

ORG: Institute of Radiophysics and Electronics, Academy of Sciences Ukrainian SSR (Institut radiofiziki i elektroniki Akademii nauk Ukrainskoy SSR)

TITLE: Nonlinear theory of wave propagation in semiconductors

SOURCE: Zhur eksper i teor fiz, v. 51, no. 2, 1966, 536-555

TOPIC TAGS: nonlinear theory, wave propagation, electron temperature, electromagnetic wave, electron gas, skin effect

ABSTRACT: The propagation of electromagnetic waves in a semiconductor is investigated in consideration of nonlinear effects due to heating up of the electrons by the field. Nonlinear anomalous and normal skin effects are analyzed. The nature of field attenuation and the dependence of effective electron temperatures on the frequency of the incident field and its amplitude are studied for resonance and nonresonance. It is shown that the effective temperature with resonance exceeds that with nonresonance. It is found that the attenuation depth of the electron temperature in the anomalous case is greater and in the normal case is of the same order

Card   1/2

L 05777-67

ACC NR: AP6031445

of magnitude as that of the attenuation depth of the field. The dependence of the surface impedance on the amplitude and frequency of the incident electromagnetic field and the stationary magnetic field is found. The specific interaction of electro-magnetic waves due to heating of the electron gas is analyzed. It is shown that the propagation of small-amplitude waves may considerably change in the presence of a large amplitude wave. Orig. art. has: 83 formulas. [Based on authors' abstract]

SUB CODE: 20/ SUBM DATE: 15Feb66/ ORIG REF: 008/ OTH REF: 002/

Card 2/2

GREBENNIKOV, Yevgeniy Aleksandrovich; DEMIN, Vladimir Grigor'yevich;
GUREVICH, Yu.G., red.

[Interplanetary flights] Mezhplanetnye polety. Moskva, Nauka,
1965. 199 p. (MIRA 18:11)

YEGOROV, Vsevolod Aleksandrovich; GUREVICH, Yu.G., red.

[Three-dimensional problem of reaching the moon] Pro-
stranstvennaia zadacha dostizheniia luny. Moskva, Nauka,
1965.   224 p.   (MIRA 18:9)

BODNER, Vasiliy Afanas'yevich; GUREVICH, Yu.G., red.

[Theory of automatic flight control] Teoriia avtomaticheskogo upravleniia poletom. Moskva, Izd-vo "Nauka," 1964.   698 p.   (MIRA 17:5)

PERKEL', I.D., professor; GUREVICH, Yu.K.

Late form of the fourth venereal disease complicated by cancer of the vulva. Vest.ven.i derm. no.5:55 S-O '53.   (MLRA 6:12)

1. Iz Odesskogo dermato-venerologicheskogo instituta im. Ye.S.Glavche i Odesskogo oblastnogo vendispansera.
            (Vulva--Cancer) (Venereal diseases)

GUREVICH, Yu.K., KAMENTSKIY, I.S., LITVAK, P.L.

Treatment of syphilis without the use of arsenic [with summary in English]. Vest. derm. i ven 32 no.4:42-45 Jl-Ag '58 (MIRA 11:10)

1. Iz Odesskogo oblastnogo kozhno-venorologicheskogo dispansera (glavnyy vrach I.M. Koltun).
            (SYPHILIS, ther.
                    nonarsenical combined ther. (Rus))

GUREVICH, Yu.K.; LITVAK, P.L.

Preventive treatment of syphilis with penicillin and ecmonovocillin.
Vrach.delo   no.6:653 Je '59.   (MIRA 12:12)

1. Odesskiy oblastnoy kozhno-venerologicheskiy dispanser.
        (SYPHILIS--PREVENTION) (ANTIBIOTICS)

GUREVICH, Yu.K.; LITVAK, L.L.; BIBERGAN, B.Ya.; BLEKH, Ye.Ya.;
BARABASH, D.V.

Observations on the treatment of various forms of syphilis with
bicillin. Vest.derm.i ven. 34 no.12:31-33 '60.

(MIRA 14:1)

1. Iz Odesskogo oblastnogo kozhno-venerologicheskogo dispansera
(glavnyy vrach I.M. Koltun).

(SYPHILIS)   (PENICILLIN)

GUREVICH, Yu.K.; KAMENETSKIY, I.S.

Reiter's syndrome treated with corticosteroids. Vest.derm.i
ven. no.11:67-69 '61.   (MIRA 14:11)

1. Iz Odesskogo oblastnogo kozhno-venerologicheskogo dispansera
(glavnyy vrach I.M. Koltun).
    (REITER'S DISEASE)   (ADRENOCORTICAL HORMONES--THERAPEUTIC USE)

POLISHCHUK, A.K., inzh.; GUREVICH, Yu.L., inzh.

