GORLADKOVSKIY, A.K.

3(5) 15(6) PHASE I BOOK EXPLOITATION SOV/1254

Akademiya nauk SSSR. Otdeleniye geologo-geograficheskikh nauk

Boksity, ikh mineralogiya i genezis (Mineralogy and Origin of Bauxites)
Moscow, Izd-vo AN SSSR, 1958. 488 p. 2,200 copies printed.

Compiler: Dolgopolov, N.N.; Chief Ed.: Strakhov, N.M., Academician;
Resp. Ed.: Bushinskiy, G.I.; Ed. of Publishing House: Nosov, G.I.;
Tech. Ed.: Polenova, T.P.

PURPOSE: The book is intended for scientists working in geology and associated fields, and managers of industrial and engineering concerns.

COVERAGE: This collection of articles by various authors on the mineralogy and geochemistry of bauxites appeared as a result of a 1955 conference on the origin of bauxite (Chairman, Academician N.M. Stakhov). The conference discussed the genetic theories propounded by various scientists, underlining the weakness of L.S. Berg's biochemical theory and the hydrothermal theories developed by some French scientists. The majority of Soviet geologists appear to be in accord with the sedimentary origin theory. The book discusses problems on the origin of bauxite and describes some deposits found in the USSR. Each article is accompanied by Soviet and other references, photographs, diagrams, tables and maps.

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Mineralogy and Origin of Bauxites SOV/1254

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Mineralogy and Origin of Bauxites

AVAILABLE: Library of Congress

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3-13-59

GLADKOVSKIY, A.K.; DEGTYAREV, D.D.; SHURYGINA, M.V.

Origin of Devonian bauxites in the Urals. Nauch. dokl. vys. shkoly; geol.-geog. nauki no.3:134-138 '58. (MIRA 12:1)

1.Sverdlovskiy gornyy institut.
(Ural Mountains--Geology, Stratigraphic)
(Bauxites) (Petrology)

[redacted]

[redacted], A.K.: Y, A.K.

[redacted] Ural [redacted] 103-[redacted] tuestones and [redacted] importance in prospecting for [redacted]xites. Mat.[redacted] geol.i pol.iskop.Urala no.6: [redacted] (MIRA 12:10)

[redacted]ains--Bauxite [redacted]

GLADKOVSKIY, A.K.

Distribution of lower Cretaceous bauxite deposits on the eastern slope of the Urals and methods of prospecting for them. Trudy Gor.-geol. inst. UFAN SSSR no.40:165-173 '59. (MIRA 13:11)
(Ural Mountains--Bauxite)

GLADKOVSKIY, A.K.; SHAROVA, A.K.

Minerals fromed during the weathering of bauxites in the Southern Ural Basin and their role in the geochemistry of bauxites. Izv. vys. ucheb. zav.; geol. i razv. 3 no.7:130-134 Jl '60. (MIRA 13:9)

1. Sverdlovskiy gornyy institut.
(Southern Ural Basin--Bauxites)

GLADKOVSKIY, A.K.; GUTKIN, Ye.S.

Formation of the Ural Devonian bauxites. Geol. rud. mestorozh. no.5:107-112 S-O '60. (MIRA 13:10)

1. Gorno-geologicheskiy institut Ural'skogo filiala AN SSSR, Sverdlovsk.
(Ural Mountains--Bauxite)

GLADKOVSKIY, A.K.; USHATINSKIY, I.N.

Composition, origin, and alteration of bauxites in Tikhvin District. Trudy Gor.-geol.inst. UFAN SSSR no.56:109-135 '61. (MIRA 15:7)

(Tikhvin District--Bauxite)

GLADKOVSKIY, A.K.; SHAROVA, A.K.

Regularities in the composition and formation of bauxite deposits in the Urals and the Turgay Plain. Trudy Gor.-geol.inst. UFAN SSSR no.58:169-205 '62. (MIRA 15:12)
(Ural Mountains—Bauxite) (Turgay Tableland—Bauxite)

GLADKOVSKIY, A.K.

Methodology of compiling maps of the prospects and metallogeny of Cretaceous bauxites in the trans-Ural region and the Turgay Plain. Trudy Gor.-geol.inst. UFAN SSSR no.58:207-219 '62. (MIRA 15:12)
(Ural Mountain region—Bauxite—Maps)
(Turgay Tableland—Bauxite—Maps)

GLADKOVSKIY, A.K.; SHAROVA, A.K.

"Triassic" bauxites on the eastern slope of the Urals. Dokl. AN SSSR 151 no.6:1420-1423 Ag '63. (MIRA 16:10)

1. Institut geologii Ural'skogo filiala AN SSSR. Predstavleno akademikom D.I.Shcherbakovym.

GLADKOVSKIY, A. K.; SHAROVA, A. K.

Bauxite potential of the Lower Mesozoic sediments of the eastern slope of the Northern Ural Mountains. Izv AN SSSR Ser geol 29 no. 5: 67-75 My '64. (MIRA 17:5)

1. Institut geologii Ural'skogo filiala AN SSSR, Sverdlovsk.

GLADKOVSKIY, A.K.; RUDNOVA, M.Ya.

Weathering of Devonian bauxites in the Southern Urals. Lit. i pol. iskop. no.3:131-139 My-Je '64. (MIRA 17:11)

1. Institut geologii Ural'skogo filiala AN SSSR.

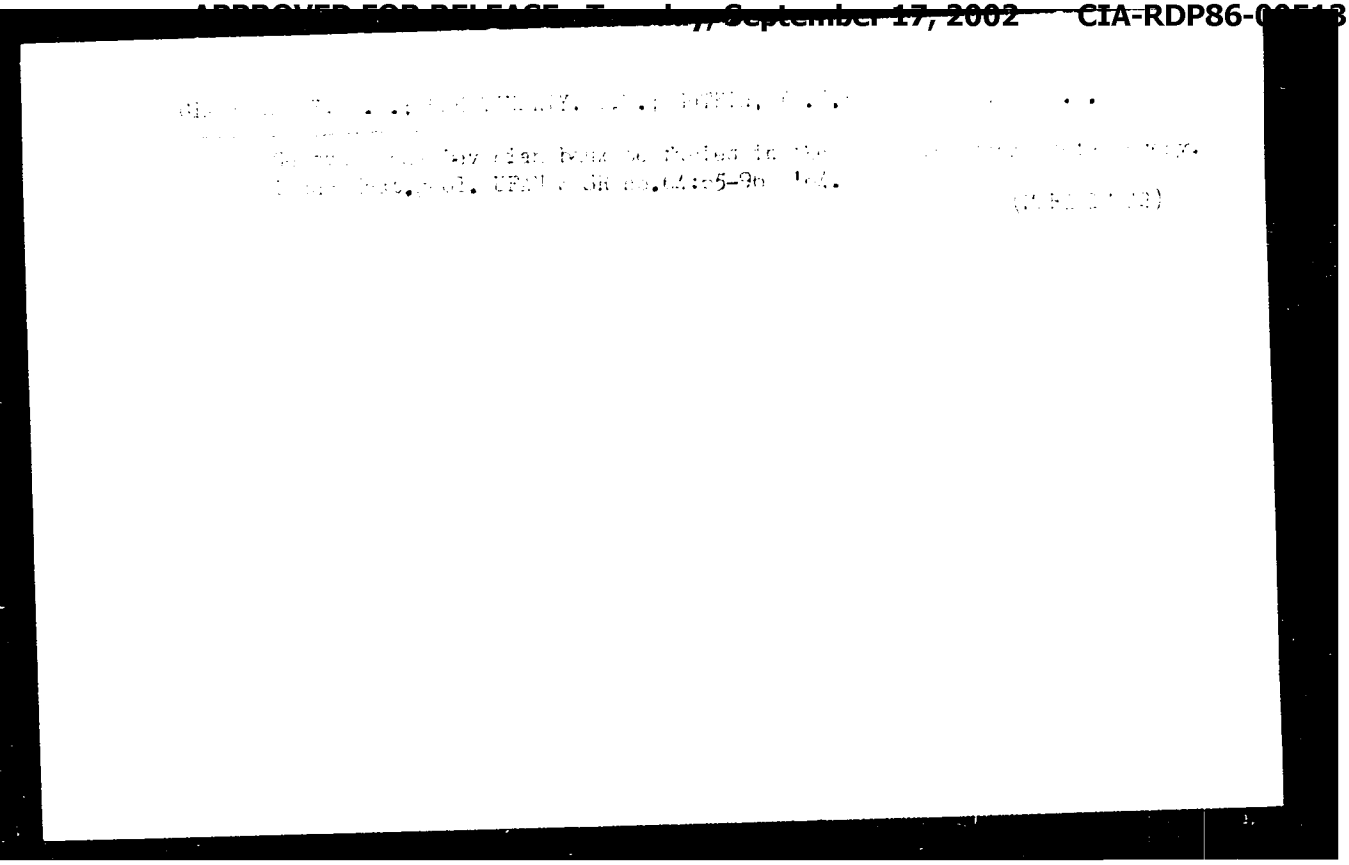
GLADKOVSKIY, A.K.; USHATINSKIY, I.N.

