1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

Luminescence of liquids in the supersonic field. I. G. Polotskii (Inst. Iron Metallurgy, Kiev). *Zhur. Fiz. Khim.* (J. Phys. Chem.) 22, 787-92(1948). The intensity (I_∞) of luminescence of H_2O in the supersonic field is, at 20°, immeasurably small at a pressure p of 20 mm. Hg, increases in contact with compressed air, and is again immeasurably small at high air pressures. The p of the max. luminescence is 700, 1140, and 1520 at $I = \frac{1}{2}$ 30.3, 63.2, and 97.0, resp., and the p at which it is suppressed is 1140, 2280, and 3040, resp. A considerable part of the luminescence is ultraviolet. The luminescence is produced by mols. of dissolved gases and of H_2O diffusing into the cavitation and excited there by elec. fields caused by the formation of cavitations. Cavitation by steam (C.A. 42, 1470h) produces no luminescence although it has chem. effects (formation of H_2O_2, etc.); this shows that chem. reactions are not due only to photochem. effects (cf. Frenkel, C.A. 34, 7082*). I. I. Hikerman

Inst-Ferrous Metals, AS USSR

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

POLOTSKIY, I.G.; KHODOV, Z.L.

Ultrasonic velocity in liquid tin-bismuth alloys and their compressibility. Akust.zhur. 4 no. 2:184-186 Ap-Je '58. (MIRA 11:7)

1. Institut metallofiziki AN USSR, Kiyev.
(Tin-bismuth alloys)
(Ultrasonic waves)

POLOTSKIY, I. G.

40

USSR

Mechanism of erosion of metals and the protective action of adsorbed layers. I. G. Polotskii and L. Ya. Beneleva. *Trudy Inst. Chernoi Met., Akad. Nauk Ukr. S.S.R., Otdel. Tekh. Nauk* 5, 102-9(1951).—Erosion by cavitation was studied by using ultrasonic waves produced by a piezo-quartz oscillator. The effect of chem. action on erosion was shown by the following loss in wt. (under the action of ultrasonic waves) in H_2O, ethanol, toluene, and ligroine: Ni, 0.11, 0.03, 0.05,—; Cu, 0.24, 0.18, 0.13, 0.10; Al, 0.59, 0.38, 0.42, 0.17; Mg, 2.70, 0.16, 0.34, 0.18; Pb, 2.70, 0.34, 0.62, 0.29; Sn, 0.30, 0.20, 0.17, 0.11. Pt and Au tested in H_2O did not lose wt. The effect of an adsorbed layer was shown by tests in sodium oleate solns.; in a 0.2% soln. there was no loss in wt. for any of the metals tested. Passivation by the method of Taubman also prevented wt. loss.

A. G. Guy

POLOTSKIY, I. G.

USSR

/The temperature relation of adiabatic compressibility coefficient of salol, o-chloronitrobenzene, and thymol. I. I. G. Polotskii and Z. L. Khodov. *Voprosy Fiz. Metallov i Metalloved., Akad. Nauk Ukr. S.S.R.* 1953, No. 4, 87–94; *Referat. Zhur., Khim.* 1954, No. 24931.—The rates of supersonic-wave propagation in molten salol (I), o-chloronitrobenzene (II), and thymol (III) were detd. between 30 and 90° at 4° intervals in an ultrasound interferometer. The temp. was maintained const. within 0.1° and the max. differences in the values of speed were 0.2°. The relation is: $a = a_0(1 - \alpha\Delta t)$, where a is the supersonic speed at temp. t, a_0 is the supersonic speed at 30°, α is the temp. coeff., and $\Delta t = (t - 30°)$. a_0 values for I, II, and III were 1460, 1384, and 1390 m./sec., resp. The corresponding values for α were 2.21×10^{-3}, 2.34×10^{-3}, and 2.37×10^{-3}/degree. The linear relation of the supersonic waves extends also to a small area of supercooled melts, which indicates the absence of sharp structural changes near the crystn. point of the substances studied. The coeffs. of adiabatic compressibility β were calcd. to be: at 30° I 40.00×10^{-12}, II 38.50×10^{-12}, and III 53.23×10^{-12} sq. cm./dyne. β increases with temp. and at 90° it was for I 55.62×10^{-12}, for II 55.00×10^{-12}, and for III 75.60×10^{-12} sq. cm./dyne.

M. Hoseh

POLOTSKIY, I.G.

USSR.

Effect of supersonic vibrations on the crystallization process. I. G. Polotskii, T. Yu. Benieva, and Z. I. Khodov. *Trudy Inst. Chernoi Met., Akad. Nauk Ukr. S.S.R.* 6, 91-100(1953); *Referat. Zhur., Khim.* 1954, No. 24946.—The effect of supersonic waves on crystn. was studied on *o*-chloronitrobenzene and the pure metals Cd, Zn, and Sn. The medium transmitting the supersonic vibrations from quartz to the studied melt was cylinder oil. The output of the quartz was measured calorimetrically and was approx. 157.7 w. Crystn. of transparent molten *o*-$ClC_6H_4NO_2$ was studied visually and under a microscope. The effect of supersonic waves on the crystn. of metals was studied by comparison with control samples. In a supersonic field a system of alternating rings was formed throughout the molten mass of *o*-$ClC_6H_4NO_2$, and within these rings crystals formed. This indicates a spontaneous appearance of crystn. centers in areas of d. fluctuation, i.e., in the nodes of a standing wave. Metals crystg. in a supersonic field had a finer cryst. structure than did metals not subjected to supersonic waves. This is explained by an increase in crystn. centers in nodes of a standing wave as well as the appearance of addnl. crystn. centers generated by cross vibrations of the walls of the container and the dispersion of insol. admixts. in the metal by the supersonic waves.

M. Hosch

POLOTSKIY, I. G.

Compressibility of some liquid systems from data of acoustical measurements. I. G. Polotskii and Z. L. Khodov. *Strosnie i Fiz. Svoistva Veshchestva v Zhidkom Sostoianii* (Kiev: Izdatel. Univ.) Sbornik 1954, 103-40. *Referat. Zhur., Khim.* 1956, Abstr. No. 6312.—The speeds of ultrasound were measured by interferometer in the mixts. benzene-CCl_4 (I), MeOH-water (II), phenyl mustard oil-Et_2NH (III), and also melted salol (IV) *o*-chloronitrobenzene (V), and thymol (VI). Coeffs. of adiabatic compressibility are calcd. The isotherms of adiabatic compressibility are for I smooth curves for II have a min. smoothing at increased temp., for III have a sharp min. at ~55% (molar) Et_2NH. The speed of sound in IV, V, and VI decreases linearly with temp. rise. The temp. coeff. of sound speed is for IV 2.21×10^{-3} degree^{-1}, V 2.34×10^{-3} degree^{-1}, and VI 2.37×10^{-3} degree^{-1}. The relation between adiabatic compressibility of the melts and the temp. deviates slightly from the linear. The curves of adiabatic compressibility indicate the absence of substantial structural changes in IV, V, and VI during their transition from the stable to the metastable state.