Experience in manufacturing reinforced concrete components by production-line techniques. Bet. i zhel. -bet. no.8:314-317 Ag '57.

(MIRA 10:10)

(Moscow--Concrete plants)

Z/011/62/019/001/017/017
E073/E136

AUTHORS: Korzin, N.V., Gurevich, Yu.M., and Ioshpe M.L.

TITLE: Selection of varnish systems which are resistant to hot water

PERIODICAL: Chemie a chemická technologie. Přehled technické a hospodářské literatury, v.19, no.1, 1962, 38, abstract Ch 62-528. (Lakokras. Materialy, no.5, 1961, 67-68)

TEXT: The following varnishes were tried: epoxy, mixture of polivinylbutaryl and cresolformaldehyde resin, phenolformalde-hyde resin, nitrile rubber with cresolformaldehyde resin, oil-asphalt varnish with asbestos, amber, divinylacetylene (ethynol varnish), furfural resin. From the first test series, the three most satisfactory varnish systems were chosen, which are being subjected to further tests. These are: ethynol varnish, polyvinylbutaryl + cresolformaldehyde resin, and oil asphalt mastic.   2 tables.

Card 1/1   [Abstractor's note: Complete translation.]

NADZHDIN, D.S., kand.tekhn.nauk; GLADKIY, I.N.; GUREVICH, Yu.M.

Testing the resistance of painted and varnished coatings in salt
mines and salt plants. Sbor.nauch.trud.UkrNIISol' no.6:90-95
'62.   (MIRA 17:3)

NADEZHDIN, D.S. [Nadiezhdin, D.S.]; GLADKIY, I.M. [Hladkyi, I.M.];
     GUREVICH, Yu.M. [Hurevych, IU.M.]

Use of lacquer coatings for the protection of equipment, apparatus
and metal structures in the salt industry. Khar.prom. no.3:72-74
Jl-S '62.   (MIRA 15:8)

1. Ukrainskiy nauchno-issledovatel'skiy institut solyanoy
promyshlennosti.
          (Salt industry—Equipment and supplies)
               (Protective coatings)

GUREVICH, Yu.M.; DERUN, A.M.

Interference suppressing apparatus for electric correlation.
Geofiz.razv. no.14:116-125 '63.   (MIRA 17:3)

GUREVICH, Yu.M.

Correlation of strata of high-resistance rocks in well
sections. Geofiz. razv. no. 15:144-151 '64. (MIRA 17:7)

GUREVICH, Yu.M.

Normal field in the method of dipole electric correlation. Trudy Inst.
geofiz.UFAN SSSR no.3:149-153 '65.

Optimum lateral device for resistance logging in the ore deposits
in the Central Urals. Ibid.:183-186

(MIRA 18:8)

GURLVICH, Yu.Sh.

Characteristic groups. Mat. zap. Ural. mat. ob-va UrGu 4
no.1:32-39 '63.   (MIRA 17:9)

GUREVICH, Yu. Sh; KOKORIN, A.I.

Universal equivalence of ordered Abelian groups. Alg. i log.
2 no.1:37-39 '63   (MIRA 18:1)

GUREVICH. Yu.Sh.

Elementary properties of ordered Abelian groups. Alg. i log. 3
no.1:5-39 '64   (MIRA 18:1)

Gurevich, Yu.-V.

18(0)

PHASE I BOOK EXPLOITATION SOV/2125

Tsentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii.
Institut Metallovedeniya i fiziki metallov

Problemy metallovedeniya i fiziki metallov (Problems in Physical Metallurgy and Metallophysics) Moscow, Metallurgizdat, 1959.
540 p. (Series: Its: Sbornik trudov, 6) Errata slip inserted.
3,600 copies printed.

Additional Sponsoring Agency: USSR. Gosudarstvennaya planova komissiya.

Ed. of Publishing House: Ye.M. Berlin; Tech. Ed.: P.G. Islent'yeva;
Editorial Board: D.S. Kamenetskaya, B.Ya. Lyubov (Resp. Ed.),
Ye.Z. Spektor, L.M. Utevskiy, L.A. Shvartsman, and V.I. Malkin.

PURPOSE: This book is intended for metallurgists, metallurgical engineers, and specialists in the physics of metals.

COVERAGE: The papers in this collection present the results of investigations conducted between 1954 and 1956. Subjects

Card 1/18

covered include crystallization of metals, physical methods of influencing the processes of crystallization, problems in the physical chemistry of metallurgical processes, development of new methods and equipment for investigating metals, and production control. References follow each article.

TABLE OF CONTENTS:

AVAILABLE: Library of Congress

Card 18/18   00/jar
                                                                 9-4-59

14(5)   SOV/92-59-3-11/44

AUTHOR: Gurevich, Yu. V.