Mineral composition of the main bauxite deposits of the world; origin and alteration of alumina minerals and bauxites. Trudy Inst.geol. UFAN SSSR no.64:5-40 '64. (MIRA 17:12)

Remarks on the book "Bauxites, their mineralogy and genesis." Ibid.:243-252

GLADKOVSKIY, A.K.; RUDNOVA, M.Ya.

Structure and composition of the weathering zone of bauxite deposits in the Southern Ural Basin. Trudy Inst.geol. UFAN SSSR no.64:41-57 '64. (MIRA 17:12)



GLADKOVSKIY, A.K.; SHAROVA, A.K.

Significance of the facies primary and secondary characteristics of bauxites in forecasting. Trudy Inst.geol. UFAN SSSR no.64:167-176 '64.
(MIRA 17:12)

GIALKOVSKIY, A.K.; KHRENTSOV, V.N.

Origin of the bauxites of the Kursk Magnetic Anomaly region.
Dokl. AN SSSR 156 no. 4:921-924 Je '64. (MIRA 17:6)

1. Institut geologii Ural'skogo filiala AN SSSR. Predstavleno akademikom A.L.Yanshinym.

GLADKOVSKIY, A.K.; SHAROVA, A.K.; KHRAMTSOV, V.N.

Characteristics of the composition, origin, and changes of Mesozoic and Cenozoic bauxite deposits in the Asiatic part of the U.S.S.R. Trudy Inst.geol. UFAN SSSR no.64:127-166 '64. (MIRA 17:12)

GLADKOVSKIY, A.P.

Clinical characteristics of ornithosis. Trudy Len. inst. epid. i mikrobiol. 25:192-200 '63. (MIRA 17:1)

1. Iz Leningradskoy infektsionnoy bol'nitsy imeni Botkina.

TOKAREVICH, K.N.; VISHNYAKOVA, L.A.; GLADKOVSKIY, A.P.; YAKOVLEV, N.N.

Outbreak of ornithosis of an occupational nature. Trudy Len. inst. epid. i mikrobiol. 25:185-191 '63. (MIRA 17:1)

1. Iz otdela osobo opasnykh infektsiy Leningradskogo instituta epidemiologii i mikrobiologii imeni Pastera i Leningradskoy infektsionnoy bol'nitsy imeni S.P. Botkina.

VISHNYAKOVA, L.A.; GLADKOVSKIY, A.P.

Duration of the preservation of complement-fixing antibodies following the recovery from ornithosis. Trudy Len. inst. epid. i mikrobiol. 25:219-224 '63.

(MIRA 17:1)

1. Iz otdela osobo opasnykh infektsiy Leningradskogo instituta epidemiologii i mikrobiologii imeni Pastera i Leningradskoy infektsionnoy bol'nitsy imeni Botkina.

SOV/4982

International symposium on macromolecular chemistry, Moscow, 1960.

Mezhdunarodnyy simpozium po makromolekulyarnoy khimii SSSR, Moskva, 14-18 iyunya 1960 g.; doklady i avtoreferaty. Sektsiya I. (International Symposium on Macromolecular Chemistry Held in Moscow, June 14-18, 1960; Papers and Summaries. Section I.) [Moscow] Izd-vo AN SSSR, 1960] 345 p. 5,100 copies printed.

Sponsoring Agency: The International Union of Pure and Applied Chemistry, Commission on Macromolecular Chemistry

Tech. Ed.: T. V. Polyakova.

PURPOSE: This collection of articles is intended for chemists and researchers interested in macromolecular chemistry.

COVERAGE: This is Section I of a multivolume work containing scientific papers on macromolecular chemistry in Moscow. The material includes data on the synthesis and properties of polymers, and on the processes of polymerization, copolymerization, polycondensation, and polyconversion. Each part is presented in full or summarized in French, English, and Russian. There are 47 papers, 25 of which were presented by Soviet, Rumanian, Hungarian, and Czechoslovakian scientists. No personalities are mentioned. References accompany individual articles.

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VANSHEYDT, A.A.; MEL'NIKOVA, Ye.P.; GLADKOVSKIY, G.A.

Preparation and properties of polyphenylene-type polymers. Part 2: Preparation of polyarylenemethyls by polycondensation of aromatic hydrocarbons with their bis-acetoxy and bis-chloromethyl derivatives. Vysokom.soed. 4 no.9:1303-1309 S '62. (MIRA 15:11)

1. Institut vysokomolekulyarnykh soyedineniy AN SSSR.
(Hydrocarbons) (Polymers)

GLADKOVSKIY, G.A.; SKUROKHODOV, S.S.; SLYUSHA, S.G.; [illegible]

Synthesis and properties of vinyltropylium perchlorate. Izv. AN SSSR. Ser.khim. no.7:1273-1277 Jl '63. (MIR 16:7)

1. Institut vysokomolekulyarnykh soyedineniy AN SSSR.
(Tropylium compounds)

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B019/B056

24.2120

AUTHORS: Afrosimov, V. V., Gladkovskiy, I. P., Gordeyev, Yu. S., Kalinkevich, I. F., and Fedorenko, N. V.

TITLE: Investigation of Atomic Flux Emitted by Plasma

PERIODICAL: Zhurnal tekhnicheskoy fiziki, 1960, Vol. 30, No. 12, pp. 1456 - 1468

TEXT: The authors developed a method of measuring the flux of uncharged atoms having an energy of 300 ev to some thousand kev. The method is based upon the recording of individual atoms after their ionization and acceleration to 10-20 kev. Fig.1 shows a scheme of this instrument, in which the ionized particles are directed onto an Al-Mg target, where they produced secondary ions which were measured by a scintillation counter. For the calibration of the installation, a special device for monochromatic ions and atoms was used. The calibration curves are shown and discussed in detail. Further, installations are described in detail, which permit the time dependence of the atom flux, the energy distribution, and the mass analysis of the atoms to be determined by an

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Investigation of Atomic Flux Emitted by Plasma

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oscilloscope. The energy distribution of the atoms was studied with the relation $dJ/dE = J_+(E)/\bar{\alpha}_0(E)\mu E$, where $J_+(E)$ is the current of secondary ions, and $\bar{\alpha}_0(E)$ the mean recording efficiency. The density of the atomic flux was determined from the relation

$dJ/d\Omega = (1/\bar{\Omega}S_{eff}) \int_{E_1}^{E_2} J_+(E)dE/\bar{\alpha}_0(E)\mu E$, where $\bar{\Omega}$ is the mean solid angle, and S_{eff} the effective plasma surface. For calculating the concentration of atoms per unit volume the formula

$n_0 = 2\sqrt{2M} \int_{E_1}^{E_2} (dJ/dE)dE/\sqrt{E}$ was used. By changing $\bar{\Omega}$, the light intensity μ, and the thickness of the gas target, it is possible to improve the sensitivity considerably. The least measured density of the flux of hydrogen atoms having an energy of 300 ev in the case of an isotropic

Investigation of Atomic Flux Emitted by Plasma

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velocity distribution was $1 \cdot 10^{10}$ at/cm^2.sec. There are 10 figures and 5 references: 4 Soviet and 1 US.