N. Vasileff

1/1

FOLOTSKIY, I. G. and KHODOV, Z. L.

"Ultrasonic Velocities in Certain Binary Liquids and Their Compressibility". Sb. Nauchn. Rabot Labor. Metallofiziki AN Ukr SSR, No 5, pp 34-44, 1954

The study of certain binary systems gave the following results: benzene-toluene, characterized by similarity of forces interacting between molecules, showed a weak maximum of isotherms of compressibility; in benzene-nitrobenzene in which the associated components disintegrates, the ultrasonic velocity depends linearly on concentration; in chloroform-ethyl ether the ratio of sound velocity to concentration also approaches linearity; the isotherms of compressibility of allyl mustard oil - piperidin exhibit a minimum at 25°C and 50°C. (RZhFiz, No 9, 1955)

SO: Sum No 812, 6 Feb 1956

POLOTSKIY, I.G.; KHODOV, Z.L.

Temperature curve of the shear modulus and internal friction for certain nickel-base alloys. Fiz.met. i metalloved. 7 no.2: 274-277 F '59. (MIRA 12:6)

1. Institut metallofiziki AN USSR.
(Nickel alloys--Testing)
(Shear(mechanics))
(Friction)

POLOTSKIY, I. G. and KHODOV, Z. L.

"Investigation of the Velocity of Ultrasound and Adiabatic Compressibility for Certain Liquids With Various Characters of the Bond", a paper presented at the second conference on the Liquid State of Matter, Kiev, 30 May to 3 June 1955, Usp. Fiz. Nauk, April 1955

POLOTSKIY, I. G.

Ultrasonic interferometer for measurements at elevated temperatures. I. G. Polotskii and Z. L. Khodov. *Sbornik Nauch. Rabot. Inst. Metallurg., Akad. Nauk Ukr. S.S.R.* 1955, No. 6, 70-6; *Referat. Zhur., Khim.* 1956, Abstr. No. 26110.—An interferometer for measurements at elevated temps. is described. The ultrasonic vibrations of a quartz plate are transmitted to the investigated liquid through a water-cooled glass rod 110 mm. long; this prevents an increase of the quartz temp. The reflector is a polished Ni disk. Measurements of the ultrasonic velocity (frequency 989.8 kc.) in glycerol in the temp. interval 20-200°, in Hg at 20 and 100°, and in Sn-Bi alloys of different concns. at 180° are reported. The velocity in glycerol decreases linearly with temp. increase (the velocity temp. gradient is 2.5 m./sec.-degree). In the Sn-Bi alloys, the velocity can be considered as an additive property when the compn. is calcd. in at. %. N. Vasileff

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1/1

POLOTSKIY, I G

32-8-44/61

AUTHORS: Polotskiy, I.G., Taborov, V.F.

TITLE: Apparatus for the Determination of Young's Modulus and the Decrement of Damping of Metals and Alloys (Pribor dlya opredeleniya modulya Yunga i dekrementa zatukhaniya metallov i splavov)

PERIODICAL: Zavodskaya Laboratoriya, 1957, Vol. 23, Nr 8, pp.986-988 (USSR)

ABSTRACT: The suggested apparatus is built upon the principle of measuring of the eigenfrequency of the vibration of the model, where these measurements are brought about with a quartz-generator and an electron counter. To exclude the disturbing influences it is recommended to suspend the models in their vibration nodes and to go about the measurements in a vacuum, where the damping influence of the atmosphere is excluded. In the paper the application of the apparatus is described. The results obtained showed that with the cooling off of the melt at 400° the modulus of Young displays a rising tendency. This corresponds to the statements of some scientists that when nickel is molten at low temperatures, changes take place, which contribute to an increase of the interatomic binding energy. The suggested apparatus allows the finding of Young's modulus at temperatures ranging from room temperature to 1000° and the decrement of damping up to 800°. There are 2 figures.

Card 1/2

POLOTSKIY, I. G.
LARIKOV, L. N. and POLOTSKIY, I. G.

"On the Question of the Influence of Ultrasonics on Phase Transitions in Solid Metals and Alloys."

paper presented at the 4th All-Union Conf. on Acoustics, Moscow, 26 May - 2 Jun 58.

LARIKOV, L.N.; POLOTSKIY, I.G.

Effect of ultrasonics on phase transformations in hard metals and alloys. Sbor. nauch. rab. Inst. metallofiz. AN URSR no.9: 50-53 '59. (MIRA 12:9)
(Ultrasonic waves) (Metals--Hardening)

POLOTSKIY, I.G.; BENIYEVA, T.Ya.

Effect of alloying and heat treating on the elastic properties of nickel alloys. Sbor. nauch. rab. Inst. metallofic. AN URSR no.9:178-184 '59. (MIRA 12:9)
(Nickel alloys--Heat treatment)
(Elasticity)

L 04184-67 EWT(m)/T/EWP(t)/ETI IJP(c) JD/HW/JG/GD
ACC NR: AT6026910 SOURCE CODE: UR/0000/66/000/000/0062/0069

AUTHOR: Polotskiy, I. G.; Mordyuk, N. S.

ORG: none

TITLE: Concerning the damping mechanism of elastic oscillations during phase transformations in copper and cobalt based alloys

SOURCE: AN SSSR. Institut metallurgii. Vnutrenneye treniye v metallakh i splavakh (Internal friction in metals and alloys). Moscow, Izd-vo Nauka, 1966, 62-69

TOPIC TAGS: internal friction, phase transformation, copper alloy, cobalt alloy, temperature dependence, frequency dependence, x ray analysis, metallographic examination, elastic modulus

ABSTRACT: The mechanism of elastic damping during phase transformations was studied in the following systems: Cu + 1.8 wt % Be, Cu + 15 wt % In, Cu + 11.7 wt % Al, and Co + 31.89 wt % W. A resonance technique was used to measure the free damping of longitudinal and transverse oscillations in a wide range of temperatures and frequencies. The change in damping is given as a function of time for different oscillation frequencies and temperatures. In Cu-Be, isothermal soaking at 300°C caused a rise in damping at a frequency of 1 KHz and a maximum occurred at 2 hrs; when the frequency was upped to 21 KHz, the damping maximum doubled. Metallography, hardness testing and x-

