

PLEVAKO, Ye.A.; BELOVA, L.D.

[Modern methods for the preparation of molasses for yeast
production] Sovremennye sposoby podgotovki melassy dlia
drozhzheвого proizvodstva. Moskva, TSentr. in-t nauchno-
tekh. informatsii pishchevoi promyshl., 1964. 16 p.
(MIRA 18:5)

PROSKURYAKOV, A.V., kand.tekhn.nauk; BELOVA, L.D., inzh.

Characteristics of technical and economic calculations in small-
lot production. Vest.mashinostr. 42 no.5:82-85 My '62.

(MIRA 15:5)

(Industrial management)

MEL'TSER, I.A.; KURAMSHIN, Yu.N.; Prinimali uchastiye: LOZENKO, M.F.;
CHULINA, Ye.P.; BELOVA, L.D.

New types of foam fire extinguishers for yeast plants. Trudy
TSNLIKHP no.8:169-172 '60. (MIRA 15:8)
(Fire extinction--Chemical systems)

MEL'TSER, I.A.; LOZENKO, M.F.; CHULINA, Ye.P.; BELOVA, L.D.

Searching for more effective methods of anticorrosion coating
of yeast growing apparatus. Trudy TSNIKHP no.8:172-174 '60.
(MIRA 15:8)
(Protective coatings) (Fermentation--Apparatus and supplies)

BAKUSHINSKAYA, O.A.; BELOVA, L.D.

Increasing the yeast yield from raw materials by means of growth promoting substances prepared from natural products. Trudy TSNIKHP no.10:151-158 '62. (MIRA 18:2)

YAKOBSON, G.G.; KOBRINA, L.S.; BELOVA, L.F.; VOROZHTSOV mladshiy, N.N.

Aromatic nucleophilic substitution. Part 5: Reaction of polychloro-
benzenes with an aqueous solution of dimethylamine. Zhur. ob. khim.
35 no.1:142-145 Ja '65. (MIRA 18:2)

1. Novosibirskiy institut organicheskoy khimii Sibirskogo otdeleniya
AN SSSR.

SHILOV, B.M.; KARMANOV, V.V.; BAGRAMOV, E.S.; YEVSEYEVA, A.M.; LUKOMSKIY, I.K.; ROTOVA, M.N.; BELOVA, I.G.; MARTYNOV, V.I.; obshchiy red.; SHILOV, P.D., red.; VENGERSKAYA, S.R., tekhn.red.

[Economy of Daghestan A.S.S.R.; statistical collection] Narodnoe khoziaistvo Dagestanskoi ASSR; statisticheskii sbornik. Makhachkala, Dagstatizdat, 1958. 119 p. (MIRA 12:12)

1. Daghestan A.S.S.R. Statisticheskoye upravleniye. 2. Statisticheskoye upravleniye Dagestanskoy ASSR (for B.M.Shilov, Karmanov, Bagramov, Yevseyeva, Lukomskiy, Rotova, Belova). 3. Nachal'nik Statisticheskogo upravleniya Dagestanskoy ASSR (for Martynov). (Daghestan--Statistics)

BELOVA, L.G.; FRANTSEV, V.I.

Clinical aspects and diagnosis of bacterial endocarditis complicating congenital heart defects. Sov.Med. 27 no.7:11-15 J1'63.

(MIRA 16:9)

1. Iz detskogo otdeleniya serdechno-sosudistoy khirurgii (zav. V.I.Frantsev) kliniki (zav. - prof. Ye.N.Meshalkin) Instituta eksperimental'noy biologii i meditsiny Sibirskogo otdeleniya AN SSSR.

(ENDOCARDITIS) (HEART--ABNORMITIES AND DEFORMITIES)

GOROETSKAYA, N.M.; BELOVA, L.G.

State of the blood coagulation system in congenital heart
defects. Trudy Inst. klin. i eksp. khir. AN Kazakh. SSR
9:47-50 '63. (MIRA 17:12)

L 2659-66 EWP(e)/EWT(m)/EWP(w)/EPF(c)/EWP(i)/T/EWP(t)/EWP(b)/EWA(c) IJP(c)

JD/JG/WB/GS

ACCESSION NR: AT5023092

UR/0000/65/000/000/0125/0129

AUTHOR: Vasil'yeva, Ye. V.; Prokoshkin, D. A.; Belova, L. M.

50
47
B+1

TITLE: Certain properties of the alloys of niobium with boron

SOURCE: Problemy bol'shoy metallurgii i fizicheskoy khimii novykh splavov
(Problems of large-scale metallurgy and physical chemistry of new alloys);
k 100-letiyu so dnya rozhdeniya akademika M. A. Pavlova, Moscow, Izd-vo Nauka,
1965, 125-129

TOPIC TAGS: niobium base alloy, boron containing alloy, alloy phase diagram,
high temperature oxidation, X ray analysis

ABSTRACT: The properties of alloys based on the Nb-B system are virtually un-
known although the constitution diagram of the binary Nb-B system is known
(H. Novotny, F. Benezovsky, R. Kieffer, Zts. Metallkunde, 50, 7, 417, 1959);
this diagram provides no definite information on the solubility of B in Nb and
vice versa, since the solubility lines in both cases are plotted in broken-line
form. It is also known that the oxidation rate of Nb at 600 and 800°C decreases
as a result of alloying with B. But no other data on the properties of Nb-B alloys

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are available. To fill this gap, the authors investigated the properties of the alloys of Nb with 0.01, 0.05, 0.1, 0.5, 1, 3, and 5 wt.% (increasing the B content above 5 wt.% leads to a marked embrittlement of the alloys). The microstructure of homogenized specimens of the alloys was examined with the aid of an etching agent consisting of 1 part HNO_3 + 1 part HF. It was found that the phases over the grain boundaries, visible in the ingot structure of the alloys containing upward of 1% B became completely dissolved during homogenization annealing, with a marked polygonization. At 3% B the microstructure is characterized by a finer grain compared with the alloy containing 0.1% B. Boron markedly reduces the density of the alloys, despite its relatively small content. Reason: the extremely low density of B (2.34 g/cm^3) and boride compared with the density of niobium (8.57 g/cm^3). Oxidation resistance was determined by periodic weighing following exposure to air at 1000, 1100, and 1200°C for up to 20 hr. The oxidation products were subjected to X-ray analysis. At a B content of up to 1% the oxidation rate of Nb rises considerably ($\sim 130 \text{ mg/cm}^2$), whereas any further increase in the B content of the alloys leads to a decrease in this rate. According to X-ray findings, the structure of the scale of Nb with 1% B is a high-temperature modification of $\beta\text{-Nb}_2\text{O}_5$; hence, the sharp increase in oxidation rate

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ACCESSION NR: AT5023092

cannot be attributed to any changes in the scale structure and apparently is due to its microstructural features, particularly the large amount of second phase. The decrease in oxidation rate when the B content is raised above 1% is to some extent associated with the change in the structure of the alloys. Alloying with even small quantities of B (0.01 and 0.05%) causes a sharp increase in the hardness of Nb at room temperature but produces no effect at 1000°C -- unless the boron content is raised to 2% and higher. The higher the B content is, the lower is the rate of creep of the alloy. Orig. art. has: 4 figures, 1 table.

ASSOCIATION: none

SUBMITTED: 00

ENCL: 00

SUB CODE: MM, :

NO REF SOV: 002

OTHER: 002

Card 3/3

JD

А.П.Пронин
О.Д.Малышевский
Д.М.Бонеев
Ю.С.Григорьев
М.Б.Дмитриев
В.П.Костромин
Э.Н.Тетеев
С.Я.Сидин
К.А.Ковалев
В.А.Мельников
В.А.Ковалев
С.Я.Сидин
Ю.П.Соловьев
В.А.Лавровицкий
В.В.Гурьев
А.М.Пронин
В.П.Левин
В.М.Неделов
В.В.Гурьев
Н.Н.Гурьев
А.А.Маслов
А.А.Николаев
В.В.Гурьев

Влияние отдельных элементов на свойства стали в процессе кристаллизации.
Влияние условий роста на структуру микроструктуры сплава.
Затвердевание и неоднородность структуры сталей при различных коэффициентах.
Температурные условия затвердевания при различных условиях сплава.
Влияние неоднородности структуры на свойства сплава.
Исследование влияния температуры затвердевания на свойства сплава.
Исследование влияния температуры затвердевания на свойства сплава.

report submitted for the 5th Physical Chemical Conference on Steel Production, Moscow-- 30 Jun 1959.