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

SUBMITTED: July 15, 1960

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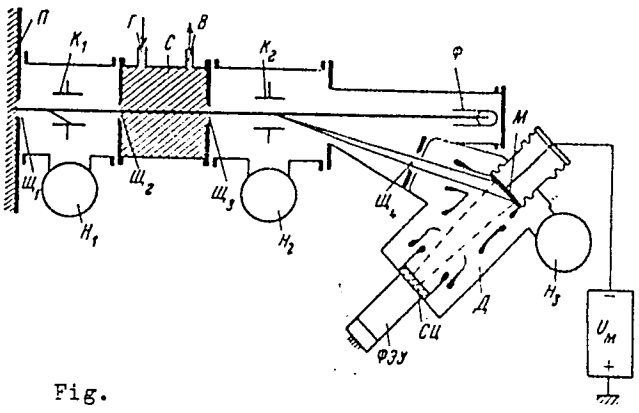

Fig.

Рис. 1. Схема прибора для исследования потока атомов.

Legend to Fig.1: P plasma space. K_1 entrance slit of the instrument. K_1 capacitor for the deflection of charged particles. C ionization chamber. K_2 and K_3 entrance and exit slits of the ionization chamber. Г and B tubes for the lead-in of a gas and pressure measurement. K_2 analyzer. K_4 detector-entrance slit. Д detector. СЦ scintillator. M target. U_M source of acceleration voltage. ФЭУ photomultiplier. H_1, H_2, and H_3 diffusion pumps. Ф Faraday auxiliary receiver.

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26.2311

AUTHORS: Afrosimov, V. V., Gladkovskiy, I. P., Gordeyev, Yu. S., Kalinkevich, I. F., Petrov, M. P., and Fedorenko, N. V.

TITLE: Investigation of a Flux of Neutral Atomic Particles Emitted by the Plasma of "Al'fa" Research Installation

PERIODICAL: Zhurnal tekhnicheskoy fiziki, 1960, Vol. 30, No. 12, pp. 1469 - 1484

TEXT: The authors used the device described in the present issue on p. 1456 ff to investigate the atomic flux with energies of 300 ev to 10 kev, emitted by the plasma of "Al'fa". The measurements showed that practically all atoms recorded are hydrogen atoms. The quantity of the fast atoms grows with an increase of the capacitor voltage, with a decrease of the external magnetic field H_z, or with a decrease of the hydrogen pressure in the chamber. In the course of discharge, the quantity of fast atoms reaches a maximum, while the discharge current increases to its first maximum. However, there is no considerable

Investigation of a Flux of Neutral Atomic Particles Emitted by the Plasma of "Al'fa" Research Installation

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difference in the energy distribution of atoms during discharge. A table gives data on the atomic flux. Analysis of the data showed that the fraction of atoms in the atomic flux generated by reflection of ions from the wall, is small compared to the fraction coming direct from the plasma. It was further shown that the energy distribution of atoms and ions in the plasma space are very similar, and that the energy distribution cannot be approximated by Maxwell distribution. The mean energy of hydrogen atoms reflected from a metal surface is estimated in an appendix. The authors thank B. P. Konstantinov for his valuable advice and discussion, D. M. Kaminker for his interest, O. V. Konstantinov and V. I. Perel' for taking part in discussions, as well as Ye. G. Komar, A. M. Stolov, and V. A. Glukhikh for their assistance in measurements. There are 11 figures, 1 table, and 8 references: 6 Soviet and 2 US.

Investigation of a Flux of Neutral Atomic Particles Emitted by the Plasma of "Al'fa" Research Installation

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ASSOCIATION: Fiziko-tekhnicheskiy institut AN SSSR (Institute of Physics and Technology of the AS USSR). Nauchno-issledovatel'skiy institut elektrofizicheskoy apparatury (Scientific Research Institute of Electrophysical Apparatus)

SUBMITTED: July 15, 1960

1 Режим	Плотность потока 2		3	4
	a: атомов на единицу телесного угла $\frac{dJ}{d\Omega}$, $\frac{1}{см^2 \cdot стрд. \cdot разр.}$	b: при изотропном распределении скоростей атомов J, $\frac{1}{см^2 \cdot разр.}$	c: энергия, уносимая атомами, $\frac{\varepsilon}{S}$, $\frac{джоуль}{см^2 \cdot разр.}$	$E_{ср.}$, эв	ε, кдж/разр.
5 кв, 360 врст.	$1.9 \cdot 10^{-13}$	$1.2 \cdot 10^{14}$	$1.0 \cdot 10^{-2}$	480	3.0
10 кв, 360 врст.	$8.6 \cdot 10^{-13}$	$5.4 \cdot 10^{14}$	$4.5 \cdot 10^{-2}$	530	13.5
10 кв, 720 врст.	$5.3 \cdot 10^{-13}$	$3.3 \cdot 10^{14}$	$2.5 \cdot 10^{-2}$	480	7.5
15 кв, 180 врст.	$5.0 \cdot 10^{-13}$	$3.1 \cdot 10^{14}$	$3.1 \cdot 10^{-2}$	670	9.4
15 кв, 360 врст.	$3.5 \cdot 10^{-13}$	$2.2 \cdot 10^{14}$	$2.3 \cdot 10^{-2}$	630	7.0
15 кв, 720 врст.	$4.4 \cdot 10^{-13}$	$2.8 \cdot 10^{14}$	$2.4 \cdot 10^{-2}$	530	7.2

Legend to Table 1: 1) Experimental conditions, voltage at the discharge capacitors in kv, magnetic field in oe. 2a) Atoms per unit of solid angle. 2b) Density of atomic flux in isotropic velocity distribution. 2c) Energy of atoms in joules/cm^2.

Card 4/4

ACCESSION NR: AT4025308 S/0000/63/000/000/0182/0192

AUTHORS: Afrosimov, V. V.; Gladkovskiy, I. P.; Petrov, M. P.

TITLE: Plasma diagnostics by means of fast neutral particles in apparatus using a discharge in a strong magnetic field

SOURCE: Diagnostika plazmy* (Plasma diagnostics); sb. statey. Moscow, Gosatomizdat, 1963, 182-192

TOPIC TAGS: plasma turbulence, plasma research, magnetic mirror, ion mass analysis, nuclear stripping reaction, mass analysis, ionization, ionized plasma

ABSTRACT: In view of the large amount of information that can be obtained from a study of the flux of fast neutral atoms emitted by a plasma in toroidal-discharge installations in a strong magnetic field, an atomic analyzer was employed for the analysis of the flux of fast atoms emitted by the plasma in the "Tokamak-2 (T-2)" appara-

ACCESSION NR: AT4025308

tus. The analyzer was described in detail earlier (Zh. tekhn. fiz. v. 30, No. 12, 1456, 1960). A fraction of the fast atoms entering the instrument was converted into ions by stripping on nitrogen molecules. These ions were analyzed by energy in an electric field and then by mass in a magnetic field, after which they proceeded to the detector. The instrument was calibrated with auxiliary apparatus described in detail in the same reference as the main apparatus. The various precautions needed to ensure precision are discussed. It was established that the plasma from the T-2 apparatus emits an atom flux with energy of hundreds and thousands of electron volts. A mass analysis of the secondary ions produced by stripping the nitrogen atoms has shown that about 99% of the ions are protons. The only noticeable impurity was carbon-12. The main mechanism producing this flux of fast atoms is neutralization of the plasma ions via charge exchange with the atoms entering the plasma. The conditions for the occurrence of this flux are estimated. Preliminary measurements of the spatial distribution of the atom flux over the volume

ACCESSION NR: AT4025308

of the chamber was also carried out and it was established that the fast-atom flux comes from all parts of the chamber. The energy distribution of the fast atoms indicates that the plasma ions have no Maxwellian energy distribution, a feature characteristic of turbulent plasma. Orig. art. has: 3 figures and 6 formulas.