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ACC NR: AT6026910

ray analysis showed that the peak was caused by the decomposition of the Cu-Be solid solution, with simultaneous precipitation of γ-phase. The damping in Cu-In at 1.5 cps changed with temperature. At 245°C, the maximum occurred after 23-24 hrs; at 420°C it occurred after 2 hrs. The rise in damping was associated with the decomposition of the supersaturated Cu-In solid solution. For the Cu-Al eutectoid at 425° and 460°C, the damping rise was the greatest of any alloy, being 50 to 60 times higher at the maximum than at the start of heating. The modulus of elasticity always increased along with the rise in damping. In Cu-Al the damping changes were caused by eutectoidal decomposition. The activation energies were calculated to be 18 Kcal/mol for Cu-Be and 22 Kcal/mol for Cu-In. The data were analyzed according to the theory of Krivoglaz. Equations were given relating the change in damping to the speed of propagation of elastic oscillations at low and high frequencies, and to the adiabatic relaxation time. The relaxation time was in turn related to the dimensions of the precipitating particles, the volume concentration of the second phase, and the moduli of compressibility for low and high frequencies. These moduli were determined for Cu-Al and they compared favorably with data from the literature. From the calculations, the relaxation times were as follows: 10^{-4} sec for Cu-Be, $2 \cdot 10^{-3}$ sec for Cu-In, and $5.8 \cdot 10^{-3}$ sec for Cu-Al. Damping, elastic properties, electrical conductivity and structural changes were measured during aging of Co-W. After quenching from 1100°C, the samples were aged at 700°C and property changes were given as a function of time at aging temperature. A rise in damping and elastic modulus corresponded with a decrease in electrical conductivity. Aging was complete after 10 hrs at 700°C. The grain boundaries thickened

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L 04184-67
ACC NR: AT6026910

after 30 min at 700°C, and eutectoidal platelets formed. The intermetallic Co_3W was identified by x-ray analysis, and during its formation the lattice parameter remained constant. Orig. art. has: 6 figures, 4 formulas.

SUB CODE: 11,20/ SUBM DATE: 02Apr66/ ORIG REF: 009/ OTH REF: 010

Card 3/3

L 06446-67 EWT(m)/EWP(t)/ETI/EWP(k) IJP(c) JD/HW/JG

ACC NR: AP6026728 SOURCE CODE: UR/0181/66/008/008/2513/2514

AUTHOR: Polotskiy, I. G.; Prokopenko, G. I.; Zaporozhets, O. I.

ORG: Institute of Metal Physics, AN UkrSSR, Kiev (Institut metallofiziki AN UkrSSR)

TITLE: Relaxation peaks of damping in plastically deformed molybdenum and niobium single crystals

SOURCE: Fizika tverdogo tela, v. 8, no. 8, 1966, 2513-2514

TOPIC TAGS: molybdenum, niobium, ultrasound, acoustic damping, plastic deformation

ABSTRACT: The temperature dependence of damping of ultrasound in previously deformed and annealed molybdenum and niobium single crystals in the 5-30 Mc frequency range was studied (see Fig. 1 and 2) and the activation energy of the relaxation peaks was determined. The fact that the temperature of the damping peak shifts toward higher temperatures with rising frequency indicates the relaxational nature of the peak. The temperature of the relaxation peak at 5, 10 and 30 Mc is respectively 173, 183 and 203°K in deformed molybdenum and 253, 269 and 298°K in deformed niobium. Heating at 1100°C for 6 hr in the case of Mo and 4 hr with furnace cooling in the case of Nb caused the damping peak to disappear. The activation energy is 0.19 eV for Mo and 0.27 eV for Nb. The frequency factor is respectively 10^{12} and 5.6×10^{11} sec^{-1}. Orig. art. has: 2 figures.

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L 06446-67

ACC NR: AP6026728

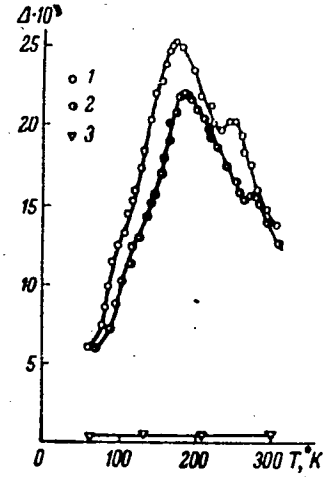

Fig. 1. Temperature dependence of damping of ultrasound in deformed and annealed molybdenum single crystal. 1 - 5 Mc, 2 - 10 Mc, 3 - annealing for 6 hr at 1100°C.

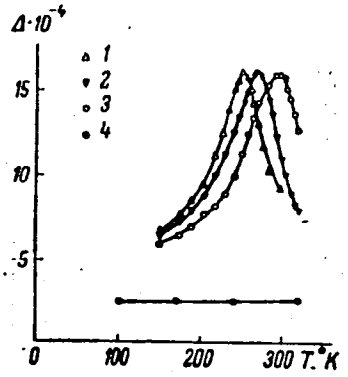

Fig. 2. Temperature dependence of damping of ultrasound in deformed and annealed niobium single crystal. 1 - 5 Mc, 2 - 10 Mc, 3 - 30 Mc, 4 - annealing for 4 hr at 1100°C.

SUB CODE: 20/ SUBM DATE: 27Jan66/ OTH REF: 005

Card 2/2

L 36111-66 EWT(1)/EWT(m)/EWP(k)/T/EWP(t)/ETI IJP(c) JD/JH
ACC NR: AP6017306 (N) SOURCE CODE: UR/0126/66/021/005/0727/0731

AUTHORS: Polotskiy, I. G.; Ovsiyenko, D. Ye.; Khodov, Z. L.; Sosnina, Ye. I.; Bazolyuk, G. Ya.; Kushnir, V. K. 52 51 B

ORG: Institute of Metal Physics AN UkrSSR (Institut metallofiziki AN UkrSSR)

TITLE: Influence of ultrasound on the degree of perfection of single crystals of aluminum, grown from the melt 9M 18

SOURCE: Fizika metallov i metallovedeniye, v. 21, no. 5, 1966, 727-731

TOPIC TAGS: aluminum, metal crystal, metal crystallization, ultrasonic effect, ultrasonic irradiation, single crystal

ABSTRACT: The effect of an ultrasonic field on the degree of perfection of aluminum crystals grown from the melt was studied. The study supplements the results of B. Langenecker (Phys. Rev. Letters, 1965, 14, 221). The experimental procedure consisted of subjecting a crystallizing aluminum melt to the action of an ultrasonic field (see Fig. 1). The structure of single crystals of aluminum derived from the melt with and without the action of the ultrasonic field was studied by means of double x-ray reflection (Ye. I. Sosnina, L. I. Meloshko, and D. Ye. Ovsiyenko. Issledovaniye nesovershenstv kristallicheskogo stroyeniya, Kiyev, izd. Nauchnaya mysl', 1965, str. 122) and by sound absorption and etching techniques. The experimental results are presented graphically (see Fig. 2). The application of an ultrasonic

UDC: 669.172:621.7892:546.621

Card 1/2 Sov REP: 002

L 4880-66 EWT(1)/EWT(m)/T/EWP(t)/EWP(b)/EWA(c) IJP(c) JD

ACCESSION NR: AP5019834 UR/0181/65/007/008/2273/2275

AUTHORS: Beniyeva, T. Ya.; Larikov, L. N.; Polotskiy, I. G

TITLE: Effect of structure on Young's modulus and the damping decrement of aluminum

SOURCE: Fizika tverdogo tela, v. 7, no. 8, 1965, 2273-2275

TOPIC TAGS: aluminum, single crystal, Young modulus, crystal lattice structure, temperature dependence, vibration damping

ABSTRACT: The authors investigated the influence of crystal structure imperfections on the Young's modulus and damping decrement of cylindrical single crystals of 99.99 per cent pure aluminum, 100 mm long and 5 mm in diameter, grown by the Bridgman method. The temperature dependence of these parameters in different structural states was measured by a resonance method (L. G. Polotskiy and V. F. Taborov, Zav. lab. v. 8, 986, 1957) in the same sample. The results show that even in well annealed single crystals of aluminum Young's modulus is not a linear function of the temperature and that as the temperature

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Card 2/2

ACCESSION NR: AT4042838 S/2601/64/000/018/0163/0169

AUTHOR: Polotskiy, I. G., Mordyuk, N. S.