TITLE: Contour Flooding of the Offshore Oil Reservoir
          (Zakonturnoye zavodneniye morskogo promysla)

PERIODICAL: Neftyanik, 1959, Nr 3, p 13 (USSR)

ABSTRACT: The advanced method of stimulating the oil flow by
            contour flooding of the oil reservoir is now applied to the
            offshore petroleum-bearing rocks, Neftyanyye Kamni. The for-
            mation pressure maintenance project has been developed by a
            panel of petroleum production experts of the Azerbaydzhan
            Academy of Science. Since 1953, when the injection of water
            into oil reservoir rocks was initiated, the number of input
            wells and the quantity of injected water has continued to grow
            as shown in Diagram 1. The efficiency of the flooding method
            is illustrated in Diagram 2. While in 1953 only 11 percent
            of crude oil had been produced by pressure maintenance, by
            1957, 70 percent of the recovered oil had been obtained by

Card 1/2

Contour Flooding (Cont.)   SOV/92-59-3-11/44

this method. Two powerful water purifying units, several
pump stations and water distributing batteries now operate
at Neftyanyye Kamni. Sea water is injected under pressure
of 60-65 atm. Thanks to the application of the flooding
method, offshore petroleum production costs are 3 times
lower than the costs of petroleum production on the mainland.
To increase the efficiency of the pressure maintenance method
further is one of the most important tasks of Caspian oilmen.
There are 2 diagrams.

Card 2/2

GUREVICH, Yu.V.

Collective effect of offshore petroleum workers. Neftianik
7 no.5:32 My '62.   (MIRA 15:12)
    (Bibliography—Oil well drilling, Submarine)

23855

S/020/61/137/006/017/020
B101/B201

24.3300 (1158, 1482, 1160, 1147)

AUTHORS: Myamlin, V. A., Kibardin, V. A., and Gurevich, Yu. Ya.

TITLE: Effect of a magnetic field upon the motion of particles in electrolyte solutions

PERIODICAL: Doklady Akademii nauk SSSR, v. 137, no. 6, 1961, 1405-1408

TEXT: The present paper deals with a field of research that, in the authors' opinion, has been little investigated so far. Still, findings in this respect may be useful in the study of the structure of particles, such as: determination of their viscosity, their surface charge, the hardness of their surface layer. Such problems may, for example, arise in biology. For their purposes, the authors proceeded from a spherical drop with radius a situated in an electrolyte, the latter being traversed by a flow caused by the electric field $\vec{E}$. The magnetic field $\vec{H}$ is applied in perpendicular thereto. $\vec{E}$ and $\vec{H}$ are homogeneous and constant at a distance from the particle. The coordinate origin is assumed to be situated in the center of the particle, the polar axis to be oriented alongside $\vec{E}$, the azimuthal angle φ to be measured from the plane zx, and the y axis to be oriented alongside $\vec{H}$. The

Card 1/4

Effect of a magnetic ...

particle is assumed to be immobile, and the liquid to flow with the velocity U_0. I) If there is no flow through the drop, the following relations are written for the components of force:

$F_r = (\kappa EH/c)(1 + a^3/2r^3)\sin\theta\cos\varphi$; $F_\theta = (\kappa EH/c)(1 - a^3/r^3)\cos\theta\cos\varphi$;

$F_\varphi = (-\kappa EH/c)\left[1 - a^3/r^3 + (3a^3/2r^3)\sin^2\theta\right]\sin\varphi$ (3). Since in fields achieved in practice the velocity is low, and motion has a viscous character, the system of hydrodynamic equations receives the form: outside of the drop $\nabla p = \mu\Delta\vec{v} + \vec{F}$; div $\vec{v} = 0$ (4) inside the drop: $\nabla p_1 = \mu_1\Delta\vec{v}_1$; div $\vec{v}_1 = 0$ (5).

The following boundary conditions hold for $r = a$: $v_r = v_{1r} = 0$; $v_\theta = v_{1\theta}$;

$v_q = v_{1qi}$; $P_{rr} = P_{1rr}$; $P_{r\theta} = P_{1r\theta}$; $P_{r\varphi} = P_{1r\varphi}$ (6). The following solution is written for Eq. (4) and Eq. (5): $v_r = f(r)\sin\theta\cos\varphi$; $v_\theta = g(r)\cos\theta\cos\varphi$;

$v_\varphi = \sin\varphi\left[h(r) + t(r)\sin^2\theta\right]$; $p = \mu s(r)\sin\theta\cos\varphi$ (7). The function for the radius are derived from Eq. (4) and Eq. (7), and the following is found for a solution: outside of the drop $f = k/r^3 + L/r + U_0$; $g = (B - K)/2r^3$ + $(L + \lambda)/2r + U_0$; $t = B/r^3 + \lambda/r$; $s = (L + \lambda)/r^2 - 4\lambda r/a^3$; $h = -g$ (9), where $\lambda = EH\kappa a^3/4\mu c$. Inside the drop ($\lambda = 0$): $f_1 = M + Nr^2$;

Card 2/4

Effect of a magnetic ...