ASSOCIATION: None

SUBMITTED: 19Oct63	DATE ACQ: 16Apr64	ENCL: 02
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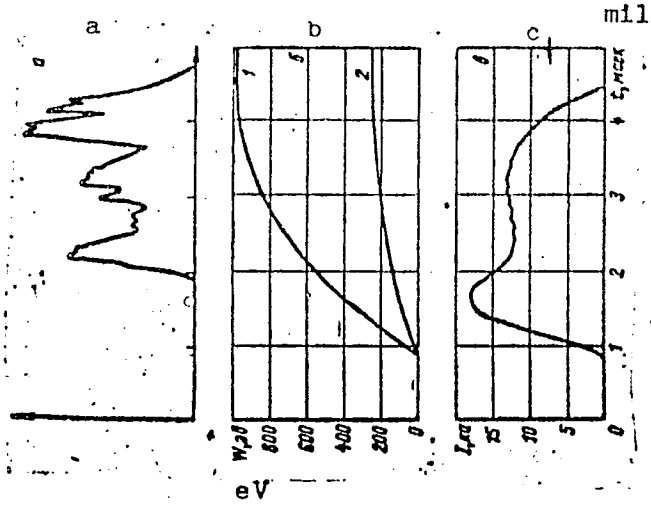
ACCESSION NR:AT4025308

ENCLOSURE: 01



Comparison of time dependence of the hydrogen atom flux, discharge current, and energy supplied.
a - hydrogen atom flux (E = 300 eV), b - energy delivered to plasma (1 - per particle within the plasma pinch, 2 - per particle within the chamber volume), c - discharge current

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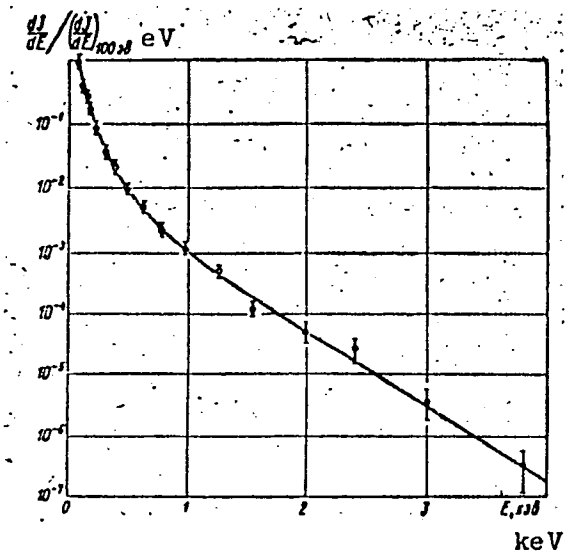
ACCESSION NR: AT4025308

ENCLOSURE: 02



Energy distribution of the hydrogen atoms in the stream

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B108/B186

AUTHORS: Afrosimov, V. V., Gladkovskiy, I. P., Kislyakov, A. I., and Petrov, M. P.

TITLE: A mass analysis of the current of neutral atomic particles ejected from the plasma in the "Alpha" machine

PERIODICAL: Zhurnal tekhnicheskoy fiziki, v. 33, no. 2, 1963, 205 - 211

TEXT: Fast neutral particles with energies of 500 - 5000 ev were mass-analyzed by measuring the flight time of the particles as described in ZhTF, 30, 12, 1456, 1960. A magnetic mass analyzer was used to avoid difficulties in handling high-energy particles. The hydrogen plasma in the Alpha machine was found to be a source of a large number of impurity atoms. Since the impurity concentration varies with time and depends on the working conditions of the machine in the same way as the hydrogen concentration it can be assumed that the impurity and hydrogen atoms form in similar processes (recharging, desorption of gases from chamber wall, evaporation of wall material, etc.). The current of the impurity atoms increases at the end of the discharge. This may lead to an increase in impurity ion concentration of the plasma, and also to an increase of the
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current of particles on which the impurity ions are recharged. There are 4 figures.

ASSOCIATION: Fiziko-tekhnicheskiy institut im. A. F. Ioffe AN SSSR, Leningrad (Physicotechnical Institute imeni A. F. Ioffe AS USSR, Leningrad)

SUBMITTED: February 2, 1962

GLADKOVSKIY, P.S.

The PVK-200-type steam turbine with a 200,000 Kw capacity. Biul. tekh.-ekon.inform. no.7:36-39 '58. (MIRA 11:9)
(Steam turbines)

GLADKOVSKIY, P.S., inzh.

The K-300-240 steam turbine manufactured by the Leningrad Metalworks.
Energomashinostroenie 8 no.3:1-3 Mr '62. (MIRA 15:2)
(Leningrad—Steam turbines)

GEMMERLING, G.; GLADKOVSKIY, T.

Slag-pumice concrete in panels of outer walls. Na stroi. Ros. 3 no.5:22-23 My '62. (MIRA 15:9)

1. Rukovoditel' laboratorii stroitel'nykh materialov Ural'skogo filiala Akademii stroitel'stva i arkhitektury SSSR (for Gemmerling). 2. Nachal'nik tsentral'noy stroitel'noy laboratorii tresta Chelyabmetallurgstroy (for Gladkovskiy)

(Concrete walls)

APPROVED FOR RELEASE: Tuesday, September 17, 2002 CIA-RDP86-[illegible]3R0005

GLADKOVSKIY, T. K.

PA 228T82

USSR/Engineering - Construction, Materials, Testing — 15 Jul 52

"Instrument for Determination of Calcium Chloride in Cob Brick," T. K. Gladkovskiy, V. Ya. Savel'yev, Engineers Trust Tagilstroy

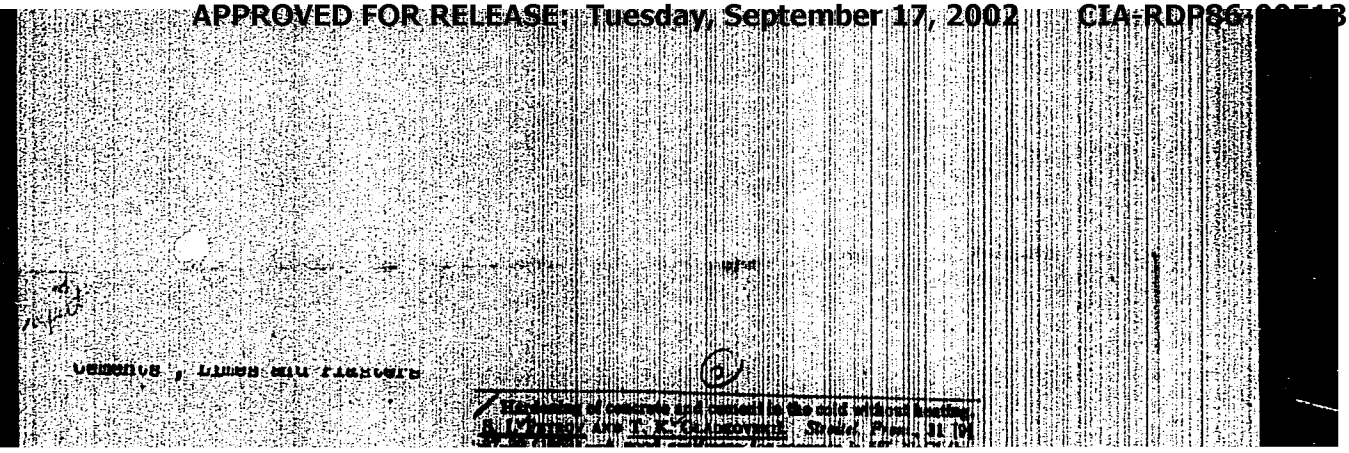
"Byul Stroit Tekh" No 14, pp 26, 27

Describes improved instrument designed in 1949 by Engr P. E. Rickert for detn of $CaCl_2$ in brick by its elec cond. Addn of $CaCl_2$ into brick material was suggested as measure against freezing of cob brick at temp below $0^{\circ}C$, making it possible to

228T82

prolong period of natural drying of bricks. This prolongation is essential, especially under climatic conditions of the Urals and Siberia, article states.

228T82



GLADKOVSKIY, V.A.; GINDIN, A.Sh.; KOSSOVSKIY, L.D.; POPOV, N.P.