TITLE: Damping of elastic oscillations in Cu-Be and Cu-In alloys during phase transformations

SOURCE: AN UkrSSR. Institut metallofiziki. Sbornik nauchny*kh rabot, no. 18, 1964. Voprosy* fiziki metallov i metallovedeniya (Problems in the physics of metals and physical metallurgy), 163-169

TOPIC TAGS: elastic oscillation, alloy phase transformation, copper beryllium alloy, copper indium alloy, elastic oscillation damping, damping decrement variation, alloy decomposition activation energy, Krivoglaz theory

ABSTRACT: Damping of elastic oscillations during phase transformations was measured by recording freely attenuating longitudinal and transverse oscillations in Cu-Be (1.8% Be by weight) at 300C (1 or 21 kc/sec) and Cu-In alloys (15% In by weight) at 240 or 420C (1.5 or 21 kc/sec) on a tester with a frequency range of 0.5 - 75 kc/sec. Other experi-

Card 1/2

ACCESSION NR: AT4010691 S/2601/63/000/017/0072/0074

AUTHOR: Polotskiy, I. G.; Taborov, V. F.

TITLE: Attenuation of ultrasound in monocrystals of germanium

SOURCE: AN UkrRSR. Insty*tut metalofizy*ky*. Sbornik nauchny*kh trudov, no. 17, 1963. Voprosy* fiziki metallov i metallovedeniya, 72-74

TOPIC TAGS: ultrasound, germanium, germanium monocrystal, ultrasonics, elastic vibration, ultrasound attenuation

ABSTRACT: In connection with the development of a theory of attenuation of elastic vibrations with disturbances, an effort was made to use these ideas to explain the mechanism of the fading of ultrasound in monocrystals of germanium. J. O. Kesseler studies the relation between temperature and ultrasound in monocrystals of germanium and established that maximum attenuation occurs at 380°C; however, the fading changes with changes in frequency. A. Granato and K. Lücke established the attenuation of elastic vibrations in monocrystals of germanium in, the 30-200 megacycle band. They found an inverse, linear relationship between the frequency of vibrations and fading. The authors conducted

GERTSTRIKEN, S.D. [deceased]; POLOTSKIY, I.G.; BENIYEVA, T.Ya.; YATSENKO, T.K.

Effect of ultrasonic waves on the self-diffusion of cadmium. Sbor. nauch. rab. Inst. metallofiz. AN URSR no.17:83-88 '63. (MIRA 17:3)

POLOTSKIY, I.G.; TABOROV, V.F.

Damping of ultrasonic waves in a single crystal of germanium. Sbor. nauch. rab. Inst. metallofiz. AN URSR no.17:72-74 '63. (MIRA 17:3)

POLOTSKIY, I.G. [Polots'kyi, I.H.]; TABOROV, V.F.

Effect of admixtures and heat treatment on ultrasound absorption in copper single crystals. Dop. AN URSR no.12:1606-1609 '61. (MIRA 16:11)

1. Institut metallofiziki AN UkrSSR. Predstavleno akademikom AN UkrSSR V.N. Svechnikovym [Sviechnikov, V.M.].

L 19747-63 EWP(k)/EWT(1)/EWP(q)/EWT(m)/BDS/EWP(B) AFFTC/ASD/ESD-3/

IJP(C) Pf-4 JD S/2912/62/000/000/0372/0379

ACCESSION NR: AT3001937

AUTHORS: Polotskiy, I. G.; Levin, G. I.

TITLE: The action of ultrasound on the formation of the structure of primary crystallization

SOURCE: Kristallizatsiya i fazovyye perekhody. Minsk, Izd-vo AN BSSR, 1962, 372-379

TOPIC TAGS: crystal, crystallization, crystallography, ultrasound, ultrasonic, nucleation, center, nucleus, rate of growth, eutectic, salol, naphthalene, camphor, supercooling, front, friction, cavitation, bubble

ABSTRACT: The paper describes experimentation intended to study the effect of ultrasound (US) on the process of crystallization of alloys and, more specifically, on the formation of the primary-crystallization structure. The experimentation employed transparent substances with a low rate of crystallization to facilitate the photography of separate stages of the crystallization process under a microscope. Thus, salol and the naphthalene-camphor system were tested in eutectic crystallization. A small chamber containing the fusion was placed on the table of a microscope. The bottom of the chamber was formed by a plane-parallel polished glass

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L 19747-63

ACCESSION NR: AT3001937

plate to permit microscopic observation of the crystallization of the fusion. A 22-kcps vibrator with a half-wave concentrator produced irradiating vibrations. An RK-50 camera took 24 to 2,000 frames/sec. Changes in temperature (T) were accomplished by two ultrathermostats. The salol had previously been deactivated by heating to 70°C, holding for 15 min, and supercooling to 10°. The test results show that exposure to US changes the crystallization of salol from a columnar form to a formation of extremely small equiaxial microcrystals. The naphthalene-camphor eutectic is most significantly affected by the US through the action of the friction force between the fusion and the precipitating acicular crystals, which evoke their breakup. It is established that, under the action of US, intensive crystallization of the fusion occurs most intensely in the vicinity of the US-vibration source, and that the region of crystallization, subsequently, expands into the fusion. The tests show that cavitation bubbles, which perform stationary oscillations, evoke dispersion of crystals on the crystal-fusion boundary and, thereby, appear to be one of the substantial elements of the acceleration of the crystallization process and the grain-comminution process in a US field. Orig. art. has 4 figs.

ASSOCIATION: none

SUBMITTED:	00	DATE ACQ:	16Apr63	ENCL:	00
SUB CODE:	CH, PH, MA	NO REF SOV:	018	OTHER:	001

Card 2/2

39861

S/070/62/007/004/018/016
E073/E535

5.1150

AUTHORS: Polotskiy, I.G. and Levin, G.I.