$g_1 = M + r^2(2N + A/2)$; $t_1 = Ar^2$; $s_1 = 10Nr$; $h_1 = -g_1$ (10). A, B, M ... are the integration constants, calculated on the basis of boundary conditions (6). The particle is found to move in perpendicular to the electric and magnetic field with the velocity $U_0 = (\chi a^2 EH/2\mu c) \left[(\mu + \mu_1)/(2\mu + 3\mu_1)\right]$ (12). This magnetophoresis attains for $H = 10^4$ gauss, $j = 10^3$ a an order of magnitude of 0.1 cm/sec. II) If the particle has a surface charge ε, an electrophoresis will arise in addition. If the thickness of the electric double layer is assumed to be considerably smaller than the radius of the particle, one may write for the potential outside of the particle:

$\varphi = \left[r + (1/2 - \varepsilon V_0/\chi Ea)a^3/r^2\right] E \cos\theta$ (15). V_0 is put equal to the velocity of electrophoresis: $V_0 = \varepsilon Ea(2\mu + 3\mu_1 + \varepsilon^2\chi)$ (16). The following relation is written for the motion of the charge in the inner layer of the double layer: $F_1 = (2V_0\varepsilon H/ac)\vec{e}_x$ (17), where $\vec{e}_x$ denotes the unit vector in the direction of the x-axis. The effect of the magnetic field upon the double layer is equal to zero. Equations (4) and conditions (6) remain valid. For the magnetophoresis one finds in this case:

Card 3/4

Effect of a magnetic ...

$U = U_o\left[1 + (8\mu + 15\mu_1)/(\mu + \mu_1)\right](\varepsilon V_o/\kappa Ea)$ (20), where U_o is determined from Eq. (12), V_o from Eq. (16). If the particle is solid, so that Eq. (17) is abolished, then $U = U_o(1 + \varepsilon V_{sd}/\kappa Ea)$ (21), where V_{sd} is the velocity of the electrophoresis of the solid particles: $V_{sd} = \varepsilon Ed/(\mu + \varepsilon^2 d/a\kappa)$ (22). d is the thickness of the double layer. If the viscosity μ is negligible, it will follow from Eq. (21): $U_{sd} = 2U_o$ (23). This shows that uncharged solid particles in a magnetic field are separable from charged liquid particles. N. G. Levich, Corresponding Member AS USSR, is thanked for discussions. There are 3 references: 2 Soviet-bloc and 1 non-Soviet-bloc. The reference to English-language publication reads as follows: D. Leenov, A. Kolin, J. Chem. Phys., 22, 4, 683, (1954).

ASSOCIATION: Institut elektrokhimii Akademii nauk SSSR (Institute of Electrochemistry, Academy of Sciences USSR)

PRESENTED: December 6, 1960, by A. N. Frumkin, Academician

SUBMITTED: November 2, 1960

Card 4/4

S/020/62/143/001/010/030
B104/B108

AUTHORS: Levich, V. G., Corresponding Member of the AS USSR, and
               Gurevich, Yu. Ya.

TITLE: Effect of a magnetic field on the surface waves of
               conductive liquids

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 143, no. 1, 1962, 64-67

TEXT: The propagation of gravitation-capillary waves in conductive
liquids under the action of an external magnetic field is studied. The
periodical solution of the linearized equations of magnetohydrodynamics

$$\partial v/\partial t = -\frac{1}{\rho}\, \nabla p + g + \frac{1}{4\pi\rho}\, [\mathrm{rot}\, h H_0], \quad \partial h/\partial t = \mathrm{rot}\, [v H_0], \qquad (1),$$
$$\mathrm{div}\, v = 0, \quad \mathrm{div}\, h = 0.$$

are sought. The external magnetic field $\vec{H}_0$ is assumed to be in the direc-
tion of the gravitational field, which leads to the particular solution

$$v_x = \frac{4\pi\rho k l}{4\pi\rho\omega^2 + k^2 H_0^2}\, C e^{i k x + k z}, \quad v_y = 0, \quad v_z = \frac{4\pi\rho k}{4\pi\rho\omega^2 + k^2 H_0^2}\, C e^{i k x + k z}. \qquad (7).$$

Card 1/3

Effect of a magnetic field ...