Evaluation of the magnitude of residual stresses in surface layers of a back-up roll. Zav. lab. 29 no.9:1128-1129 '63. (MIRA 17:1)

1. Permskiy politekhnicheskiy institut.

SAMUL', V.I.; GLADKOVSKIY, V.A., kand. tekhn. nauk, dots., otv. red.; [illegible], Z.A., tekhn. red.

[Fundamentals of the theory of elasticity] Osnovy teorii uprugosti. Izd-vo Permskogo politekhn. in-ta, 1959. [illegible] p. (MIRA 13:4)

1. Perm. Politekhnicheskiy institut. Kafedra soprotivleniya materialov. 2. Zaveduyushchiy kafedroy soprotivleniya materialov Permskogo politekhnicheskogo instituta (for Gladkovskiy).

USSR/Metallurgy - Yield of steels FD-1013

Card 1/1 : Pub. 153 - 17/24

Author : Gladkovskiy, V. A.

Title : Area of yield of low-carbon steels

Periodical : Zhur. tekh. fiz., 24, 1090-1092, Jun 1954

Abstract : Remarks that in the evaluation of the static strength of objects made of low-carbon steel the most important characteristic is the yield limit, which is ordinarily briefly expressed as the area of yield. Studies the influence of a third element in a binary alloy on yield. Considers the cementite network around ferrite grains. Thanks N. N. Davidenkov. Five references, 3 USSR (e.g. M. V. Yakutovich, 1946; V. I. Arkharov, 1948, of Institute of the Physics of Metals).

Institution : -

Submitted : February 3, 1954

GLADKOVSKIY, V.A.

Effect of hydrostatic pressure on the characteristics of carbon steel deformation. Fiz.met. i metalloved. 1 no.3:563-564 '55.(MLRA 9:6)

1.Ural'skiy filial Akademii nauk SSSR, Institut fiziki metallov.
(Steel--Testing)

USSR/Solid State Physics - Mechanical Properties of Crystals and Polycrystalline Compounds E-10

Abs Jour : Referat Zhur - Fizika, No 5, 1957, 11923

Author : Gladkovskiy, V.A.

Inst : Institute of Physics of Metals, Ural'Branch, Academy of Sciences, USSR.

Title : Influence of Hydrostatic Pressure on Hardness of Carbon Steel

Orig Pub : Fiz. metallov i metallovedeniye, 1956, 3, No 1, 183-184

Abstract : The hardness of steel with 26% carbon was measured in specimens 14 mm in diameter and 10 mm thick, after normalization in vacuum at 900° for one hour with a hydrostatic pressure up to 3,000 kg/cm^2. It was established that the hardness of the steel increases linearly with increasing pressure. At 3,000 kg/cm^2, the increase in hardness is approximately 5%.

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AUTHORS: Gladkovskiy, V. A. and Gleynik, M. I. 126-3-21/34

TITLE: Rig for investigating the mechanical properties of metals under high hydrostatic pressure. (Ustanovka dlya issledovaniya mekhanicheskikh svoystv metallov pod vysokim gidrostaticheskim davleniyem).

PERIODICAL: "Fizika Metallov i Metallovedeniye" (Physics of Metals and Metallurgy), 1957, Vol.4, No.3, pp. 531-535 (U.S.S.R.)

ABSTRACT: The test rig developed by Bridgman, P.W. (1)has the disadvantage that it is not possible to maintain constant the hydrostatic pressure during the tests. The test rig used by Ratner, S.I. (2) for tensile tests of non-ferrous metals under conditions of external hydrostatic pressures of up to 4000 kg/cm^2 did permit maintaining the pressure constant for the entire duration of the tests. In the Metal Physics Institute of the Ural Branch of the Ac.Sc. U.S.S.R. a test rig was designed and built permitting testing of metals under pressures of up to 10 000 kg/cm^2 with automatic recording of the test results. The rig consists of a high pressure chamber, a small hydraulic press, a high pressure compressor and electrical apparatus. A sketch of the main assembly of the test rig is shown in Fig.1, p.532; the basic electrical circuit diagram is shown in Fig.2, p.533. The high pressure chamber consists of a thick wall steel cylinder with an external diameter of

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126-3-21 '34

Rig for investigating the mechanical properties of metals under high hydrostatic pressure. (Cont.)

200 mm, an internal diameter of 20 mm and a length of 230 mm. Automatic recording of the stress-strain curves is effected by means of electrical circuits incorporating strain gauges, a multi-channel electronic amplifier, a loop oscillograph and other instruments. A typical oscillogram obtained during deformation of hardened Be bronze under a pressure of 3000 kg/cm^2 is reproduced in Fig.3, p.534 indicating the tensile stress, the hydrostatic pressure and the deformation. The graph, Fig.4, gives the dependence of the tensile stress on deformation for hydrostatic pressures of 3000 atm and 1 atm. The hydrostatic pressure increases appreciably the yield point but the increase in the tensile stress with increasing deformation at a hydrostatic pressure of 3000 kg/cm^2 is considerably lower than at atmospheric pressure. Acknowledgment is made to Prof. L. F. Vereshchagin for his valuable advice.

Card 2/2

There are 4 figures and 2 references, one of which is Slavic.

SUBMITTED: August 2, 1956.

ASSOCIATION: Institute of Metal Physics, Ural Branch of the Ac.Sc. U.S.S.R. (Institut Fiziki Metallov Ural'skogo Filiala AN SSSR)

AVAILABLE: Library of Congress

AUTHORS: [illegible]ov, A.D., Gladkovskiy, V.A. and Rodionov, K. P. 126-5-3-27/31

TITLE: The Effect of Pressure on Young's Modulus for Certain Metals (O vliyanii davleniya na modul' Yunga nekotorykh metallov)

PERIODICAL: Fizika Metallov i Metallovedeniye, 1957, Vol 5, Nr 3, pp 585-580 (USSR)

ABSTRACT: An apparatus dependent on observations on bending (not described in detail) is used at hydrostatic pressures up to 5000 kg/cm^2. Electrolytic copper and aluminium, 99.[illegible]-99.95% pure, and medium-carbon steel are used; the results are given in Table 1 (left column: Al, Cu, Steel; units cm^2/kg; columns: from (2), from experiment), for pressures up to 4000 kg/cm^2. These metals were used because the bulk (K) and shear (G) moduli are known for high hydrostatic pressures. Eq.(2) is derived by differentiating the standard Eq.(1); Eq.(3) is an approximate formula relating K to p due to Bridgman. Table 2 is similar to Table 1 (same materials); the units are cm and kg. There are 7 references, more of which is Soviet.

Card 1/1

ASSOCIATION: Institut fiziki metallov Ural'skogo filiala AN SSSR (Institute of Metal Physics, Ural Branch of the AS USSR)

SUBMITTED: May 15, 1957

1. Metals--Elasticity 2. Metals--Pressure

SOV/137-58-4-8/30

AUTHORS: Vereshchagin, L. F., Gladkovskiy, V. A., Olegnik, N. I.

TITLE: An Instrument for Measuring the Hardness of Metals at Ultra-High Pressures (Pribor dlya izmereniya tverdosti metallov pri sverkhvysokikh davleniyakh)

PERIODICAL: Pribory i tekhnika eksperimenta, 1958, Nr 4, p 105 (USSR)

ABSTRACT: At the present time machines are available which may be used to investigate plastic deformation of specimens under the action of hydraulic compression. The instrument described in this paper differs from those described so far in that the mechanical properties of a metal under pressure may be determined without damage to the sample. The hardness of metals under pressure is determined from the impression on its surface made by a standard indentor in the form of a sphere, cone, etc. The instrument may be used in static tests on metals under hydrostatic pressures of up to

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An Instrument for Measuring [illegible] of Liquids at Ultra-High Pressures

10 000 kg/cm². A cross section drawing through the instrument is shown in Fig 1 and its development is being used at the Urals Branch of the Academy of Sciences of the USSR. There is 1 figure, no tables or references.