TITLE: The effect of ultrasonics on the formation of the structure of primary crystallization

PERIODICAL: Kristallografiya, v.7, no.4, 1962, 645-647 + 2 plates

TEXT: Chemically pure salol, naphthalene and camphor were used in the experiments. The salol was preliminarily deactivated by heating to 70°C for 15 min, followed by cooling to 10°C. The camphor was preliminarily heated to 80°C and then cooled to 31.0-31.5°C. For melting and super-cooling the investigated substances, water was driven through the hollow walls of the chamber from two ultra-thermostats. 22 kc/s ultrasonics, produced by a small vibrator with a half-wave concentrator, were directed onto the melt. The progress of crystallization is studied on the basis of fifteen exposures taken during 1/8th of a sec. Salol to which no ultrasonics had been applied showed columnar crystallization. Application of ultrasonics produced a "cloud" of fine crystallites near the ultrasonic source in which the salol solidified in a fine crystalline structure. After irradiation for about 1 sec, intensive crystallization occurred in

Card 1/2 SEE S/070/62/007/004/009/016

POLOTSKIY, I.G.; LEVIN, G.I.

Effect of ultrasonic waves on the crystallization of supercooled melts. Sbor. nauch. rab. Inst. metallofiz. AN URSR no.13:177-180 '61. (MIRA 14:12)

(Ultrasonic waves)
(Supercooling)

BENIYEVA, T.Ya.; POLOTSKIY, I.G.

Effect of certain factors on the elastic properties of alloys on nickel and nickel-chromium alloy bases. Fiz. met. i metalloved. 12 no.4:584-594 O '61. (MIRA 14:11)

1. Institut metallofiziki AN USSR.
(Nickel alloys) (Elasticity)

LEVIN, G.I. (Kiyev); POLOTSKIY, I.G. (Kiyev)

Effect of ultrasonic waves on the formation of the primary crystallization structure. Izv. AN. SSSR. Otd. tekh. nauk. Met. i topl. no.3:167-169 My-Je '61. (MIRA 14:7)
(Crystallization) (Ultrasonic waves)

POLOTSKIY, I.G.

21371
S/021/61/000/012/011/011
D251/D305

18.9500 1043 1143 1521

AUTHORS: Polots'kyy, I. H., and Taborov, V. F.

TITLE: The influence of admixtures and heat treatment on ultrasonic absorption in single crystals of copper

PERIODICAL: Akademiya nauk Ukrayins'koyi RSR. Dopovidi, no. 12, 1961, 1606-1609

TEXT: The single crystals of copper and copper-with-admixtures were prepared by Chokral's'kyy's method [Abstractor's note: Method not stated.]. Admixtures of beryllium and magnesium were used, the atomic diameters differing by a known amount from that of copper. The copper used was 99.999% pure before admixture. The crystals were of length 100 mm and diameter 10-20 mm, of approximately cylindrical form. The range of ultrasonic frequencies used was 30-200 mgcs/sec. It was found that the presence of admixtures brought about a sharp decrease in the ultrasonic absorption coefficient. It is suggested that this is due to the reinforcement by the added atoms of the dislocation lines. Increasing the concentration of the

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6.8000 (1031,1063,1159)
18.9500
24.1200 (1144,1147,1327)

30052
S/046/61/007/004/009/014
B104/B102

AUTHORS: Polotskiy, I. G., Taborov, V. F.

TITLE: Effect of thermal treatment and plastic deformation on ultrasonic absorption in copper single crystals

PERIODICAL: Akusticheskiy zhurnal, v. 7, no. 4, 1961, 470-474

TEXT: An ultrasonic pulse generator is described which differs from the types described by other authors by the use of a block which generates high-frequency, exponentially attenuated pulses which are superposed on the signals of ultrasonic waves after reflection. Since the attenuation of reflected signals does not exactly obey an exponential law, the device described is used to examine the "exponentiality" of the attenuation and to determine the attenuation itself. A potential of the form $u = u_o \exp(-\delta t) \sin 2\pi f_{int} t$ is generated in the block shown in Fig. 1, where f_{int} is the intermediate frequency of the pickup. The signal is transmitted to a second intermediate-frequency amplifying stage which causes a disturbance identical with that affecting the signal of the

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Effect of thermal treatment and plastic ... B104/B102

references: 4 Soviet and 5 non-Soviet. The three most recent references to English-language publications read as follows: K. Lucke. Ultrasonic attenuation caused by thermoelastic heat flow. J. Appl. Phys., 1956, 27, 12, 1433-1438; A. Granato, K. Lucke. Application of dislocation theory of internal friction phenomena at high frequencies. J. Appl. Phys., 1956, 27, 7, 789-805; P. C. Waterman. Orientation dependance of ultrasonic attenuation in zinc. J. Appl. Phys., 1958, 29, 8, 1190 - 1195.

ASSOCIATION: Institut metallofiziki AN USSR Kiyev (Institute of Physics of Metals AS UkrSSR, Kiyev)

SUBMITTED: July 12, 1960

X

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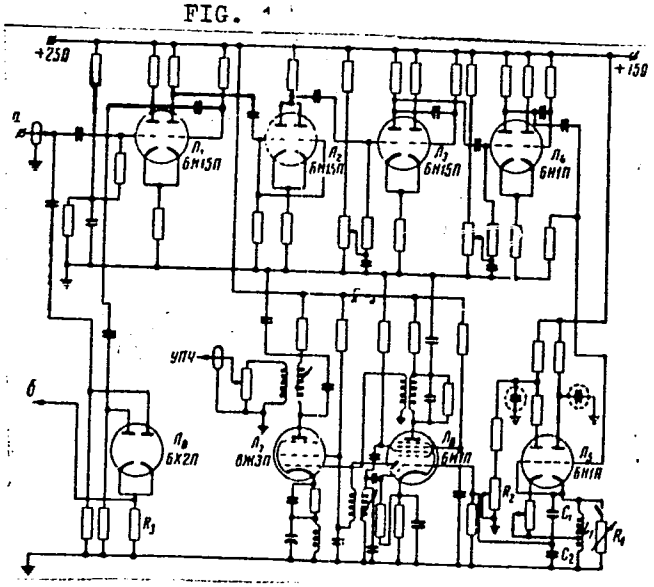
30052

Effect of thermal treatment and plastic ... S/046/61/007/004/009/014
B104/B102

FIG. 4



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S/126/61/012/004/012/021
E193/E383

AUTHORS: Beniyeva, T.Ya. and Polotskiy, I.G.