S/180/60/000/01/012/027
E111/E135

AUTHORS: Belova, L.M., Moldavskiy, O.D., and Pronov, A.P. (Moscow)

TITLE: Influence of the Nature of Grain Boundaries on the
Strength of Steel in Solidification

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Metallurgiya i toplivo, 1960, Nr 1, pp 90-92
(+ 1 plate) (USSR)

ABSTRACT: Grain boundaries are particularly important for the strength of cast materials. Sulphur and phosphorus have a great effect on the tendency of steel to hot cracking. The authors describe their experiments on this effect and on influence of different deoxidizing procedures. Armco iron (0.04% C) and type U7 carbon steel (0.67% C) were melted in a basic-lined 10-kg high-frequency induction furnace and cast at a temperature 10-15 °C above the liquidus. Tendency to hot cracking was studied with an apparatus previously described by Moldavskiy and Pronov (Ref 1). Grain-boundary structure was studied metallographically and with an electron microscope, V. Ya. Nemykina and P.V. Churayev participating. Inclusions were also studied. The influence of sulphur

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S/180/60/000/01/012/027
E111/E135

Influence of the Nature of Grain Boundaries on the Strength of Steel in Solidification

was investigated during solidification of technical pure iron having up to 0.20% S. The steel was deoxidized with 0.3% Al in the ladle or 1.0% silicocalcium added in the crucible. The effect of sulphur is shown in Fig 1, where strength on solidification is shown as a function of sulphur content for the two deoxidation procedures (curves 1 and 2 respectively), the effect being particularly marked with silicocalcium. Fig 2 shows strength of low-carbon steel with 0.2% S plotted against aluminium content, indicating that resistance to hot cracking rises a little as aluminium-content increases from about 0.2 to about 0.6, little further effect being obtained. In non-metallic inclusions (analyses in Table 1) sulphur exists as aluminium sulphide, precipitated at grain boundaries (Fig 3) and not as eutectic layers. Complex sulphides (Fe, Ca)S precipitate as envelopes on silicates, probably without affecting the increase in tendency to hot-cracking. The influence of phosphorus was investigated during solidification of

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1418 1154, 1045

S/180/61/000/001/009/015
E071/E433

AUTHORS: Belova, L.M., Moldavskiy, O.D. and Pronov, A.P. (Moscow)

TITLE: The Influence of Oxygen¹⁶ Containing Compounds of Niobium on the Resistance of Low Carbon Steel to Cracking

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Metallurgiya i toplivo, 1961, No.1, pp.119-121

6 TEXT: It was stated in a number of papers dealing with the welding of steel that the resistance to cracking of a weld made with electrodes alloyed with niobium increases at first and then decreases sharply, depending on the concentration of niobium in the weld. The authors attempted to determine the composition of the inclusions formed in steel-niobium compounds, their distribution, their amount and their influence on the resistance of steel to cracking. Armco iron was used for the investigations. Melts were made in a 10 kg induction furnace using a magnesite crucible. The deoxidation and alloying of the steel was done solely with ferroniobium (which was added into the crucible 2 minutes before teeming) in quantities such that a 0.4 to 4.5% niobium content was obtained. Chemical composition of ferroniobium, %: Nb 54.40; Si 11.29; Al 5.17; C 0.09;
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S 0.013; P 0.11. Specimens for the determination of non-metallic inclusions were cast in steel moulds 28 mm in diameter and 110 mm high. Specimens for determining the resistance to cracking were cast from each heat of metal using a method described in earlier work (Ref.2). The microstructure of the steel and the distribution of non-metallic inclusions were determined metallographically. In addition, qualitative and quantitative analysis of inclusions was carried out (by the method developed by Yu.T.Lukashevich-Duvanova). It was found that the amount of inclusions, their structure and composition change considerably with the content of niobium in steel (see table). The influence of inclusions formed by aluminium and silicon, introduced with ferroniobium was described earlier (Ref.2). In the case of niobium contents of up to 0.5%, comparatively large inclusions of a globular shape of a complicated structure (Fig.1a) were predominant. The above inclusions coagulate easily and consist of niobites (NbOFeO). On increasing the niobium content up to 1%, in addition to globular niobite inclusions, there were some crystalline precipitates of niobium oxides, the proportion of which increases with increasing niobium content. The latter inclusions
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were found to be free lower oxides of niobium. With a further increase in the content of niobium in steel the supersaturation of NbOFeO solution in niobites takes place leading to the formation of niobium oxides inclusions in the form of branches and rods (Fig.1, 6, B), in addition to niobites. The amount of niobites decreases and even totally disappears at a niobium content in steel of up to 1.5%. At a still higher concentration of niobium (above 1.5%), in addition to blue (NbO_2) crystals, dull white crystals of Nb_2O_5 in the form of branches appear (Fig.12) precipitating in steel along the grain boundaries (Fig.13). A study of the structure of steel alloyed with niobium indicated that a noticeable effect appears at an Nb content exceeding 1%. At first this influence is visible in a more pronounced polyhedral shape of the grains (Fig.3a, 6, B); further increase in the niobium concentration leads to a considerable diminution of the grain size (Fig.32). The influence of niobium on the resistance of steel to cracking (Fig.2) is in accordance with the shape and distribution of niobium inclusions. At a niobium content below 0.5% the resistance to cracking increases; with the appearance of

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independent oxide inclusions of a boundary nature of precipitation the resistance to cracking decreases whilst a further increase in the niobium content, when the predominant form of inclusions are higher oxides (NbO_2 and Nb_2O_5) separating on grain boundaries, the resistance to cracking decreases to a minimum. Some increase in the resistance to cracking at a niobium content above 2% is apparently associated with the influence of niobium on the diminution of the size of the crystals leading to a spreading of low-melting precipitates over a larger surface area and thus reducing their influence on the properties of the solidified metal. There are 3 figures, 1 table and 2 Soviet references.

SUBMITTED: April 1, 1960

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The Influence of Oxygen ...

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Fig.1. a - inclusions of niobates in steel of the composition:
0.04% C, 0.11% Nb (x1000);
b - rejected inclusions of niobates and of free niobium
oxides in steel of the composition 0.04% C,
1.09% Nb (x600)

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The Influence of Oxygen ...

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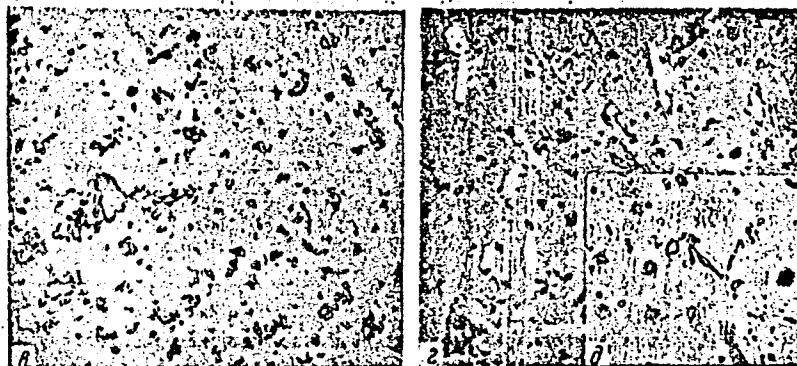


Fig.1. **B** - rejected inclusions of NbO_2 in steel of the composition 0.04% C, 1.57% Nb (x600);
2 - rejected inclusions of NbO_2 and Nb_2O_5 in steel of the composition 0.04% C, 3.09% Nb (x600);
3 - niobium oxides along the boundaries in steel of the composition 0.04% C, 3.09% Nb, polished surface unetched

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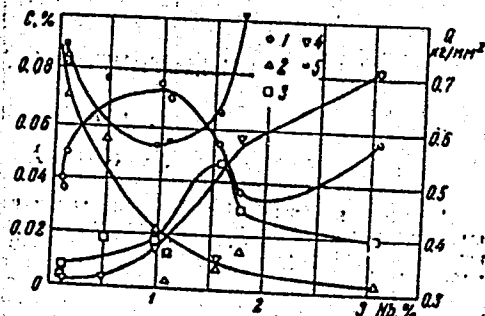


Fig.2. Resistance to cracking of steel Q , kg/mm^2 and contents of niobium oxides in the non-metallic inclusions in % as a function of the niobium concentration in the steel: 1 - limit of resistance to cracking; 2 - NbO ; 3 - NbO_2 ; 4 - Nb_2O_5 ; 5 - total of all the niobium oxides.