ASSOCIATION: Laboratoriya fiziki sverkhvysokikh davleniy AN SSSR (Laboratory of Ultra-High Pressure Physics of the Academy of Sciences, USSR)

SUBMITTED: October 15, 1957.

SOV/126-6-4-29/34

AUTHOR: Gladkovskiy, V. A.

TITLE: On Work Hardening of Metals by Means of Hydrostatic Pressure (O naklepe metallov pod gidrostaticheskim davleniyem)

PERIODICAL: Fizika Metallov i Metallovedeniye, 1958, Vol 6, Nr 4, pp 761-762 (USSR)

ABSTRACT: It can be assumed that work hardening, which determines the mechanical properties of the work hardened metal, depends basically on the magnitude of the deformation in the cold state. The type of the stress state at which the work hardening proceeds has less influence. The author of this paper has made an attempt to detect the influence of work hardening by stretching, under conditions of a high hydrostatic pressure, on the mechanical properties of certain metals. Such experiments should enable evaluating in the pure form the influence of the spherical stress tensor on the process of plastic deformation and work hardening of metals, which is of considerable importance not only from the point of view of improving further the accuracy of the theoretical conceptions expounded by Academician N. N. Davidenkov (Ref 1)

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On Work Hardening of Metals by Means of Hydrostatic Pressure

but also in solving certain problems relating to the shaping of metals by applying pressure. The experiments were carried out on metals and alloys; the chemical compositions and the heat treatment regimes are entered in the table herewith:

Material	Chemical Composition, % C	Mn	Si	Cu	Fe	Be	Heat Treatment
Steel 50	0.45	0.60	0.05	-	-	-	Hardening, tempering at 700°C
Copper	-	-	-	Rest	0.05	-	Annealing at 600°C
Beryllium bronze	-	-	-	Rest	0.2	1.8	Quenching from 800°C in water

At first the specimens were work hardened by stretching under a high pressure to various magnitudes of

On Work Hardening of Metals by Means of Hydrostatic Pressure

deformation and, following that, the specimens were tested for uniaxial tension at atmospheric pressure Hardening under pressure was effected on a special test rig for investigating the mechanical properties of metals under high pressure described in earlier work (Ref 2). Testing of the specimens under atmospheric pressure was effected on an IM-4R type machine. The neck of the specimen was measured by a watch-type gauge with an accuracy of up to 0.02 mm. Fig.1 shows the elongation diagrams for the specimens of Steel 50; on the abscissa the full real deformation is plotted and on the ordinate the real stresses (kg/mm^2). As can be seen from Fig.1 no appreciable change in the mechanical properties of the material could be detected for this steel under a pressure of 3 500 atm. Similar results were obtained for copper, work hardened applying simultaneously a pressure of up to 2500 atm. In the case of beryllium bronze, the ability to develop concentrated plastic deformation increases considerably with increasing work hardening and so does the ultimate strength. After work hardening of specimens by 44%, at a pressure of 3 200 atm, the

On Work Hardening of Metals by Means of Hydrostatic Pressure

breaking strength increases by 15%, whilst the real contraction increased by 21%. Under ordinary conditions, work hardening by stretching of beryllium bronze is possible only up to 80% (according to the data of the author of this paper), after that a fracture takes place in the specimen. However, in the case of a hydrostatic pressure of 3000 atm, the work hardening in the neck of the beryllium bronze specimens could be extended to 96% and subsequent tensile tests have shown that the limit of the real deformation of the specimens reached 120%. According to the data of X-ray structural analysis (Ref 3), work hardening of beryllium bronze under pressure is accompanied by a slightly larger increase of the parameter of the crystal lattice than for work hardening by tensile stresses only. It can be assumed that the increased mechanical properties of hardened beryllium bronze after work hardening in presence of pressure is associated with additional separating out of the hardening γ-phase. However, in accordance with the principle of Le Chatelier, an increase in the hydrostatic pressure can impede the

On Work Hardening of Metals by Means of Hydrostatic Pressure

development of transformations involving an increase in volume. Thus, an appreciable change of the mechanical properties of bronze after work hardening under pressure is apparently due to the occurrence during the hardening of anisotropies and residual stresses and not to the metastable nature of the alloy (Ref 4). No appreciable residual changes in the mechanical properties of the metals were observed as a result of the preliminary work hardening of Steel 50 and of the copper in the range of hydrostatic pressures between 2000 and 3000 atm.

(Note: This is a complete translation)

There are 1 figure, 1 table and 4 references, all of which are Soviet.

ASSOCIATION: Institut fiziki metallov Ural'skogo filiala AN SSSR (Institute of Metal Physics, Ural Branch of the Ac.Sc.USSR)

SUBMITTED: October 27, 1957

AUTHORS: Gladkovskiy, V.A., Vereshchagin, L.F. SOV/126-6-6-20/25

TITLE: Investigation of the Strength of Thick-walled Tubes (Issledovaniye prochnosti tolstostennykh trub)

PERIODICAL: Fizika Metallov i Metallovedeniye, 1958, Vol 6, Nr 6, pp 1100 - 1104 (USSR)

ABSTRACT: In a number of cases, it is of great importance to evaluate the maximum internal pressure which will bring about tube failure. It can be assumed that the pressure at which tube failure will occur depends basically on the thickness of the tube and the strength characteristics of the tube material (Ref 3). However, this assumption requires experimental confirmation. For this purpose, Laboratoriya fiziki sverkhvysokikh davleniy AN SSSR (The Laboratory of Physics of Very High Pressures of the Ac.Sc.USSR) carried out in 1952-1955 strength studies of tubes subject to very high internal pressures up to 14 000 atm. Similar strength studies of carbon-steel tubes (0.28% C) with pressures up to 7 100 atm were carried out not very long ago by Crossland and Bones (Ref 4) at Bristol University. A sketch of the special test rig permitting investigation

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Investigation of the Strength of Thick-walled Tubes

of thick-walled tubes at internal pressures up to 14 000 atm is given in Figure 1. Preliminary filling was effected with a hydraulic compressor which increased the pressure to 3 000 - 4 000 atm. Further increases in the pressure were obtained by displacing a piston (6) inside a cylinder (5) by feeding fluid into the lower cavity of the cylinder (7). For obtaining in the high-pressure cylinders a pressure of 15 000 kg/cm^2, it was necessary to produce in the low-pressure cylinder a pressure slightly exceeding 300 kg/cm^2. Tubes were tested which were made of four differing grades of steel: 30KhGSA, 40Kh, U10 and EYaIT, the mechanical properties of which are

Investigation of the Strength of Thick-walled Tubes

entered in a table on p 1102. The failure curves (D/d versus pressure) for tubes of the four steels are graphed in Figures 2 - 5. The obtained experimental curves are not in agreement with any of the semi-empirical formulae (Ref 4) proposed for calculating the pressure at which thick-walled tubes fail.
Lomakin (Ref 5) published in 1955 theoretical work on the calculation of tubes, taking into consideration high elastic-plastic deformations. In a separate paper, the authors of this paper propose to evaluate the obtained results and to compare them with calculated data, based on various strength theories.

There are 5 figures, 1 table and 5 references, 3 of which are Soviet and 2 English.

SOV/126-6-6-20/25

Investigation of the Strength of Thick-walled Tubes

ASSOCIATION: Laboratoriya fiziki sverkhvysokikh davleniy AN SSSR
(Laboratory of Physics of Very High Pressures of the Ac.Sc.USSR)

SUBMITTED: April 11, 1957

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SOV/126-7-1-16/28

AUTHORS: Yekhlakov, A.D. and Gladkovskiy, V.A.