TITLE: The effect of some factors on the elastic properties of nickel- and nichrome-base alloys

PERIODICAL: Fizika metallov i metallovedeniye, v.12, no. 4, 1961, 584 - 594

TEXT: In view of the scarcity of data on the elastic properties of nickel alloys, the present authors studied (by the dynamic method) the variation of the Young modulus, E, of alloys of Ni-rich end of Ni-Cr, Ni-Mo, Ni-Al, Ni-Ti, Ni-Cr-Al, Ni-Cr-Ti and Ni-Cr-Ti-Al-W systems as a function of composition, temperature and preliminary heat-treatment. All the results are reproduced graphically. The temperature-dependence of some Ni-base alloys is illustrated in Fig. 3, where $E \times 10^{-3}$ kg/mm^2 is plotted against temperature (°C), the various curves relating to: 1 - Ni; 2 - Ni + 10.48% Cr; 3 - Ni + 23.46% Cr; 4 - Ni + 5.24% Ti; 5 - Ni + 10.06% Ti; 6 - Ni + 12.51% Ti (at.%). In Fig. 7 the ratio of thermal expansion coefficient,

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α to the temperature coefficient of the Young modulus, η, ($\alpha/\eta \times 10^3$) is plotted against the temperature for the following alloys: Curve 1 - Ni + 5.24 at.% Ti and Curve 2 - Ni + 10.06 at.% Ti. Finally, the effect of ageing of two alloys quenched from 900 °C on E is illustrated in Fig. 11, where the ratio of E of aged specimens to E of quenched material (E_{otozh}/E_{zak} %) is plotted against the ageing temperature, °C). Curves 1 and 2 relating to Ni - 17.8 Cr - 2.42 Ti - 0.71 Al and Ni - 20.54 Cr - 2.32 Ti - 0.88Al - 4.16 at.% W alloys, respectively. Several conclusions were reached.

1) The elastic modulus of Ni is slightly increased by Cr, Mo or Al additions and is practically unaffected by additions of up to 10 at.% Ti.

2) The Debye temperature calculated from the elastic constants is slightly increased by the addition of Cr and is hardly affected by Al and Ti additions. It can be inferred therefrom that the characteristics of atomic interaction in Ni are not affected by Cr, Al or Ti additions.
3) In the case of non-ferromagnetic Ni-Cr and Ni-Mo alloys, the relatively higher value of E is maintained in alloys with high Cr or Mo concentrations within the entire temperature range investigated. Cr, Mo or Al additions decrease the rate of diminishing of E with rising temperature.
4) Since the α/η ratio of Ni-Mo and Ni-Ti alloys remains practically constant (at approximately 40×10^{-3}) at temperatures up to 0.52 - 0.55 of the melting point expressed in °K, the approximate value of the temperature coefficient of E can be calculated from the coefficient of thermal expansion.
5) Low-temperature treatment of the alloys studied brings about a small increase in the elastic modulus. This effect, which is associated with the formation of the K-state, is destroyed on increasing the temperature.

POLOTSKIY, I.G. (Kiyev); BENIYEVA, T. Ya. (Kiyev); IL'CHENKO, V.I. (Kiyev)

Effect of alloying on certain physical characteristics of chromium and nickel-chromium alloys. Izv. AN. SSSR. Otd. tekh. nauk. Met. i topl. no.2:108-114 Mr-Ap '61. (MIRA 14:4)
(Chromium alloys)
(Nickel-chromium alloys)

20268

S/180/61/000/002/008/012
E071/E435

18.8100 1413, 1418, 1138

AUTHORS: Polotskiy, I.G., Beniyeva, T.Ya., Khodov, Z.L. and Il'chenko, V.I. (Kiyev)

TITLE: The Influence of Alloying on Some Physical Characteristics of Chromium and Nickel-Chromium Alloys

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Metallurgiya i toplivo, 1961, No.2, pp.108-114

TEXT: The relations govering changes in the elastic properties of alloys were studied in order to investigate the influence of some factors on the strength of interatomic bonds. The influence of the composition, temperature and plastic deformation on the elastic properties of solid solutions of transition elements was investigated. In addition, non-elastic properties for nickel-based alloys were also studied. The influence of tungsten and iron on the elastic properties of chromium, as well as of tungsten and molybdenum on the elastic and non-elastic properties of nichrome, and the influence of plastic deformation on the elastic properties of nichrome were investigated. Determination of the elastic

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The Influence of ...

properties of chromium and its alloys was carried out on ultrasonic impulse apparatus described by I.G.Polotskiy and T.Ye.Stefanovich (Ref.1) and the Young modulus and the damping decrement at elevated temperatures on an apparatus described by I.G.Polotskiy and V.F.Taborov (Ref.2). Chromium-based alloys, containing up to 13.05% of tungsten and up to 3.11% of iron, were used for the investigations. Chromium and its alloys were prepared from electrolytic chromium by smelting and casting in a high vacuo. The cast chromium was about 99.9% purity. Experimental chromium-tungsten alloys were smelted in a high-frequency furnace in an argon atmosphere. Nickel-based alloys Ni-Al, Ni-Cr-Mo, Ni-Cr-W were smelted in a high-frequency furnace in a vacuo. The purity of the starting materials was as follows: Cr - 99.9%, Ni - 99.99%, W - 99.95% and Mo- 99.9%. The chemical composition of the alloys investigated is given in wt.% in the table (OCT - rest). The Young modulus and the damping decrement were measured on polished specimens in the form of rods 7 mm in diameter and 200 mm long. During heat treatment the specimens were sealed in a quartz tube from which air had been evacuated (10^{-4} mm Hg). Chromium and Cr-Fe, Cr-W alloys were

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heated to 1100°C and retained at this temperature for 3 hours. Determination of the temperature dependence of the Young modulus was carried out in vacuo. In order to preserve approximately the same grain size of nickel alloys, the following heat treatment was used: nichrome alloys with various additions of tungsten in the form of 12 mm semis were heated to 900°C for 4 hours and, after producing the specimen, at 900°C for 1 hour; nichrome alloys with molybdenum additions in the form of 12 mm semis were annealed at 900°C for 2 hours and the specimens made from these were annealed at 900°C for 1 hour. After polishing, the specimens were annealed at 800°C in vacuo for 20 minutes. Cooling after annealing was done with the furnace. Determination of the velocity of propagation of longitudinal and transverse sonic waves in chromium (99.9%) enabled calculating the Young modulus, the shear modulus, Poisson's coefficient and the modulus compression from all sides for specimens of electrolytic chromium ($E = 27540$ kg/mm^2, $G = 11150$ kg/mm^2, $\mu = 0.24$ and $K = 17100$ kg/mm^2). The experimental results are given in graphs as follows: concentration and temperature dependence of the elastic modulus for chromium