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The Influence of Oxygen

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Фиг. 3. Влияние Nb на микроструктуру малоуглеродистой стали: а - 0.11% Nb, б - 0.98% Nb, в - 1.83% Nb, г - 3.09% Nb; травление 3%-ной HNO₃ (x100)

Fig.3. Influence of niobium on the microstructure of low-carbon steel: а - 0.11% Nb, б - 0.98% Nb, в - 1.83% Nb, г - 3.09% Nb, etched with 3% HNO₃ (x100).

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(1) Nb в стали, %	(2) Содержание окислов ниобия в неметаллических включениях, % от растворенного металла				(3) Сумма оксидов ниобия	(4) Оксидные включения ниобия, %
	NbO	Nb ₂ O ₃	Nb ₂ O ₅	Сумма оксидов ниобия		
0.10	0.085	0.0025	0.00200	0.08950	80	
0.11	0.072	0.0074	0.00213	0.08153	63	
0.50	0.056	0.0184	0.00300	0.07740	44	
0.98	0.022	0.0170	0.01450	0.05350	25	
1.09	0.030	0.0117	0.01200	0.05370	25	
1.57	0.009	0.0470	0.01080	0.06180	30	
1.83	0.015	0.0310	0.05700	0.10300	45	
3.09	0.004	0.0210	0.08200	0.10700	46	

* В процентах от всего количества включе : : остальное Al₂O₃, SiO₂, FeO).

Table. Legend: (1) Niobium in the steel, %; (2) Content of niobium oxides in the non-metallic inclusions, % of the dissolved metal; (3) Niobium oxides, total; (4) Oxide inclusions of niobium.

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ACC NR: AP7002431

(A)

SOURCE CODE: UR/0219/66/000/012/0021/0024

AUTHOR: Vasil'yeva, Ye. V.; Prokoshkin, D. A.; Belova, L. M.

ORG: Institute of Metallurgy AN SSSR (Institut metallurgii AN SSSR)

TITLE: The structure and properties of niobium-tantalum alloys containing tungsten and molybdenum

SOURCE: Metallovedeniye i termicheskaya obrabotka metallov, no. 12, 1966, 21-24 and inserts facing pages 48 and 49

TOPIC TAGS: niobium, tantalum alloy, molybdenum containing alloy, tungsten containing alloy, alloy structure, ~~alloy~~ property metal

ABSTRACT:

The effect of tantalum (0.5, 1, 5, 10 or 15%), molybdenum and tungsten (5% of each) on the microstructure and room and high-temperature hardness of niobium-base alloys has been investigated. The alloys were melted from 99.4%-pure niobium, 99.75%-pure tantalum, 99.65%-pure molybdenum and 99.95%-pure tungsten in a nonconsumable (tungsten) electrode, vacuum-arc furnace in an argon atmosphere. Alloy ingots were annealed at 1700C for 50 hr. It was found that the microstructure of cast Nb-Ta alloy had the typical structure of a single-phase solid solution. With increasing tantalum content, the substructure became more distinct. As-cast Nb + 5% Ta + 5% Mo and Nb + 10% Ta + 5% Mo alloys also had a single-phase structure with

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UDC: 620.17:669.293'294'27'28

ACC NR: AP7002431

elongated grains and traces of dendritic segregation. A noticeable segregation of impurities was observed in Nb + 5%Ta + 5%W and Nb + 10% Ta + 5% W alloys. The respective hardness at 20 and 1000C of Nb + 10% Ta alloy was 180 and 105 HV. Additional alloying with 5% molybdenum or 5% tungsten increased the hardness to 198 and 127 HV or to 192 and 120 HV, compared to 150 and 90 HV for unalloyed niobium. The creep rate (calculated from the results of hot hardness tests) of alloys containing molybdenum and tantalum was the

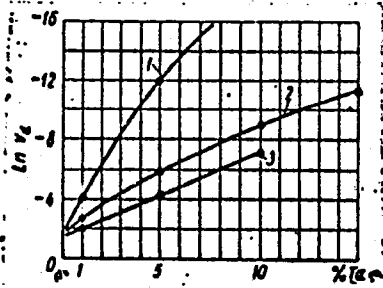


Fig. 1. Composition dependence of creep rate (V_d) of Nb-Ta, Nb-Ta-Mo and Nb-Ta-W alloys at 1000C

lowest and that of alloys containing tantalum and tungsten the highest (see Fig. 1). . Orig. art. has: 4 figures and 2 tables.

SUB CODE: 11/ SUBM DATE: none/ ORIG REF: 008/ OTH REF: 003/ ATD PRESS: 5113

Card 2/2

L 61668-65

ACCESSION NR: AR5016645

UR/0299/65/000/012/M017/M017
591.169

SOURCE: Ref. zh. Biologiya. Sv. t., Abs. 12M102

AUTHOR: Belova, L. M.

16
B

TITLE: Regeneration of the central nervous system in the earthworm

CITED SOURCE: Sb. Vopr. genet. i zool. Khar'kov, Khar'kovsk. un-t, 1964,
33-38

TOPIC TAGS: worm, central nervous system, nerve regeneration

TRANSLATION: The tests comprised 1500 earthworms belonging to 2 species. In the first series 6-7 front segments were removed; in the second, the dermatomuscular sac was dissected and only the suprapharyngeal ganglion (SG) was removed; and, in the 3rd series, half the SG was removed. Regeneration of the suprapharyngeal and subpharyngeal ganglia derived from non-differentiated cells appearing as a result of the degenerative processes. Cells migrating from the pharyngeal epithelium took part in the SG regeneration. When only half the SG was removed, the above sources of regenerative material were supplemented by
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ACCESSION NR: AR5016645

the remaining half. The regenerative growth progressed by amitotic and strongly mitotic division of neuroglia and neuron cells. In both worm species (Allo. bofora longa and Eisenia foetida) complete regeneration of the SG and the surrounding pharyngeal ring occurred in every case. N. Solov'yeva

SUB CODE: LS

ENCL: 00

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BELOVA, L.M.

Regeneration of the brain in mammals after mechanical injury. Zhur. ob.biol. 24 no.3:215-220 My-Je'63. (MIRA 16:8)

1. Department of Zoology of Invertebrates, A.M.Gor'ky State University, Khar'kov.

(REGENERATION (BIOLOGY)
(BRAIN—WOUNDS AND INJURIES)

BELOVA, L. N.

"Oxidation Zone of Hydrothermal Uranium and Sulphide-Uranium Deposits in
the USSR", by G. S. Gritsayenko and L. N. Belova

Report presented at 2nd UN Atoms-for-Peace Conference, Geneva, 9-13 Sept 1958

BELOVA, I.N.

Arsenuranylite is an arsenic analogue of phosphuranylite.
Zap. Vses. min. ob-va 87 no.5:598-602 '58. (MIRA 12:1)
(Arsenuranylite)

ACC NR: AP7002972 (A) SOURCE CODE: UR/0413/66/000/024/0068/0068

INVENTOR: Peschanskaya, R. Ya.; Gorelik, M. V.; Belova, L. N.; Fel'dshteyn, M. S.

ORG: None

TITLE: A method for sulfur vulcanization of raw rubber. Class 39, No. 189566
[announced by the Scientific Research Institute of Rubber and Latex Products (Nauchno-
issledovatel'skiy institut rezinovykh i lateksnykh izdeliy)]

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 24, 1966, 68

TOPIC TAGS: vulcanization, rubber, sulfur, compound

ABSTRACT: This Author's Certificate introduces a method for sulfur vulcanization of raw rubber in the presence of sulfenamide accelerators. To increase the scorching resistance of rubber stocks and to produce high-modulus rubber, N-cyclohexyl-N'-(cyclohexamethylenethiocarbamylthio)-2-benzothiazolsulfenamide is used as the sulfenamide accelerator.