To this solution must be added the solution

$$v = Be^{-i(pz+\omega t)},$$ (9)

of the homogeneous equation

$$\omega^2 v + \frac{H_0^2}{4\pi\rho} \frac{\partial^2 v}{\partial z^2} = 0.$$ (8),

which describes the Alfvén waves propagating into the liquid. $p = 4\pi\varsigma\omega^2/\vec{H}_0^2$. The electromagnetic field extends above the surface of the liquid to a height equal to about two wavelengths of the surface waves. The liquid particles in the waves move in circles, the radius of which decreases exponentially with the depth. The dispersion of the magnetohydrodynamic gravitational waves is described by

$$\frac{\omega\rho}{k} - g\rho = -\frac{H_0^2}{4\pi} k.$$ (21).

This shows that gravitational waves with a wavelength smaller than $\lambda_{cr} = H_0^2/4\pi\varrho g$ cannot propagate along the surface of the liquid. The effect of surface tension is investigated on the assumption that if does not depend on the magnetic field and that the electromagnetic tensions are

Card 2/3

Effect of a magnetic field ...

S/020/62/143/001/010/030
B104/B108

low. Without attenuation, the propagation of sufficiently short or sufficiently long waves is possible, the dispersion law not depending on the orientation of the magnetic field relative to the direction of gravitation. The propagation of sufficiently short waves (capillary waves) is always possible. There are 5 references: 4 Soviet and 1 non-Soviet.

ASSOCIATION: Institut elektrokhimii Akademii nauk SSSR (Institute of Electrochemistry of the Academy of Sciences USSR)

SUBMITTED: December 15, 1961

Card 3/3

GUREVICH, Yu. Ya. (Moskva)

Talk with a witty mathematician. Priroda 51 [i.e. 52] no.5:
122-123 '63.   (MIRA 16:6)

(Mathematics—Curiosa and miscellany)

GUREVICH, Yu.Ya. (Moskva); CHITAYEVA, N.A., kand.geol.-mineral.nauk (Moskva)

Brief notes on books. Priroda 52 no.6:24, 33, 84 '63. (MIRA 16:6)
(Broglie, Louis, De, 1892-)
(Transbaikal region—Ore deposits)
(Electric power)

L 35100-65   EuT(1)/EuT(m)/EuG(m)/T   Pz-6/Peb   IJP(c).   AF/RWH

ACCESSION NR: AP5009864   UR/0062/64/000/010/1776/1785

AUTHOR: Gurevich, Yu. Ya.; Myamlin, V. A.

TITLE: Frequency characteristics of the electrolyte-semiconductor interface

SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 10, 1964, 1776-1785

TOPIC TAGS: electrochemistry, electrolysis, semiconductivity, semiconductor device, electronic circuit, electric resistance, electric capacitance, signal frequency

Abstract: The frequency characteristics of the electrolyte-semiconductor interface were calculated, considering the influence of the surface levels and treating a broad region of potentials. A general expression was obtained for the impedance of the electrolyte-semiconductor contact. The volume properties of the semiconductor also proved substantial. It was found that due to diffusion effects, even in the absence of surface levels, the capacitance (and resistance) are frequency dependent. The impedance of the semiconductor was obtained by considering the thickness of the Helmholtz layer equal to zero and then considering the influence of the field effect. A series of limiting cases are considered in detail, encompassing various ranges

Card   1/2

L 35100-65
ACCESSION NR: AP5009864

of frequencies and potentials, including the frequency characteristics of the contact in the absence of surface levels. The authors note that data on the surface levels of a semiconductor, as well as data on the volume properties of a semiconductor, can be obtained from an experimental study of the frequency characteristics of the electrolyte-semiconductor contact. They consider that their equivalent circuits consisting of a capacitance and resistance connected in parallel, calculating the dependence of these elements on the frequency and potential, is more convenient than more complex circuits in which the components are not dependent on the frequency. Orig. art. has: 35 formulas.

ASSOCIATION: Institut elektrokhimii Akademii nauk SSSR (Institute of Electrochemistry, Academy of Sciences SSSR)

SUBMITTED: 01Mar63   ENCL: 00   SUB CODE: EC, GC

NO REV SOV: 002   OTHER: 009   JPRS

Card   2/2

MYAMLIN, V.A.; GUREVICH, Yu.Ya.

Capacitance, resistance, and injection coefficient of a
semiconducting electrode in redox reactions. Dokl. AN SSSR
155 no.1:164-167 Mr '64.   (MIRA 17:4)

1. Institut elektrokhimii AN SSSR. Predstavleno akademikom
A.N.Frumkinym.

GUREVICH, Yu.Ya.; MYAMLIN, V.A.

Faraday's rectification of the contact electrolyte - semiconductor.
Dokl. AN SSSR 155 no. 5:1159-1162   Ap '64.   (MIRA 17:5)

1. Institut elektrokhimii AN SSSR. Predstavleno akademikom
A.N.Frumkinym.

MYAMLIN, V.A.; GUREVICH, Yu.Ya.