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alloys (Fig.1); temperature dependence of the Young modulus for Ni-Al alloys (Fig.2); temperature dependence of the Young modulus (continuous lines) and the damping decrement (broken lines) for nichrome with various additions of tungsten (a) and molybdenum (b) (Fig.3). Since changes in the elastic properties of metals and alloys after cold plastic deformation have been little studied, the authors investigated this influence on Ni-Cr alloys (Ni + 10.48 at.% Cr, Ni + 23.46 at.% Cr and Ni + 28.13 at.% Cr). In order to establish general relationships, copper of 99.9% purity was studied first. Determination of the elastic characteristic was done on the basis of changes in the velocity of propagation of longitudinal and transverse sound waves in the initial and deformed states in the direction of deforming stresses and perpendicular to this direction. The accuracy of the measurements was about 0.1%. All specimens were investigated in the annealed state. Ni-Cr alloys were deformed in a 60 ton press by uniaxial compression. The degree of deformation varied from 0 to 60%. The experimental results for copper are shown in Fig.4. The magnitude of the elasticity modulus of copper changes depending on the direction and

degree of plastic deformation. In the direction of applied stresses for up to 9% of plastic deformation the Young modulus decreases, then remains constant to up to about 12% and with further increase of plastic deformation it decreases linearly. The elasticity modulus in the direction perpendicular to the direction of applied stresses decreases more sharply up to about 9% of the plastic deformation, then remains practically unchanged up to 20% of deformation and reaches a constant value on increasing the degree of deformation to 57%. At a deformation above 10% the difference in the value of the elasticity modulus in two perpendicular directions is probably related to a steady formation of the texture which is characteristic for this form of deformation. The influence of a low temperature annealing (100, 200, 300, 400 and 500°C) on the elastic properties of copper submitted to plastic deformation of 25 to 57% was also studied. The results (Fig.5) indicate that the temperature of the beginning of recrystallization is lower at higher degrees of deformation, e.g. for a 57% deformed copper specimen an increase in the elasticity modulus was observed already at 200°C while for less deformed specimens no change in the Young modulus was observed at

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this temperature. The value of the Young modulus of nickel alloys (Fig.6) also changes depending on the direction of applied stresses and the degree of deformation, whereupon a larger decrease of elastic properties was observed for alloys than for copper. It is pointed out that in nickel alloys, the influence of plastic deformation on the decrease of the modulus of elasticity increases with increasing concentration of chromium. The latter is possibly caused by the fact that in Ni-Cr alloys in addition to the formation of texture a decrease of elasticity takes place due to the destruction of the K-state, formed during the thermal treatment of alloys. The following conclusions are arrived at. 1) An increase in the elasticity moduli on additions of tungsten to chromium and a decrease in the Young modulus for Cr-Fe alloys within a wide range of temperatures indicates that tungsten in binary Cr-W alloys slightly strengthens interatomic bonds, while an addition of iron to chromium leads to weakening of the latter. 2) The temperature dependence of the Young modulus for nickel alloys containing 1.1 to 5.0 at.% of aluminium in the ferromagnetic temperature range is of the same character as for pure nickel but with increasing concentration of

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aluminium the curves of the temperature dependence begin to flatten out. Additions of aluminium have a slowing effect on the decrease in the Young modulus at elevated temperatures (500 to 800°C) and thus aluminium counteracts the weakening of Ni-Al alloys. 3) With increasing concentration of tungsten in nichrome (from 0.60 to 2.86 at.% W) the absolute value of the Young modulus for Ni-Cr-W alloys increases and its higher value is retained for alloys with a higher concentration of tungsten in the whole temperature range investigated (20 to 700°C). With increasing concentration of molybdenum from 0.97 to 6.44 at.%, the elasticity modulus for Ni-Cr-Mo alloys changes little. Therefore, the above alloys can be classified into a single group, as their Young moduli are basically determined by the elasticity moduli of nichrome. 4) The curves of the temperature dependence of the damping decrement for nichrome with various concentrations of tungsten and molybdenum have the same character but for alloys with a lower concentration of the above elements a sharp increase in the damping decrement was observed at lower temperatures. The latter is apparently caused by elastic imperfections and in the first instance by viscous slipping along the grain boundaries. There

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are 6 figures, 1 table and 16 references: 12 Soviet and 4 non-Soviet.

SUBMITTED: June 1, 1960

Table

Химический состав, вес. %								
O	N	H	Fe	Al	W	Mo	Cr	Ni
0.04	0.04	0.003	—	—	—	—	ост.*	—
0.04	0.04	0.003	1.02	—	—	—	ост.	—
0.04	0.04	0.003	3.11	—	—	—	ост.	—
—	—	—	—	—	2.08	—	ост.	—
—	—	—	—	—	13.05	—	ост.	—
—	—	—	—	—	—	—	ост.	99.99
—	—	—	—	0.50	—	—	—	ост.
—	—	—	—	2.37	—	—	—	ост.
—	—	—	—	—	0.10	1.6	14.46	ост.
—	—	—	—	—	0.50	5.3	14.10	ост.
—	—	—	—	—	0.15	10.3	14.63	ост.
—	—	—	—	—	1.90	—	12.59	ост.
—	—	—	—	—	5.00	—	14.90	ост.
—	—	—	—	—	8.60	—	14.01	ост.

* Остальное.

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Fig.1. Concentration (a, б) and temperature (B) dependences of elasticity moduli of chromium alloys.
Fig.1a - Young modulus of Cr-W alloys, E x 10^{-3} kg/mm^2 vs W,at.%;
Fig.1б - shear modulus of Cr-W alloys, G x 10^{-3} kg/mm^2 vs W,at.%;
Fig.1B - the influence of the temperature on the Young modulus of the alloys, E x 10^{-3} kg/mm^2 vs t,°C. 1 - Cr + 0.13 at.% O; 2 - Cr + 1.0 at.% Fe; 3 - Cr + 2.9 at.% Fe.

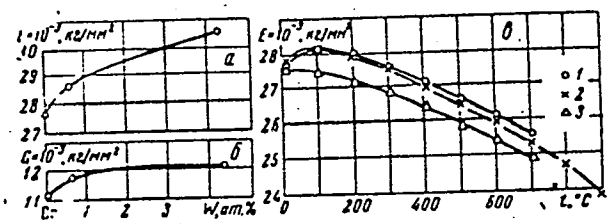

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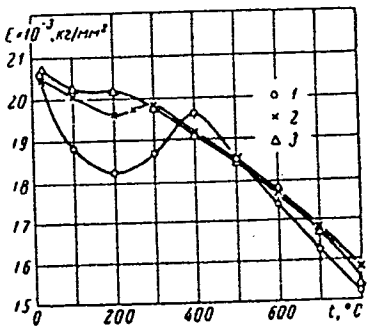
Fig.2. Temperature dependence of the Young modulus for Ni-Al alloys. E x 10^{-3} kg/mm^2 vs t, °C

1 - Ni; 2 - Ni + 1.1 at.% Al; 3 - Ni + 5 at.% Al.



Фиг. 2.

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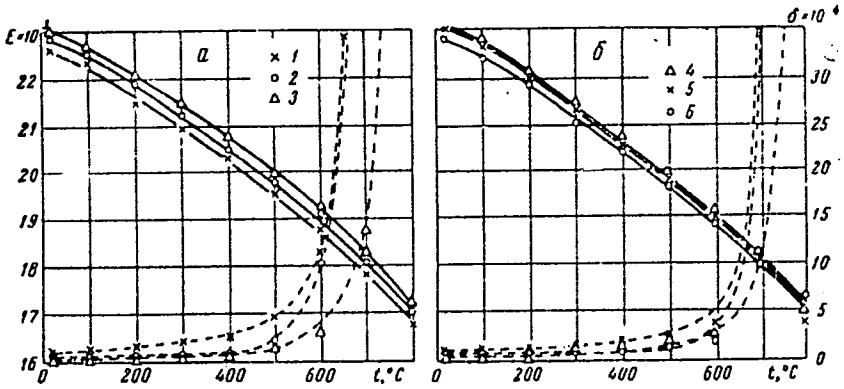
The Influence of ...