SUB CODE: 11/ SUBM DATE: 30Oct65

Card 1/1

UDC; 678.4.044.47

ACC NR: AP7005627

SOURCE CODE: UR/0413/67/000/002/0085/0085

INVENTOR: Ful'dshteyn, M.S.; Belova, L.N.; Pevzner, D.M.; Gorelik, H.V.

ORG: none

TITLE: Vulcanization process for natural and synthetic rubber. Class 39, No. 190557 [announced by Scientific Research Institute of the Tire Industry (Nauchno-issledovatel'skiy institut shinnoy promyshlennosti)]

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 2, 1967, 85

TOPIC TAGS: vulcanization, natural rubber, synthetic rubber ~~scorching~~

ABSTRACT:

An Author Certificate has been issued for a process for vulcanizing natural and synthetic rubber in the presence of vulcanization accelerators. To improve the stability of rubber mixtures to scorching, the method provides for the use of N-(2-benzothiazolethio)phthalimide as the accelerator. [B0]

SUB CODE: 11, 13/ SUBM DATE: 01Oct65/ ATD PRESS: 5115

Card 1/1

UDC: 678.4.044.47

13E LOVA, L. N.

RU(8) **THESE I BOOK REVOLUTIONS** 807/271A

International Conference on the Peaceful Uses of Atomic Energy. 2nd, Geneva, 1958

Industry convertibility subjects; Technology appropriate to technology actually (Reports of Soviet Scientists; Nuclear Fuel and Isotopes Section) Moscow, Akademiya, 1959. 670 p. (Series: Izv. TsSU, vol. 3, 6,000 copies printed.

M. (title page); A.A. Rodchik, Academician, A.P. Vinogradov, Academician, V.S. Yamal'yurov, Corresponding Member, USSR Academy of Sciences, and A.P. Zakirov, Doctor of Technical Sciences; Ed. (Inside book): V.V. Pavlovskiy and O.L. Puhallitskaya; Tech. Ed.; S.L. Masal.

FRONTIER: This volume is intended for scientists, engineers, physicists, and biologists working in the production and peaceful application of atomic energy for power, industry, agriculture, and medicine. It contains a series of major technical abstracts where the authors' full names and addresses of schools or laboratories in atomic sciences and technology.

CONTENTS: This is volume 3 of a 6-volume set of reports on atomic energy presented by Soviet scientists at the Second International Conference on the Peaceful Uses of Atomic Energy, held in Geneva from September 1 to 13, 1958. Volume 3 consists of two parts. The first part, edited by A.I. Zubov, is devoted to geology, prospecting, construction and processing of nuclear source material. The second part, edited by G.L. Zverev, includes 27 reports on metallurgy, metallurgy, processing technology of nuclear fuels and isotopes, and nuclear irradiation effects on metals. The titles of the individual papers are given in the table of contents. The title of the official English language edition is the Conference Proceedings. See 807/2051 for the titles of the other volumes of the set.

Author: V.V. Pavlovskiy, S.S. Kuznetsov, S.B. Kuznetsov, and D.Y. Shcherbak. The Editor is S.G. Kuznetsov. The Editor of the Russian Translation is S.G. Kuznetsov. (Report No. 807)

13

Rezhisyon: E.P. The Experimental Investigation of the Conditions of Uranium Transport and Deposition by Hydrothermal Solutions (Report No. 807) 13

Rezhisyon: S.A. From Occurrence of Uranium in Some Coals (Report No. 2053) 54

Rezhisyon: G.S. Luf. Uranium, E.V. Goryunov, and E.P. Gerasimov. Experimental Types of Oxidation Zones of Hydrothermal Uranium and Uranium Sulphide Deposits in the USSR (Report No. 2105) 69

Rezhisyon: I.P. Kri. Luf. E.V. Goryunov, E.P. Gerasimov, and E.V. Gerasimov. Generalized the Localization of Uranium Mineralization and the Basic Types of Structures of Hydrothermal Uranium Deposits (Report No. 2099) 85

Card 3/11

BELOVA, L.N.; FROLOVA, K.Ye.

Similarity of the form of phosphuranylite and renardite crystals.
Zap.Vses.min.ob-va 89 no.2:219-221 '60. (MIRA 13:7)
(Phosphuranylite crystals)
(Renardite crystals)

GRITSAYENKO, G.S.; BELOVA, L.N.

"Uranium minerals; handbook" by M.V.Soboleva, I.A. Pudovkina.
Reviewed by G.S.Gritsaenko, L.N.Belova. Zap.Vses.min.ob-va 89
no.2:247-250 '60. (MIRA 13:7)

1. Deystvitel'nyye ohleny Vsesoyuznogo mineralogicheskogo
obshchestva.

(Uranium) (Soboleva, M.V.) (Pudovkina, I.A.)

BELOVA, L.N.; YELOYEV, B.M.

Silica as a constituent of pitchblende. Dokl. AN SSSR 141 no.6:
1452-1453 D '61. (MIRA 14:12)

1. Predstavleno akademikom N.V.Belovym.
(Uraninite) (Silica)

BELOVA, L.N., red.; BORISOV, N.Ya., red.; VYAZEMSKIY, S.M., red.;
MAVRODIN, V.V., red.; NIKITIN, P.Ye., red.; VISHNYA, L.P., red.

[Guidebook for Leningrad] Putevoditel' po Leningradu.
Leningrad, Lenizdat, 1963. 787 p. (MIRA 17:4)

LYSOV, B.A.; BELOVA, L.P.; KOROVINA, L.I.

Polarization of recombination radiation. Zhur. eksp. i teor. fiz.
40 no.4:1160-1165 Ap '61. (MIRA 14:7)

1. Moskovskiy gosudarstvennyy universitet.
(Radiation) (Electrons--Capture)

BELOVA, L.P.; NEKRASOV, Yu.D.

Solubility in the system sodium bifluoride - water. Zhur.
neorg. khim. 9 no.11:2669-2671 N '64 (MIRA 18:1)

1. Permskiy filial gosudarstvennogo instituta prikladnoy
khimii.

BELOVA, L.T., kandidat tekhnicheskikh nauk.

Investigation of ellipsoidal reflectors of searchlight signals.
Svetotekhnika 2 no.6:17-19 N '56. (MLRA 9:12)

1. Vsesoyuznyy institut zheleznodorozhnogo transporta.
(Searchlights)

BELOVA, L.T., kandidat tekhnicheskikh nauk.; OSTROVSKIY, M.A., kandidat tekhnicheskikh nauk.; YUROV, S.G., kandidat tekhnicheskikh nauk.

Problem of reviewing the lighting norms for industrial buildings.
Svetotekhnika 3 no.5:26-28 My '57. (MLBA 10:5)

1. Vsesoyuznyy svetotekhnicheskii institut.
(Lighting--Standards)

BELOVA, L.T., kand.tekhn.nauk

Selecting the criterion for norming the illumination of industrial enterprises. Svetotekhnika 4 no.6:1-7 Je '58. (MIRA 11:6)

1. Vsesoyuznyy svetotekhnicheskyy institut.
(Factories--Lighting)

BELOVA, L.T., kand.tekhn.nauk; KROL', TS.I., kand.tekhn.nauk

~~New~~ Increase in the recommended illumination quantities in the
USA. Svetotekhnika 5 no.5:5-8 Ky '59. (MIRA 12:7)

1. Vsesoyuznyy svetotekhnicheskiy institut.
(United States--Lighting)

BELOVA, L.T., kand.tekhn.nauk; BELOV, K.P., kand.tekhn.nauk

New lighting systems for railroads. Zhel.dor.transp. 43
no.3:45-48 Mr '61. (MIRA 14:3)
(Railroads—Electric equipment)

BELOVA, L.T., kand.tekhn.nauk; GORBACHEV, N.V., kand.tekhn.nauk;
IVANOVA, N.S., kand.tekhn.nauk; KROL', TS.I., kand.tekhn.nauk;
OSTROVSKIY, M.A., kand.tekhn.nauk; SHEFTEL', Ye.B., kand.tekhn.nauk;
TSAR'KOV, V.M., inzh.

Proposed new version of "Norms on electric lighting."
Svetotekhnika 7 no.8:14-22 Ag '61. (MIRA 14:7)

1. Vsesoyuznyy svetotekhnicheskiy institut.
(Electric lighting—Standards)

OVECHKIN, N.K., red.; BELOVA, L.V., red.; MAKRUSHIN, V.A., tekhn.red.