TITLE: New Method for the Determination of the Dependence of Young's Modulus of Solid Bodies on Pressure (Novyy metod opredeleniya zavisimosti modulya Yunga tverdykh tel ot davleniya)

PERIODICAL: Fizika Metallov i Metallovedeniye, 1959, Vol 7, Nr 1, pp 116-121 (USSR)

ABSTRACT: In this paper a static method for the direct experimental study of the dependence of Young's modulus of substances on pressure is suggested. This method is based on the determination of the change in rigidity of a cantilever beam-specimen on application of hydrostatic pressure. This determination is based on the restoration of the initial angle of bend of the cantilever beam-specimen, which is rigidly fixed in a high-pressure chamber, by means of turning the chamber through a certain angle $\Delta\alpha$, the value of which determines the change of Young's modulus with pressure. The method suggested also allows the simultaneous determination of the compressibility of the

New Method for the Determination of the Dependence of Young's Modulus of Solid Bodies on Pressure

liquid which transmits the pressure to the specimen. In order to measure the change of Young's modulus with pressure a high-pressure apparatus was built. The main part of this apparatus is a special steel mandrel, which is shown in Fig.2. The specimen, 1, in the form of a length of wire, is inserted in pincer grips, 2. A centralizing device, 3, enables the circuit to be closed, 5, at a pre-determined time for a selected angle of inclination of the apparatus. A load, 4, of 0.4-0.6 g in weight, was chosen which was usually made of the same material as the specimen (except for experiments with aluminium). The apparatus, when assembled, was placed in a high-pressure chamber, and was firmly affixed to it by means of two cover plates, 6. A high pressure was established in the chamber by a high-pressure compressor of the L.F. Veresnchagin type. The chamber is provided with an electric conductor, which passes through a conical ebonite stopper. The other end of the tappings, 7, makes contact with the chamber.

 The working of the apparatus consists in the following:

New Method for the Determination of the Dependence of Young's Modulus of Solid Bodies on Pressure

at the beginning of the experiment the apparatus with the specimen at atmospheric pressure is, by turning the high-pressure chamber, put in a position at which short-circuiting of contacts, 5, occurs. If Young's modulus of the investigated substance increases with rise in pressure, and hence the angle of bend of the beam-specimen decreases, then it is sufficient to set up a relatively small pressure in the chamber to cause short-circuiting of the contacts. For repeated short-circuiting of the contacts (at existing pressure) a supplementary turning of the chamber through a certain angle $\Delta \alpha_1$ is required, etc. Hence, the relationship between the angle of turn of the chamber and the hydrostatic pressure both on raising and on lowering of the pressure, can be found. The experiments were carried out with aluminium, copper (containing 0.05-0.15 per cent impurities) and steel St50. The specimens were made from 0.7-1.0 mm diameter wire. A mixture of kerosene and transformer oil, the compressibility of which was determined in this apparatus (see Fig.3) was chosen as the medium for

 transmitting the high pressure to the specimen. In the

New Method for the Determination of the Dependence of Young's Modulus of Solid Bodies on Pressure

determination of the compressibility of the mixture loads used were of materials which markedly differed from one another in their specific gravity. The experiments were carried out at room temperature (20°C). The results of direct measurements of the change in Young's modulus with pressure for aluminium, copper and steel St50 are shown in Fig.4. There are 4 figures and 7 references, of which 2 are Soviet and 5 English.

ASSOCIATION: Institut fiziki metallov AN SSSR (Institute of Metal Physics, Ac. Sc. USSR)

SUBMITTED: November 25, 1957

S/137/61/000/001/042/043
A006/A001

Translation from: Referativnyy zhurnal, Metallurgiya, 1961, No. 1, p. 50, # 1I433

AUTHOR: Gladkovskiy, V.A.

TITLE: A New Method of Measuring the Compressibility of Metals and Alloys

PERIODICAL: "Sb. nauchno-tekhn. tr. N.-i. in-t metallurgii Chelyab. sovnarkhoza", 1960, No. 1, pp. 145 - 154

TEXT: A method was developed for determining stresses in machine parts and metal structures using wire resistance strain-gauges. The method was also applied to measure magnetostriction of ferromagnetic materials. The author presents a bloc-circuit diagram of the measuring assembly of the machine and describes the method. The method of determining compressibility is based on the comparison of the relative changes in the linear dimensions of the investigated specimen and the standard when hydrostatic pressure is applied. Specimens made of high purity commerical Fe and Al are used as standards. The tests were made at 15°C. This tem-

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S/137/61/000/001/042/043
A006/A001

A New Method of Measuring the Compressibility of Metals and Alloys

perature was maintained with up to 0.5° accuracy. Fe, Al, Cu, Ag, Au, Pb, Ni and W specimens were manufactured in the form of 2 mm thick plates that were carefully ground and polished, then annealed at different temperatures in a vacuum for 2 hours and slowly cooled with the furnace. The results of experiments are presented. There are 15 references.

V. F.

Translator's note: This is the full translation of the original Russian abstract.

18 8200 also 2108

AUTHORS: Gladaivskiy, V. A.

TITLE: On the periodic dependence of the isothermal compressibility

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 7, 1962, 25-26, abstract 7Zh20. (Sb. nauchno-tekhn. tr. N.-i. i proektn.-konstr. Cheliyab. sovnarkhoza", 1960, no. 2, 163-167

TEXT: On the basis of experimental data of the isothermal compressibility of elements, the value of the virial compressibility of the elements at a pressure of approximately 400,000 kg/cm² is calculated by the method of finite differences. Curves for the logarithm of the coefficient of virial compressibility of elements versus their atomic numbers are plotted. Qualitatively treating, the pattern of periodic compressibility of elements as a function of the atomic number is obtained. As the pressure increases the periodicity first changes its form, and at superhigh pressures (of the order of several million kg/cm²) the curve of variation of the function of periodicity of compressibility approaches the axis of abscissas asymptotically. It is conjectured that as the pressure increases the bond forces along the crystallographic axes become equal, however already at

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26014

S/137/62/000/007/063/072
A160/A101

On the periodic dependence ...

pressures of about 0.5 million atmospheres for a two-fold decrease of the sliding forces is observed. The conjecture is expressed that only a pressure of tens and hundreds of millions of atmospheres can individual material properties of matter and the regularity of layer-wise distribution of the [illegible] the metals begin gradually to vanish, and a unified law of their behavior arises. There are 6 references.

[illegible]

[Abstracter's note: Complete translation]

Card 2/2

BURSIN, A.V.; GLADKOVSKIY, V.A.; VYSOKOVSKIY, S.N.; VASIN, I.I.

Disk dynamometer for measuring forces in rolling mills.
[Sbor. trud.] Nauch.-issl.inst.met. no.4:115-118 '61.
(MIRA 15:11)

(Rolling mills—Testing)
(Dynamometer)

GLADKOVSKIY, V.A.; MOROZOV, A.N.; STROGANOV, A.I.; VACHUGOV, G.A.; Prinimali uchastiye: BELOV, B.V., inzh.; POPOV, N.P., inzh.; BAYAZITOV, M.I., inzh.

Effect of work hardening on the properties of structural steel. [Sbor. trud.] Nauch.-issl. inst. met. no.4:144-150 '61. (MIRA 15:11)

1. Nauchno-issledovatel'skiy institut metallurgii (for Gladkovskiy, Morozov, Stroganov). 2. Zlatoustovskiy metallurgicheskiy zavod (for Vachugov).
(Steel, Structural—Hardening)

KASHIRIN, N.A.; GLADKOVSKIY, V.A.; FRIKKE, S.A.; Prinimali uchastiye: POPOV, N.P., inzh.; BARYSHEV, S.P., inzh.; SUVOROVA, V.I., inzh.; SERGEYEV, I.I., inzh.

Effect of expanding on the distribution of residual stresses in large-diameter pipes. [Sbor. trud.] Nauch.-issl.inst.met. no.4:158-163 '61. (MIRA 15:11)

1. Nauchno-issledovatel'skiy institut metallurgii (for Kashirin, Gladkovskiy). 2. Ural'skiy nauchno-issledovatel'skiy trubnyy institut (for Frikke).

(Expanded metal)
(Strains and stresses)

GLADKOVSKIY, V.A.

Stress distribution in surface layers of expanded 19G steel pipes. Stal' 21 no.6:542 Je '61. (MIRA 14:5)
(Expanded metal)

FRIKKE, S.A., inzh.; GLADKOVSKIY, V.A., kand.tekhn.nauk

Strains and the plasticity of metal in the manufacture of electrically welded expanded pipe for gas pipelines. Stal' 22 no.1:53-56 Ja '62. (MIRA 14:12)

1. Ural'skiy nauchno-issledovatel'skiy trubnyy institut i Chelyabinskiy nauchno-issledovatel'skiy institut metallurgii.
(Pipe mills)
(Strains and stresses)

GLADKOVSKIY, V.A.; KARELIN, N.A.