Effect of volume levels on the impedance of a semiconductor
contact. Izv. AN SSSR Ser. khim. no.12:2237-2240 D '64
(MIRA 18:1)

1. Institut elektrokhimii AN SSSR.

GUREVICH, Yu.Ya.; MYAMLIN, V.A.

    High frequency capacity of the electrolyte - semiconductor interface.
    Elektrokhimiia 1 no.6:734-735 Je '65.   (MIRA 18:7)

    1. Institut elektrokhimii AN SSSR.

GUREVICH, Yu.Ye., inzh.; KHACHATUROV, A.A., kand. tekhn. nauk

Study of the operational stability of synchronous motors with asynchronoys system operation. Elektrichestvo no.3:35-41 Mr '65.

(MIRA 18:6)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut elektroenergetiki.

L 24919-65   EWA(h)/EWG(k)/EWT(1)/T   Pz-6/Peb   IJP(c)   AT
ACCESSION NR: AP5003407   S/0181/65/ω07/001/0012/0022

AUTHORS: Tyagay, V. A.; Gurevich, Yu. Ya.

TITLE: Calculation of the curve of dynamic charging of a semicon-
ductor surface

SOURCE: Fizika tverdogo tela, v. 7, no. 1, 1965, 12-22

TOPIC TAGS: surface layer, charging current, inversion layer, car-
rier density, space charge layer

ABSTRACT: The authors calculate the dynamic dependence of the
voltage drop across a semiconductor surface layer on the charge of
the layer, for the case when the contact is enriched with holes
(inversion layer) at the initial instant of time. It is assumed
that the semiconductor is in contact with another medium and the
entire current flowing through the semiconductor is purely capaci-
tive (is consumed in increasing the space charge in the semiconduc-

Card   1/3

L 24919-65
ACCESSION NR: AP5003407   д/

tor). The time dependence of the concentration and of the current
of minority carriers on the boundary of the diffusion region is ob-
tained. It is shown that at some initial time interval, the length
of which depends on the properties of the semiconductor, the frac-
tion of the minority-carrier current in the total current is neg-
ligibly small. It is also shown that the nonstationary processes
connected with the supply of minority carriers from within the semi-
conductor to the surface lead to the appearance of an additional   ·
capacitance in series with the capacitance of the space-charge
layer. An account is taken of the generation of minority carriers
in the quasi-neutral volume of the semiconductor. "In conclusion,
we thank corresponding member AN SSSR V. G. Levich and also Yu. V.
Pleskov and V. A. Myamlin for a useful discussion." Orig. art. has:
3 figures and 40 formulas.

ASSOCIATION: Institut elektrokhimii AN SSSR, Moscow (Institute of
Electrochemistry, AN SSSR)

Card   2/3

L 24919-65
ACCESSION NR: AP5003407

SUBMITTED: 18May64   ENCL: 00   SUB CODE: SS

NR REF SOV: 001   OTHER: 005

Card   3/3

ZHUKOVA, A.A., kand. med. nauk (Moskva); GUREVICH, Yu.Ya. (Moskva);
FENENKO, N.F. (Zhdanov, Donetskaya oblast', UkrSSR); GINEVSKIY,
Ya.M. (Moskva); GAGINA, T.N. (Alma-Ata); VERESHCHAGIN, N.K.,
prof. (Leningrad); ABRAMOV, L.S.; SERGEYEV, A.S. (Moskva)

New books. Priroda 54 no.8:19, 35, 70, 102, 122-125 Ag '65.
(MIRA 18:8)

1. Institut geografii AN SSSR, Moskva (for Abramov).

GUREVICH, Yu.Ya.; MYAMLIN, V.A.

Frequency characteristics of the electrolyte - semiconductor
interface. Izv. AN SSSR. Ser. khim. no.10:1776-1785 O '64.
(MIRA 17:12)

1. Institut elektrokhimii AN SSSR.

GUREVICH, Yu.Ye., inzh.; KHVOSHCHINSKAYA, Z.G., inzh.

Modeling of synchronous machines using electronic analog computers.
Trudy VNIIE   no.15:72-96   '63.   (MIRA 16:12)

SOKOLOV, N.I., kand.tekhn.nauk, dotsent (Moskva); GUREVICH, Yu.Ye., inzh.
(Moskva); KHVOSHCHINSKAYA, Z.G., inzh. (Moskva)

Use of analog computers for simulating a system with multiple
generators. Elektrichestvo no.5:1-8 My '61. (MIRA 14:9)
(Electric network analyzers)
(Electric power distribution)

SOKOLOV, N.I., doktor tekhn.nauk (Moskva); GUREVICH, Yu.Ye., inzh.
(Moskva);KHVOSHCHINSKAYA, Z.G., inzh. (Moskva)

Use of analog computers in studying the parallel operation of
large turbogenerators. Elektrichestvo no.10:5-13 O '63.
(MIRA 16:11)

GUREVICH, Yu.Ye., inzh.; KHVOSHCHINSKAYA, Z.G., inzh.