Geologicheskoe stroenie Turgaiskogo progiba. Leningrad,
Otdelenie nauchno-tekhn. informatsii, 1961. 295 p. (Leningrad.
Vsesoiuznyi geologicheskii institut. Trudy, vol.53) (MIRA 15:6)
1961 (Turgay Gates—Geology)

SOKOLIK, Genrikh Abramovich; BELOVA, L.V., red.

[Group methods in the theory of elementary particles]
Gruppovye metody v teorii elementarnykh chastits. Mo-
skva, Atomizdat, 1965. 174 p. (MIRA 18:9)

KEDROV, F.; BELOVA, L.V., red.

[Ernest Rutherford] Ernest Rezerford. Moskva, Atomizdat,
1965. 110 p. (MIRA 19:1)

BELOVA, M.A.; POMANSKAYA, L.A.

Characteristics of capsular bacteria isolated from rodents and humans
in Tula Province. Zhur. mikrobiol., epid. i immun. 40 no.11:80-85 N
'63. (MIRA 17:12)

1. Iz Tul'skoy oblastnoy sanitarny-epidemiologicheskoy stantsii.

BELOVA, M.B.; VASIL'YEV, V.G.; VLASOV, G.M.; GRYAZNOV, L.P.; DRABKIN, I.Ye.; ZHEGALOV, Yu.V.; KARBIYNICHYI, I.N.; KLENOV, Ye.P.; KRYLOV, V.V.; TITOV, V.A.; ZARETSKAYA, A.I., vedushchiy red.; FEDOTOVA, I.G., tekhn. red.

[Geology and oil and gas potentials of Kamchatka] Geologicheskoe stroenie i perspektivy neftegazonosnosti Kamchatki. Moskva, Gos. nauchno-tekhn. izd-vo nef. i gorno-toplivnoi lit-ry, 1961. 343 p.
(MIRA 14:9)

(Kamchatka—Petroleum geology)
(Kamchatka—Gas, Natural—Geology)

BELOVA, M B

GEOLOGICHESKOYE STROYENIYE I PERSPEKTIVY
NEFTEGAZONOSNOSTI KAMCHATKI [BY] M.B. BELOVA [I DR.]
POD RED. V.G. VASILYIYVA. MOSKVA, GOSTOPTEKHIZDAT,
1961

343 p. ILLUS., DIAGRS., GRAPHS, TABLES, MAPS.
AT HEAD OF TITLE: RUSSIA (RSFSR) GLAVNOYE UPRAV-
LENIYE GEOLOGII I OKHRANY NEDR, AND RUSSIA. SEVERO-
VOSTOCHNOYE GEOLOGICHESKOYE UPRAVENIYE.

BIBLIGRAPHY: p. 338-342.

RAZUVAYEV, G.A.; GRAYEVSKIY, A.I.; MINSKER, K.S.; BELOVA, M.D.

Oxidation of aluminum alkyls. Dokl. AN SSSR 152 no.1:114-116
8 '63. (MIRA 16:9)

1. Chlen-korrespondent AN SSSR (for Razuvayev).
(Aluminum organic compounds) (Oxidation)

BELOVA, M. I.

1443. Effectiveness of using ultra-lightweight bricks in electric furnaces. — M. I. BELOVA
(Dep. 22 9 1957) In Russian. The use of lightweight refractories
results in a 15% increase in the amount of metal produced per ton of
charge. The refractories used are made of a special composition
and are characterized by a high degree of resistance to
thermal shock and a low coefficient of thermal expansion.

3
11-2-57

MIT

BELOVA, M.I.; LANDA, Ya.A.

Using the chromatographic method for the analysis of mazut
combustion products. Ogneupory 28 no.10:449-451 '63.

(MIRA 16:11)

1. Vsesoyuznyy institut ogneuporov.

BELOVA, M.I., inzh.; LANDA, Ya.A., kand. tekhn. nauk

Mastering the chromatographic method of analyzing combustion products
in mazut-fired kilns. Trudy Inst. ogneup. no.35:105-116 '63.

(MIRA 17:12)

1. Vsesoyuznyy institut ogneuporov.

BELOVA, M.K.

Efficient use of very lightweight refractories in electric furnaces.
Ogneupory 22 no.1:9-12 '57. (MIRA 10:3)

1. Leningradskiy institut ogneuporov.
(Refractory materials)
(Electric furnaces)

BELOVA, M.L.

SKATKIN, M.N., redaktor; ~~BELOVA, M.L.~~, redaktor; GARNER, V.P., tekhnicheskii redaktor

[The work of a pioneer group in connection with problems of training in applied sciences] Rabota pionerskoi druzhiny v svyazi s zadachami politekhnicheskogo obucheniia. Pod red. M.N.Skatkina. Moskva, 1954. 106 p. (MIRA 8:4)

1. Akademiya pedagogicheskikh nauk RSFSR, Moscow. Institut teorii i istorii pedagogiki. 2. Chlen-korrespondent APN RSFSR (for Skatkin) (Pioneers (Communist youth)) (Science--Study and teaching)

SUNDUKOV, N.A.; SHOHUKIN, S.V.; BELOVA, M.L., redaktor; GARNIK, V.P.,
tekhnicheskiy redaktor

[Experience with teaching general science in rural schools; a
collection of articles] Opyt politekhnicheskogo obucheniia v sel'skoi
shkole; sbornik statei. Pod red. S.V. Shohukina. Moskva, 1956 325 p.
(MLRA 10:1)

1. Akademiya pedagogicheskikh nauk RSFSR, Moscow. Institut teorii
i istorii pedagogiki.
(Technical education)

SKATKIN, M.N., redaktor; BELOVA, M.L., redaktor; MUKHINA, T.N., tekhnicheskiy redaktor

[Labor in a system of general technical education] Trud v sisteme politekhnicheskogo obrazovaniia. Pod red. M.N.Skatkina. Moskva, 1956. 326 p. (MLRA 10:1)

1. ^Akademiya pedagogicheskikh nauk RSFSR, Moscow. Institut teorii i istorii pedagogiki.
(Technical education)

BELOVA, M., kand.takhn.nauk

Based on the achievements of chemistry ("Polymer-cement concrete"
by I.U.S.Cherkinski. Reviewed by M.Belova). Na stroi.Ros. no.4:
39 Ap '61. (MIRA 14:6)

(Concrete)

(Polymers)

36282
S/039/62/056/004/002/002
B112/B108

16.3500

AUTHOR: Belova, M. M. (Moscow)

TITLE: Bounded solutions of non-linear second-order differential equations

PERIODICAL: Matematicheskiy sbornik, v. 56 (98), no. 4, 1962, 469-503

TEXT: The following two theorems are derived by the method of successive approximations: (1) If (a) $|f(x,0,0)| \leq M$, (b) $0 < \alpha \leq f'_y(x,y,z)$, (c) $|f'_z(x,y,z)| \leq C$ for $-\infty < x, z < +\infty$, $|y| \leq H/\alpha$, then the equation $y'' = f(x,y,y')$ has an unambiguous bounded solution $y(x)$ for which $|y(x)| \leq M/\alpha$; if there is a constant K such that $|f'_x(x,y,z)| \leq Kf'_y(x,y,z)$ for $|x| \geq N$ and for any y and z , then $y'(x)$ is bounded and $|y'(x)| \leq M(C + \sqrt{\beta})^2/\alpha\sqrt{\beta}$ if $0 < \alpha \leq f'_y(x,y,z) \leq \beta$; if $f(x,y,z)$ is a periodic function of x , then $y(x)$ will also be periodic. (2) If the conditions (a), (b), (c) are fulfilled for $x \geq 0$, then each point of the y -axis is passed by a solution which is

Card (1/2)

BELOZEROV, M.M.; BAS'YAS, I.P.

Preventing the formation of crusts during the top pouring
of steel. Metallurg. 9 no.10:23-24 0 '64 (MIRA 18:1)

1. Vostochnyy institut ogneuporov.

BELOVA, M. N. (Grad Stud)

Dissertation: "An Experimental Investigation of Some Questions Associated with the Use of Pneumatic Breakwaters." Cand Tech Sci, All-Union Sci Res Institute of Buildings and Foundations, 15 Jun 54. (Vechernyaya Moskva, Moscow, 4 Jun 54)

SO: SUB 318, 23 Dec 1954

BELOVA, M. N.