Effect of boron on yield points in alpha-iron. Fiz. met. i metalloved. 13 no.5:772-774 My '62. (MIRA 15:6)

1. Chelyabinskiy nauchno-issledovatel'skiy institut metallurgii i Chelyabinskiy pedagogicheskiy institut.
(Iron-boron alloys)
(Deformations (Mechanics))

SAMUL', V.I., dots., kand. tekhn. nauk; GLADKOVSKIY, V.A., dots., kand. tekhn. nauk, otv. red.; TIMOFEYEVA, Z.N., red.; KOLOVA, T.D., tekhn. red.

[Principles of the theory of elasticity] Osnovy teorii uprugosti. Perm. Pt.1. [Textbook for students majoring in "Industrial and civil engineering"] Uchebno-metodicheskoe posobie dlia studentov spetsial'nosti "Promyshlennoe i grazhdanskoe stroitel'stvo." 1963. 73 p. (MIRA 16:8)

1. Perm. Politekhnicheskiy institut. Kafedra soprotivleniya materialov. 2. Zaveduyushchiy kafedroy soprotivleniya materialov Permskogo politekhnicheskogo instituta (for Gladkovskiy).
(Elasticity)

GOL'DSHTEYN, Ya.Ye.; BELIKOV, A.M., kand. tekhn. nauk, retsenzent; GLADKOVSKIY, M.A., kand. tekhn. nauk, retsenzent; KOROTUSHENKO, G.V., kand. tekhn.nauk, retsenzent; BONDIN, Ye.A., laureat Gosudarstvennoy premii inzh., retsenzent; KALETINA, A.V., ved. red.; DUGINA, N.A., tekhn.red.

[Low-alloy steel in machinery manufacture] Nizkolegirovannye stali v mashinostroenii. Moskva, Mashgiz, 1963. 239 p. (MIRA 16:8)

(Machinery--Design and construction) (Steel alloys)

FINKEL'SHTEYN, Ya.S.; GLADKOVSKIY, V.A.; BATIST, G.S.

Heat-treatment hardening of pipe manufactured by the furnace welding method. Metalloved. i term. obr. met. no.3:33-35 Mr '63. (MIRA 16:3)
(Pipe, Steel—Welding) (Steel--Hardening)

S/279/63/000/001/014/023
E111/E452

AUTHORS: Gladkovskiy, V.A., Karelin, N.A. (Perm')

TITLE: Influence of boron on the yield-point elongation of alpha-iron

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye tekhnicheskikh nauk. Metallurgiya i gornoye delo. no.1, 1963, 144-146

TEXT: It has previously been shown that the appearance of yield-point elongation in alpha-iron is due to the presence of small quantities of carbon or nitrogen. It was therefore interesting to study the early stages of the deformation of alpha-iron containing boron additions, since the atomic radius of boron is close to those of carbon and nitrogen. The authors have done so with 99.9% pure Armco iron, with additions of 0.01 and 0.10% B. The mechanical tests were supplemented by thermoelectric potential measurements on a deformed/annealed thermocouple, which was found to be sensitive to the appearance of the elongation. Without boron there is no flat portion but with 0.01% B the "flat" becomes apparent and with 0.1% it is very pronounced. The effect is

Influence of boron ...

connected specifically with the presence of boron in the iron and to its effect on grain size and shape. In contrast to nitrogen and carbon, boron reduces the susceptibility of alpha-iron to deformation ageing. The thermoelectric potential vs. strain curves are initially linear and identical for all three compositions but a break occurs at a critical value which depends on the extent of the "flat". The existence of a break on the curve for boron-free iron is due to the sensitivity of the emf method being greater than that of the mechanical method. The break is associated with the distinct change in dislocation density at various stages of deformation. There are 2 figures.

SUBMITTED: January 3, 1962

FEDOROV, Fe.K.; GLADKOVSKIY, V.A.; KOLESNIKOV, F.F.

Method of measuring the specific pressure in pressing loose materials in roller presses. Gor. zhur. no.3:64-65 Mr '63. (MIRA 16:4)

1. Nauchno-issledovatel'skiy institut metallurgii, Chelyabinsk.

FEDOROV, Ye.K.; KOLESANOV, F.F.; GLADKOVSKIY, V.A.

Measuring specific pressure in roller presses during nickel ore briquetting. TSvet. met. 36 no.7:82-84 Jl '63. (MIRA 16:8)
(Pressure--Measurement) (Briquets)

VASSERMAN, N.N., aspirant; GLADKOVSKIY, V.A., kand. tekhn. nauk, dotsent

Regularities in the hardening and damage accumulation in the process of cyclic loading of low-carbon steel. Izv. vys. ucheb. zav.; mashinostr. no.2:68-77 '65. (MIRA 18:5)

1. Permskiy politekhnicheskiy institut.

MIKELADZE, G.Sh.; NADIRADZE, Ye.M.; PKHAKADZE, Sh.S.; GOGORISHVILI, B.P.; DGEBAUDZE, G.A.; SOLOSHENKO, P.S.; SEMENOV, V.Ye.; BARASHKIN, I.I.; SHIRYAYEV, Yu.S.; POSPELOV, Yu.P.; KATSEVICH, L.S.; ROZENBERG, V.L.; Prinimali uchastiye: LORDKIPANIDZE, I.S.; TSKHVEDIANI, E.N.; DZODZUASHVILI, A.G.; DUNIAVA, A.G.; PETARSKIY, L.F.; GRITSENYUK, Yu.V.; ZHELTOV, D.D.; LUZANOV, I.I.; GLADKOVSKIY, V.P.; PODMOGIL'NYY, V.P.; VOROPAYEV, I.P.; BRIKOVA, O.V.; VRUBLEVSKIY, Yu.P.; KLYUYEV, V.I.; BAYCHER, M.Yu.; LOGINOV, G.A.; SHILIN, V.K.; POPOV, A.I.; ZASLONKO, S.I.

Industrial experiments in the smelting of 45 o/o ferrosilicon in a heavy-duty closed electric furnace. Stal' 25 no.5:426-429 My '65. (MIRA 18:6)

1. Gruzinskiy institut metallurgii (for Lordkipanidze, TSkhvediani, Dzodzuashvili, Guniava). 2. Nauchno-issledovatel'skiy i proyektnyy institut metallurgicheskoy promyshlennosti (for Brikova, Vrublevskiy, Klyuyev). 3. Vsesoyuznyy nauchno-issledovatel'skiy institut elektrotermicheskogo oborudovaniya (for Baycher, Loginov, Shilin, Popov, Zaslonko).

B-5

USSR/ Physical Chemistry - Crystals

Abs Jour : Referat Zhur - Khimiya, No 4, 1957, 11039

Author : Gladkovskiy V.V., Meyklyar P.V.
Title : Dark Conductivity of Silver Bromide Crystals

Orig Pub : Zh eksperim i teor fiziki, 1956, 30, No 5, 833-839 (English summary)

Abstract : Fulfillment of Faraday's law was verified and it was shown that with small differences in potential (< 4v) conductivity of AgBr crystals having a thickness of several tenths of a millimeter is of electronic nature, while in higher fields it is ionic. Occurence of ionic conductivity is accompanied by growth of Ag-filaments (dendrites) over defects and surface of crystal (at 100-200°). Growth of filaments starts at cathode and takes place by depletion of Ag^+ ions in areas adjoining the Ag-filaments. On change in direction of field length of filaments at anode decreases while at the cathode (graphite of Pt) new dendrites appear. At 100° in a field of 50 v/cm rate of growth of Ag-filaments is of 10^{-3} - 10^{-2} mm/sec. Difference in potential at which conductivity becomes of ionic nature is higher for samples with fewer defects. The authors reach the conclusion that electric field lowers energy of activation of movements of ions over defect areas of crystal.

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