Concerning an assumption in static stability calculations. Izv.
vys. ucheb. zav.; energ. 7 no.3:1-9 Mr '64.   (MIRA 17:4)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut elektroenerge-
tiki (for Gurevich). 2. Moskovskiy ordena Lenina energeticheskiy
institut (for Khvoshchinskaya).

YENIKEYEV, Kh.K., kandidat biologicheskikh nauk; YAKOVLEV, P.N., akademik,
nauchnyy redaktor; GUREVICH, Z., redaktor; LESHCHINSKAYA, M.,
tekhnicheskiy redaktor

[Ivan Vladimirovich Michurin, the great transformer of nature; an
album of visual instructional aids] Ivan Vladimirovich Michurin -
velikii preobrazovatel' prirody; al'bom nagliadnykh posobii.
[Moskva] Gos. izd-vo kul'turno-prosvetitel'noi lit-ry, 1956. 78 l.
[---Explanatory text to accompany the album] ---Poiasnitel'nyy
tekst k al'bomu. 1956. 45 p.   (MIRA 9:9)
        (Michurin, Ivan Vladimirovich, 1855-1935)
        (Fruit culture)

GUREVICH, Z.

Labor-management committee. NTO no.10:62 O '59. (MIRA 13:2)

1.Chlen byuro sektsii ekonomiki respublikanskogo pravleniya Nauchno-
tekhnicheskogo obshchestva stroyindustrii, Kiyev.
(Kiev--Construction industry)

Gurevich, Z. A.

20473   Gurevich, Z. A.   Ostryye Entseafality Poslsunibt i .   Vrachoh Dela,
1941, No. 6, Str.   503-08

SO: Letopis' Zhurnal Statey, No. 30, Moscow, 1948

GUREVICH, Z.A.

Clinical neurologic aspects of toxic alimentary aleukia (Hypoleukocytic angina). Klin.med., Moskva no.4:92 Ap '50.   (CLML 19:3)

1. Khar'kov.

GUREVICH, Z.A., professor

Dispensary services in peptic ulcer cases among rural population.
Sov. zdrav. 16 no.2:55-59 F '57.   (MIRA 10:4)

1. Iz kafedry organizatsii zdravookhraneniya (zav.-prof. Z.A.
Gurevich) Khar'kovskogo meditsinskogo instituta (dir.-dotsent I.F.
Kononenko)
        (PEPTIC ULCER, ther.
            outpatient serv. in rural cond.)
        (OUTPATIENT SERVICES
            management of peptic ulcer patients in rural cond.)
        (RURAL CONDITIONS
            outpatient serv. for peptic ulcer patients)

GUREVICH, Z.A.

GUREVICH, Z.A., prof. (Khar'kov)

New yays of treating tuberculous meningitis; review of Soviet and foreign literature for 1957. Klin.med. 35 no.9:34-42 S '57.

(MIRA 10:11)

(TUBERCULOSIS, MENINGEAL, ther. review)

GUREVICH, Z.A., prof. (Khar'kov)

"Material on the history of the public health service in the Ukraine." Reviewed by Z.A.Gurevich. Vrach.delo no.1:101-102 Ja '58.

(MIRA 11:3)

(UKRAINE--PUBLIC HEALTH)

GUREVICH, Z.A., prof.

"Great Medical encyclopedia," Vol.2. Reviewed by Z.A.Gurevich.
Zdrav.Ros.Feder. 2 no.3:36-37 Mr '58.   (MIRA 11:3)
          (MEDICINE--ENCYCLOPEDIAS AND DICTIONARIES)

EXCERPTA MEDICA Sec 18 Vol 3/8 Cardio. Dis. Aug 59

2133. Social pathology of coronary disease in the modern capitalistic countries (Russian text) GUREVICH Z. A. *Klin. Med. (Moskva)* 1958, 36 8 (16--24)