Subject : USSR/Engineering AID P - 2587
Card 1/1 Pub. 35 - 10/20
Author : Belova, M. N., Kand. Tech. Sci.
Title : On using compressed air to still water waves caused by wind
Periodical : Gidr stroi, 4, 30-33, Ap 1955
Abstract : Waves reaching 3-4 m are formed by wind on large reservoirs and impede navigation. The possibility of stilling these waves by installing pneumatic wave-breakers in reservoirs 15-20 m deep is discussed. Results of experiments on a laboratory level are reported, and the building of a large pneumatic wave-breaker is advocated. Three Russian references, 1933-1949, and one British, 1945.
Institution : None
Submitted : No date

BELOVA, M.N., kandidat tekhnicheskikh nauk.

~~On the theory of pneumatic wave extinguishing. Gidr.stroi.25 no.5:
46-48 Je '56. (MIRA 9:9)~~
(Waves, Calming of)

BELOVA, M.N., kand.tekhn.nauk; SENDEROV, B.V., inzh.

Making elements of sectional piles for deep sinking. Nov.tekh.
mont. i spets.rab. v stroi. 20 no.12:16-17 D '58.

(MIRA 12:1)

1. Nauchno-issledovatel'skiy institut osnovaniy i fundamentov
Akademii stroitel'stva i arkhitektury SSSR.

(Bridges, Pile)

BELOVA, M.N.

"Precast reinforced concrete tube foundations" by K.S. Silin and others. Reviewed by M.N. Belova. Osn., fund. i mekh. grun. no.4: 32 '59.

(MIRA 12:10)

(Bridges--Foundations and piers)

(Silin, K.S.)

BELOVA, M.F.

23443 Izmenit' metod polucheniya semyan dikikh ya blon' 1 grush. sad 1 ogorod,
1949, No.7, c. 21-24

SO: LETOPIS NO. 31, 1949

ACC NR: AP6030846

SOURCE CODE: UR/0191/66/000/009/0017/0020

AUTHOR: Kamenskiy, I. V.; Avtokratova, N. D.; Belova, M. P.

ORG: none

TITLE: Behavior of phenol-formaldehyde plastics on heating

SOURCE: Plasticheskiye massy, no. 9, 1966, 17-20

TOPIC TAGS: phenolic resin, fiber glass, thermal decomposition

ABSTRACT:

The results of a Soviet study on the high-temperature behavior of phenolic plastics have been reported. Introductory comments are explicit concerning the ablative heat shield orientation of this work.

Specimens of resin-stage resins and of glass-reinforced plastics made from them were prepared using phenol/formaldehyde ratios of 6/7 (resin designated R-21) or 1/2 (resin R-12) in the presence of appropriate catalysts. Alkali-free glass fabric was used as the reinforcement in the plastics (designated St-21 and St-12, respectively).

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ACC NR: AP6030846

Thermogravimetric curves of the resin specimens showed that in the 100-300°C range, weight loss and decomposition rate are low; the weight loss is 2.08% for R-21 and 7.4% for R-12. However, at above 300°C, the decomposition rate increases and it is highest at 450-520°C. Also at 450-520°C, differential thermal analysis curves show peaks which indicate that the decomposition taking place is exothermic. At higher temperatures, decomposition slows down and is not associated with thermal effects. At 900°C (the highest temperature), the weight loss is 46.9% for R-21 and 52.4% for R-12.

Unilateral heating of the resin specimens with an oxyacetylene flame under normal conditions (no excess oxygen; distance from burner, 30 mm) showed that R-12 gives off more volatiles than R-21: after 30 sec of exposure, the respective weight losses were 23.5 and 20.6%. However, the reverse was true after removal of the char layers (6.4 and 7.9 mm deep): the weight loss figures were 30.1 and 38.4%, respectively. These data indicate the slower decomposition of R-12, under the experimental conditions, which is attributed to the heat shield effect of evolving volatiles.

In the case of the reinforced plastics, unilateral heating with

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ACC NR: AP6030846

the oxyacetylene flame showed that St-12 decomposes slower than St-21 (see table). These results indicate the higher heat shield efficiency of R-12 due to its lower percentage of char (46.5 versus by the lower temperature drop across St-12 specimens than across St-21 specimens on unilateral heating with the oxyacetylene flame.

Table 1. Results of tests involving the exposure of St-21 and St-12 glass-reinforced phenolic plastics to oxyacetylene flame

Designation	Binder	Specimen thickness, mm	Exposure time, sec	Char depth, mm	Charring rate, mm/sec	Wt. loss, %	
						Before Char layer removal	After Char layer removal
St-21	R-21	10.15	20	1.42	0.071	7.1	11.68
		10.1—10.2	30	2.43	0.081	8.65	13.65
			60	4.84	0.081	9.10	15.01
St-12	R-12	10	20	1.3	0.065	6.4	10.15
		9.9—10.1	30	2.01	0.067	8.2	12.98
			60	3.90	0.065	8.7	13.60

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ACC NR: AP6030846

After 70 sec of exposure, the temperature of the opposite side of an St-12 specimen 6 ± 0.5 mm in thickness rises to only 180°C , while in the case of St-21 this temperature reaches 250°C . Orig. art. has: 5 figures and 7 tables. [FSB: v. 2, no. 11]

SUB. CODE: 11 / SUBM DATE: none / ORIG REF: 002 / OTH REF: 009

Card 4/4

L 44369-66 EWT(m)/EWP(1)/T IJP(c) RM/WW

ACC NR: AP6023061

(A)

SOURCE CODE: UR/0191/66/000/004/0022/0023

AUTHOR: Renard, T. L.; Korshak, V. V.; Kanenskiy, I. V.; Tseytlin, G. M.; Belova, M. P.; Kafanova, V. F.; Avtokratova, N. D.

ORG: none

TITLE: Polytetramethylolcyclopentanone and glass-textolite based on it

SOURCE: Plasticheskiye massy, no. 4, 1966, 22-23

TOPIC TAGS: glass textolite, polyester plastic, maleic anhydride, ketone, IR spectrum

ABSTRACT: Thermomechanical properties of unsaturated polyester oligomers (UPO) prepared by fusing 2,2,5,5-tetra(oxymethyl)-cyclopentanone with maleic anhydride were studied. The fusion was carried out at 150°C in an inert gas and the liberated water was continually removed from the reaction zone. The physicomechanical properties of glass textolites based on several commercial glass cloths and UPO were examined and tabulated. The unsaturated polyester oligomers were hardened by holding at 120-250°C for 0.5-10 hrs. It was found that the lower the hardening temperature, the lower the temperature of initial deformation and the percentage of insoluble matter. At 200°C, a complete hardening was achieved in 30 minutes. The structure of the unsaturated polyester oligomers hardened at 200°C for 0.5-6 hours was determined from IR spectra. Orig. art. has: 3 figures, 2 tables.

SUB CODE: 11,07/ SUBM DATE: none/ ORIG REF: 006/ OTH REF: 002

Card 1/1 hs

UDC: 678.744.342 : 678.5.06 : 677.521

IVANOVA, G.A.; SAFONOV, G.A.; SYURIN, V.N.; BELOVA, N.A.

Comparative pathogenic properties of the viruses of the classic
fowl plague and Newcastle disease. Veterinariia 41 no.3:21-25
Mr '65. (MIRA 18:4)

84620

S/181/60/002/010/050/051
B019/B056

9.4340 (1143,1160,1331)

AUTHORS: Belova, N. A., Kovalev, A. N., and Penin, N. A.