The article is a partial review of Western medical literature of the past few years, devoted to the aetiology and pathogenesis of coronary artery disease. The author emphasizes the data which point out the increasing incidence of coronary artery disease in the population of Western countries. He agrees with authors who relate the high incidence of coronary artery disease to chaotic and stressful living of the broad masses of people inhabiting the large American cities. On the other hand, he disagrees with the investigators who attempt to relate the incidence of coronary artery disease to excessive consumption of fats. The author maintains that the broad masses of population in the capitalist countries of the USA, England and France, which were undernourished prior to the last World War, are even more badly undernourished at the present time. He believes that the capitalist scientists advocating a restriction of dietary fats are serving the interests of ruling capitalists who are trying to decrease the salaries of workers on one hand and to increase the prices of food and particularly of fats on the other hand. The author claims that in contemporary capitalistic countries the population suffers not from excess but from deficiency of fats. He admits that some scientists in capitalistic countries are beginning to approach the concepts of Pavlov, accepted by the contemporary Soviet scientists. He quotes workers who suggest that hypercholesteraemia may result from emotional rather than nutritional factors. Further criticism is directed at the Western scientists who attempt to correlate the high incidence of coronary artery disease with certain occupations such as that of physician and other professional people. According to the author, any such differences can be due to the different diagnostic accuracy applied to thoroughly examined physicians in contrast to less exactly examined workers. He believes that concepts which attempt to prove that the 'higher social strata' suffer more from coronary artery disease than the workers are being developed for the purpose of distortion of the true sociological factors related to the increasing incidence of coronary artery disease. The author states that the true factor is nervous tension among workers who are subjected to the pressure of mechanization and overwork by the contemporary capitalist methods. He quotes

disease in the population
the high incidence of co
broad masses of people i   *2 / 3 ?*
disagrees with the investigators who attempt to relate the incidence of coronary
artery disease to excessive consumption of fats. The author maintains that the broad
masses of population in the capitalist countries of the USA, England and France,
which were undernourished prior to the last World War, are even more badly
undernourished at the present time. He believes that the capitalist scientists advoca-
ting a restriction of dietary fats are serving the interests of ruling capitalists who are
trying to decrease the salaries of workers on one hand and to increase the prices of
food and particularly of fats on the other hand. The author claims that in contem-
porary capitalistic countries the population suffers not from excess but from
deficiency of fats. He admits that some scientists in capitalistic countries are
beginning to approach the concepts of Pavlov, accepted by the contemporary
Soviet scientists. He quotes workers who suggest that hypercholesteraemia may
result from emotional rather than nutritional factors. Further criticism is directed
at the Western scientists who attempt to correlate the high incidence of coronary
artery disease with certain occupations such as that of physician and other professi-
onal people. According to the author, any such differences can be due to the different
diagnostic accuracy applied to thoroughly examined physicians in contrast to less
exactly examined workers. He believes that concepts which attempt to prove that
the 'higher social strata' suffer more from coronary artery disease than the workers
are being developed for the purpose of distortion of the true sociological factors
related to the increasing incidence of coronary artery disease. The author states that
the true factor is nervous tension among workers who are subjected to the pressure
of mechanization and overwork by the contemporary capitalist methods. He quotes
Lenin, who wrote: 'While the capitalist has a tremendous income, the worker works
4 times harder and ruins his muscles and nerves 4 times faster'. The author concludes
that the excess and intensity of the work ruin the health of the worker, who becomes
an invalid in order to be then kicked out by the capitalist like a pressed-out lemon.
The author feels that the capitalist scientists who mention the 'psychic stress of the
contemporary civilization' omit to say that the enormous psychic burdens to which
millions of people have been subjected result from the recent imperialistic wars. ....

ing incidence of coronary artery
e agrees with authors who relate
haotic and stressful living of the
can cities. On the other hand, he

Surawicz – Burlington, Vt. (XVIII, 6, 17*)

GUREVICH, Z.A., prof.; KHOROSH, I.D., kand.med.nauk

Methods for improving expert evaluation of temporary incapacity.
Vrach.delo no.2:179-181 F '60. (MIRA 13:6)

1. Kafedra organizatsii zdravookhraneniya (zav. - prof. Z.A.
Gurevich) Khar'kovskogo meditsinskogo instituta.
(DISABILITY EVALUATION)

GUREVICH, Z.A., prof. (Khar'kov)

Scientific work of the Department for the Organization of Public
Health and the History of Medicane of the Kharkov Medical Institute
during the period. Sov.zdrav. 19 no.7:41-42 '60. (MIRA 13:8)
(PUBLIC HEALTH) (MEDICAL RESEARCH)

GUREVICH, Z.A.

Further data on the social pathology of coronary disease in the
modern capitalistic countries. Klin.med. 38 no.1:154-158 Ja '60.

(MIRA 13:10)

(CORONARY HEART DISEASE)

VAKSER, B.D., inzh. (Leningrad); GUREVICH, Z.M., inzh. (Leningrad)

Prebreakdown phenomenon in the insulation of high-voltage electric machinery. Elektrichestvo no.9:70-73 S '61.   (MIRA 14:9)
(Electric machinery) (Electric insulators and insulation)

GUREVICH, Z. P.: Master Med Sci (diss) -- "Pathological changes in the taste

analysor in patients with disorders to the stomach secretions long after

traumatic injury to the central nervous system with psychic disorders".

Leningrad, 1958. 21 pp (Min Health RSFSR, Leningrad Sanitary-Hygiene Med

Inst), 200 copies (KL, No 5, 1959, 155)