TITLE: The Effect of Carrier Production in the Blocking Layer
Upon the Inverse Branch of the Volt-ampere Characteristic
of Germanium Diodes²⁵

PERIODICAL: Fizika tverdogo tela, 1960, Vol. 2, No. 10, pp. 2647 - 2654

TEXT: The authors investigated the effect of carrier production in the blocking layer of the p-n-junction of germanium diodes upon the reverse current. In the first part of the paper, the carrier production in the blocking layer is estimated, after which the authors discuss the inverse branch of the volt-ampere characteristic of germanium diodes with nickel impurities. Finally, the volt-ampere characteristic of germanium diodes with a very low resistivity is discussed. The authors summarize their results as follows: The carrier production in the blocking layer of a p-n-junction may significantly influence the shape of the inverse branch of the volt-ampere characteristic, if impurities with deep levels are

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84620

The Effect of Carrier Production in the Blocking Layer Upon the Inverse Branch of the Volt-ampere Characteristic of Germanium Diodes S/181/60/002/010/050/051
B019/B056

introduced into the germanium. By a decrease of the volume lifetime in germanium, not only in low-ohmic, but also in the case of high-ohmic germanium diodes an influence of the generation current upon the volt-ampere characteristic was found to occur. Here the condition is that the thickness of the blocking layer is of the same order of magnitude as the diffusion length of the minority carrier. In diodes produced from pure indium melted in germanium and nickel, the production exerts no significant influence upon the reverse current. This is explained by extraction of nickel from that crystal region in which the blocking layer is located. This extraction sets in during the melting of indium as a consequence of diffusion of nickel in indium. For all investigated germanium diodes with a resistivity lower than 0.01 ohm.cm, a considerable change could be found: the reverse current increases with a decrease of resistivity and is practically independent of temperature. In the direct branch of the volt-ampere characteristic a considerable increase of the current could be observed at low voltages. This was explained by the tunnel effect in the p-n-junction. The authors thank

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The Effect of Carrier Production in the
Blocking Layer Upon the Inverse Branch of
the Volt-ampere Characteristic of Germanium Diodes

84620

S/181/60/002/010/050/051
B019/B056

Professor S. G. Kalashnikov for discussing the result obtained. There
are 4 figures and 6 references: 3 Soviet and 3 US.

ASSOCIATION: Institut radiotekhniki i elektroniki AN SSSR
(Institute of Radiotechnology and Electronics of the
AS USSR)

SUBMITTED: March 28, 1960

Card 3/3

9.4300(1136, 1143, 1150, 1161)

21110
S/109/61/006/001/019/023
E140/E163

AUTHORS: Belova, N.A. and Kovalev, A.N.
TITLE: Experimental investigation of tunnel current in narrow Germanium p-n junctions
PERIODICAL: Radiotekhnika i elektronika, Vol.6, No.1, 1961, pp. 160-165

TEXT: It is shown experimentally that the degree of alloying of the n- and p-regions of a narrow p-n junction has substantial influence on the tunnel current and in particular on the magnitude and positions of the maxima and minima in the volt-ampere characteristics. For diodes with stronger alloying of the p-region the position of the maximum is basically defined by the degree of degeneration in the p-region. The position of the minimum on the volt-ampere characteristic shifts towards higher potentials with increase of the degree of alloying in the n- and p-regions; it is suggested that this is connected with the presence of impurity zones in strongly alloyed semiconductors. It also follows from the experiment that the character of the temperature dependence of the tunnel current is defined by the degree of degeneration in
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2140

S/109/61/006/001/019/023

E140/E163

Experimental investigation of

the n- and p-regions. No appreciable dependence of tunnel current on the dislocation density was found. Acknowledgements are expressed to N.Ye. Skvortsova for proposing the topic, to V.L. Bonch-Bruyevich for his advice, and to S.G. Kalashnikova for instructions. There are 5 figures, 2 tables and 5 references: 1 Soviet and 4 English.

ASSOCIATION: Institut radiotekhniki i elektroniki, AN SSSR
Institute of Radio Engineering and Electronics,
AS USSR)

SUBMITTED: September 10, 1960

Card 2/2

30301

S/109/61/006/011/016/021
D201/D304

9,4340 (1143, 1150)

AUTHORS: Belova, N.A., and Kovalev, A.N.

TITLE: Certain peculiarities of the volt-ampere characteristics of narrow germanium p-n transitions

PERIODICAL: Radiotekhnika i elektronika, v. 6, no. 11, 1961, 1921 - 1926

TEXT: In the present article results are described of further experiments in studying the effect of alloying germanium of both n- and p- type on the max. of tunnel current, i.e. the influence of the concentration of majority carriers in the fundamental germanium of p-type when this concentration in the p-region is known. For this purpose diodes were prepared from germanium doped with gallium with a concentration of majority carriers from $1.5 \times 10^{19} \text{ cm}^{-3}$. The electron conduction zone was obtained by alloying indium with arsenic impurities to a germanium wafer. The evaluated value of de-generation μ_p for the used germanium was calculated as follows:

For a concentration of mobility carriers $p = 1.5 \times 10^{19} \text{ cm}^{-3}$ $\mu_p \sim 3k$
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30301

S/109/61/006/011/016/021
D201/D304

Certain peculiarities of the ...

T ; for $p = 5 \times 10^{19} \text{ cm}^{-3}$ $\mu_p = 7.5 kT$, where k - the Boltzmann constant and T - absolute temperature. Diodes with a large degree of degeneration in the p-region ($\mu_p > \mu_n$) were found to have the voltage, corresponding to the maximum of the tunnel current, determined by the degree of degeneration in the hole region, the position of maximum being proportional to the degree of degeneration μ_p (Fig. 2). On the maximum value of the tunnel current, it was found that this depends mainly on the transparency of the potential barrier. This transparency depends again strongly (exponentially) on the thickness of the potential barrier and consequently on the concentration of majority n and p carriers. By comparing the experimental data obtained with the expression for the transparency of the barrier, it was found that the maximum current in the analyzed region may be hard to determine by the probability of electron drift through the potential barrier. It means that the maximum of the tunnel current depends very strongly on the degree of alloying n - and p-region. In conclusion, the authors thank S.G. Kalashnikov V.L. Bonch-Bruyevich and N.Ye. Skvortsov for assessing their work.

Card 2/3

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Certain peculiarities of the ...

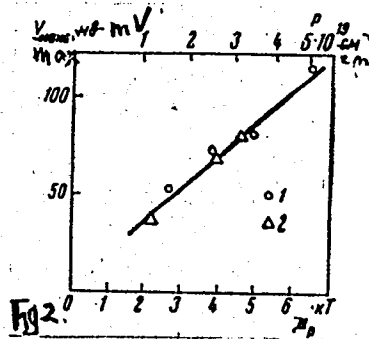
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There are 5 figures, 1 table and 5 references: 2 Soviet-bloc and 3 non-Soviet-bloc. The references to the English-language publications read as follows: F.A. Trumbore, Bell System Techn. J. 1960, 39, 1, 169; S.V. Furukawa, J. Phys. Soc. Japan, 1960, 15, 4, 730.

ASSOCIATION: Institut radiotekhniki i elektroniki AN SSSR (Institute of Radio Engineering and Electronics, AS USSR)

SUBMITTED: March 14, 1961

Fig. 2.



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S/058/63/000/002/043/070
A062/A101

AUTHORS: Belova, N. A., Kovalev, A. N.

TITLE: Experimental investigation of the influence of the alloy degree on the tunnel current in narrow p-n junctions of germanium

PERIODICAL: Referativnyy zhurnal, Fizika, no. 2, 1963, 69, abstract E458 ("Tr. Soveshchaniya po udarn. ionizatsii i tunnel'n. efektu v poluprovodnikakh, 1960". Baku, AN AzerbSSR, 1962, 120 - 129)

TEXT: It has been shown experimentally that the alloying degree of the n and p regions of a narrow p-n junction has an appreciable effect on the tunnel current and first of all on the magnitude and position of the maximum and minimum of the voltampere characteristic. For diodes with a more strongly alloyed p region, the position of the maximum is determined, in principle, by the degree of degeneration in the p region. The position of the minimum of the volt-ampere characteristic is shifted towards the higher tensions as the alloying degree in the n and p regions increases; perhaps this is connected with the presence of admixture zones in the strongly alloyed semiconductor. It follows also from the

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Experimental investigation of the influence of...

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experiment that the character of the temperature dependence of the tunnel current is determined by the degree of degeneration in the n and p regions. No noticeable dependence of the tunnel current on the density of dislocations was observed. See RZh Fiz, 1961, 9Zh108.

[Abstracter's note: Complete translation]

Card 2/2

AID Nr. 980-4 31 May

EFFECT OF DOPING ON Ge TUNNEL DIODES (USSR)

Belova, N. A. Radiotekhnika i elektronika, v. 8, no. 4, Apr 1963,
646-852. S/109/63/008/004/014/030

The effect of copper and nickel doping on the excess current of Ge tunnel diodes has been experimentally investigated at temperatures from 4°K (in liquid He) to 300°K. at voltages of 0.7 v and more. The junctions were made of Ge alloyed at varying strengths with As (resistivity, 0.002 to 0.0008 ohm/cm), and diffusion-doped with copper or nickel. The following relationships for excess current were observed: 1) With an increase of Cu or Ni concentration at a given voltage and temperature, the excess current increases, in good agreement with the theoretical relationship according to which excess current is directly proportional to the density of levels introduced into the forbidden zone, i. e., to the degree of doping; 2) For a given degree of doping, excess current varies exponentially with increase in applied voltage, also in agreement with theory.

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AID Nr. 980-4 31 May

EFFECT OF DOPING ON Ge TUNNEL [Cont'd]

8/109/63/008/004/014/030

3) With increase in the concentration of majority carriers in the n- and p-regions, resulting from increasing the As alloy content, the excess current also increases as predicted. 4) In the tested temperature range the excess current increases with temperature due to decreasing contact potential difference, with an increased probability of tunnel current flow. In general, the results for the doped case conform to theory, which predicts the possibility of tunneling through local levels located within the forbidden zone. However, it is noted that comparative test results with a nondoped diode deviate from the above results, showing a more complex relation of tunnel current to applied voltage. This suggests the presence within the forbidden zone of a density of states not equal to 0.

(DWI)

Card 2/2

BELOVA, N.A.

Effect of various laminating impurities on the voltampere characteristics of tunnel diodes. Radiotekh. i elektron. 8 no.12:2091-2093
D '63. (MIRA 16:12)

L 27218-65 EWT(a)/EWP(t)/EWP(b) IJP(c) JD

ACCESSION NR: AP5002903

S/0109/65/010/001/0096/0101

AUTHOR: Belova, N. A.; Ivanov, S. N.

TITLE: Investigation of electron-hole junctions of low-resistivity germanium

SOURCE: Radiotekhnika i elektronika, v. 10, no. 1, 1965, 96-101

TOPIC TAGS: germanium semiconductor, semiconductor junction

ABSTRACT: As the peculiarities of behavior of low-resistivity (0.01 ohm-cm) Ge junctions cannot be explained by existing theories, the authors analyze Soviet and American published experimental data and advance a new qualitative explanation for the observed phenomena. The assumption is made that the current in such junctions consists of two parts: a conventional diffusion component and an "excess" component. The nature of the second component is connected with the allowed states within the forbidden band (by the levels formed with the introduction of Ni, Au, Cu, or by the levels of crystal-structure defects). Insofar as the

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L 27218-65

ACCESSION NR: AP5002903

above characteristics are inherent to the excess current in a tunnel diode, it is natural to assume that the above "excess component" also owes its existence to a tunnel-type infiltration of electrons from local energy levels in the forbidden band of the semiconductor through the potential barrier of the p-n junction. "In conclusion, the authors wish to thank N. Ye. Skvortsova for discussing the results and her valuable comments." Orig. art. has: 6 figures, 2 formulas, and 1 table.

ASSOCIATION: none

SUBMITTED: 28Oct63

ENCL: 00

SUB CODE: EC

NO REF SOV: 005

OTHER: 003

Card 2/2

L 35015-65 EWT(1)/EWT(m)/T/EWP(1)/EWP(b)/EWA(h) Pz-6/Feb IJP(c) JD/AT

ACCESSION NR: AP5005363

S/0109/65/010/002/0385/0387

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8

AUTHOR: Belova, N. A.; Lyubchenko, V. Ye.; Skvortsova, N. Ye.

TITLE: Investigation with the aid of p-n junctions of the effect of concentration on the lifetime of minority carriers in heavily doped germanium

SOURCE: Radiotekhnika i elektronika, v. 10, no. 2, 1965, 385-387

TOPIC TAGS: semiconductor property, doped germanium, germanium semiconductor

ABSTRACT: This investigation continues the work of D. Meyerhofer et al. (Phys. Rev., 1962, 126, 1329) on minority-carrier lifetimes in germanium. The diffusion capacitance of the junction was calculated from the diode impedance, measured at 800-3500 Mc, and a function C^{-2} (V), where V is the applied voltage, was plotted. The impurity concentration in the p-region was $7 \times 10^{19}/\text{cm}^3$. The lifetime of holes in the n-region was plotted. For concentrations 2×10^{17} - $10^{19}/\text{cm}^3$, the mechanism of shock recombination by traps seems to dominate. Orig. art. has: 4 figures and 2 formulas.

[03]

ASSOCIATION: none

Card 1/2

L 35015-55

ACCESSION NR: . AP5005363

0

SUBMITTED: 21Feb64

ENCL: 00

SUB CODE: SS

NO REF SOV: 003

OTHER: 002

ATD PRESS: 3216

Card 2/2

L 07095-67 EWT(l)/EWT(m)/EWP(v)/EWP(t)/ETI/EWP(k) LJP(c) JD/tm/AT

ACC NR: AP6019001 SOURCE CODE: UR/0109/66/011/006/1107/1111

AUTHOR: Belova, N. A.; Zil'berman, P. Ye.; Lyubchenko, V. Ye.

ORG: none

TITLE: Impurity distribution in p-n junctions made from heavily doped germanium

SOURCE: Radiotekhnika i elektronika, v. 11, no. 6, 1966, 1107-1111

TOPIC TAGS: semiconducting material, semiconductor research, germanium semiconductor, tunnel diode, *PN JUNCTION*

ABSTRACT: The charge capacitance vs. bias curves $C(V)$ of tunnel diodes made from As- and P-heavily-doped Ge were measured. The curves for the tunnel diodes having equal majority-carrier concentrations in n- and p-regions were compared. It was noted that, in As-doped diodes, the parameter V_c decreased

Card 1/2

UDC: 621.382.13:621.382.23.011.222

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45
B

Dissertation: "Higher Accuracy of Latitude Observations Through Use of the Zenith Telescope Based on the Principle of Restricted Navigation." (Degree not given), Moscow Inst of Engineering Geodesy, Aerial Photography and Cartography, Moscow, 1953. (Referativnyy Zhurnal--Astronomiya, Moscow, Apr 1954)

SO: SUM 243, 19 Oct 1954

BELOVA, N.A., kandidat tekhnicheskikh nauk.

Using the principle of restricted floating for the leveling of
astronomical instruments. Trudy MIIGAIK no.25:67-75 '57.

(MLRA 10:8)

1. Moskovskiy institut inzhenerov geodezii, aerofotos"yemki i
kartografii, Kafedra astronomii.

(Astronomical instruments)

GORDON, B.Ye.; MELAMED, E.A.; BELOVA, N.A.

Determining the captax content of rubber by means of amperometric titration with two indicator electrodes. Kauch.i rez. 21 no.8: 53-55 Ag '62. (MIRA 16:5)

1. Kiyevskiy zavod "Krasnyy rezinshchik" i Nauchno-issledovatel'skiy institut sudebnoy ekspertizy.
(Rubber--Analysis)

NISHCHENKOVA, L.G.; BELONOGOV, K.N.; GOSTININ, V.P.; BELOVA, N.A.; NIZOV, G.A.;
SELEZNEV, M.M.

Catalytic reduction of nitro derivatives with hydrogen. Part 2:
Continuous reduction of sodium p-nitrophenolate on a skeletal
nickel catalyst. Izv.vys.ucheb.zav.; khim. i khim. tekhn. 6
no.6:952-956 '63. (MIRA 17:4)

1. Ivanovskiy khimiko-tekhnologicheskii institut, kafedra fizicheskoy
i kolloidnoy khimii.

GALINKER, I.S.; BELOVA, N.A.

Thermal properties of aqueous solutions of cobaltous chloride in
the range of temperature up to 300°. Zhur.ob.khim, 33 no.10:3119-
3121 0 '63. (MIRA 16:11)

YUDIN, N.A., inzh.; TINYAKOV, A.M., inzh.; BELOVA, N.A., inzh.

Transparent silicate luster colors and metallic oxide coatings
for decorating glassware. Stek. i ker. 22 no.6:19-21 Ja '65.

(MIRA 18:6)

1. Gusevskoy filial Gosudarstvennogo nauchno-issledovatel'skogo
instituta stekla.