Fig.3. Temperature dependence of the Young modulus (continuous lines) and damping decrement (broken lines) for nichrome with various additions of tungsten (Fig.3a) and molybdenum (Fig.3б)

1 - 0.6 at.% W; 2 - 1.62 at.% W; 3 - 2.86 at.% W;
4 - 0.97 at.% Mo; 5 - 3.25 at.% Mo; 6 - 6.44 at.% Mo.



Card 11/14 Фиг. 3.

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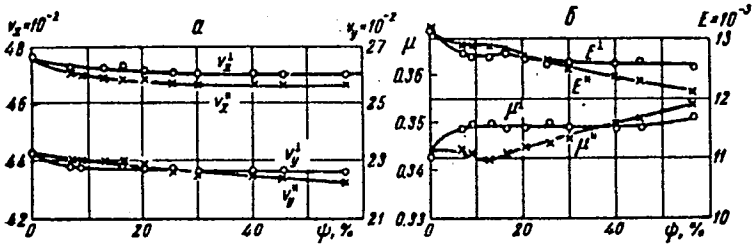
The Influence of ...

Fig.4. Influence of the degree of plastic deformation ψ% of copper on the velocity of propagation of ultrasonic vibrations (a), on the change of the Young modulus and Poisson coefficient (б) in the direction of the application of stress (v_x'', v_y'', E'', μ'') and in the perpendicular direction ($v_x^{\perp}, v_y^{\perp}, E^{\perp}, \mu^{\perp}$)



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The Influence of ...

Fig.5. Influence of the annealing temperature on changes in the Young modulus of copper subjected to deformation

1 - 25.6%; 2 - 40.3%; 3 - 57.0%

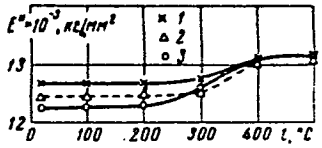

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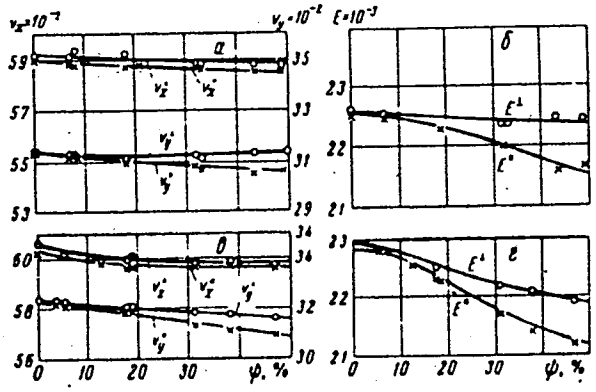
Fig.6. The influence of the degree of plastic deformation, ψ %, of Ni-Cr alloys on the velocity of propagation of supersonic vibrations (Fig.6a and B) and changes of the Young modulus (Fig.6б, г) in the direction of stress (v_x'', v_y'', E") and in the direct perpendicular to the direction of application of stress ($v_x^{\perp}$ $v_y^{\perp}$, $E^{\perp}$); Fig.6a,B - Ni + 10.48 at.% Cr; Fig.6б, г - Ni + 28.13 at.% Cr



Card 14/14

POLOTSKIY, I.G.; BENIYEVA, T.Ya.

Effect of heat treatment on elastic properties and internal friction in nickel-base alloys. Issl.po zharopr.splav. 4: 202-207 '59. (MIRA 13:5)

(Nickel alloys--Heat treatment)
(Elasticity)

POLOTSKIY, I.G.; LEVIN, G.I.

Mechanism of the effect of ultrasonic waves on the crystallization process. Sbor. nauch. rab. Inst. metallofiz. AN URSR no.10:160-167 '59. (MIRA 13:9)

(Crystallization) (Ultrasonic waves)

PHASE I BOOK EXPLOITATION SOV/4177

Akademiya nauk Ukrainskoy SSR. Institut metallofiziki

Voprosy fiziki metallov i metallovedeniya (Problems in the Physics of Metals and Metallography) Kiyev, Izd-vo AN UkSSR, 1959. 215 p. (Series: Its: Sbornik nauchnykh rabot, no. 10) 3,000 copies printed.

Ed. of Publishing House: O.M. Pechkovskaya; Tech. Ed.: N.A. Buniy; Editorial Board: V.N. Svechnikov, Academician, Academy of Sciences UkrSSR (Resp. Ed.), S.P. Gertsriken, Doctor of Physics and Mathematics, and I.Ya. Dekhtyar, Doctor of Technical Sciences.

PURPOSE: This collection of articles is intended for scientific workers, aspirants and engineers working in metal physics, metallography and metallurgy, and for students in advanced courses of metallurgy and physics departments.

COVERAGE: The collection of articles gives the results of an investigation of the effect of high heating rates, thermal treatment, deformation and crystallization conditions on the phase transformations, structure and properties of metals and alloys, and of the effect of alloying additives on volume and intergranular

Problems in the Physics of Metals and Metallography SOV/4177

diffusion in alloys, as well as the effect of repeated tempering by ultrasound irradiation on the physical properties of alloys. There is also a description of an x-ray camera for studying the structure of the individual grains. The following personalities are mentioned: V. Raksha, A.A. Smirnov, S.G. Glazunov, Ye.I. Morozov, V. Danilenko, L.M. Kikot', and I. Ya. Dekhtyar', Doctor of Technical Sciences. There is a bibliography of Soviet and non-Soviet references at the end of each article.

AVAILABLE: Library of Congress

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Translation from: Referativnyy zhurnal, Fizika, 1960, No. 2, pp. 137-138, # 3534

AUTHORS: Larikov, L. N., Polotskiy, I. G.

TITLE: The Problem of the Effect of Ultrasound on the Phase Transformation in Solid Metals and Alloys

PERIODICAL: Sb. nauchn. rabot In-ta metallofiz. AN UkrSSR, 1959, No. 9, pp. 50-53

TEXT: It was established that ultrasonic irradiation (750 kc, ~ 10 w/cm^2) produces no noticeable effect on the kinetics of natural aging of a lead-tin alloy and the allotropic transformation of γ-Co $\rightarrow$ ε-Co. The ultrasonic irradiation of alloy samples of the Duraluminum type led to a considerable acceleration of the aging process. It was shown that under the conditions of irradiation pointed out above, the effect of acceleration of the phase transformations is observed only in those cases when the kinetics of the process is sensitive to small temperature changes, such as take place in the case of an aluminum alloy. It must be assumed, therefore, that the effects which are observed in similar cases are caused by a temperature increase due to the absorption of ultrasonic energy by the samples and its transformation into heat. This does not exclude a possible effect of ultrasound on phase transformations in metals and alloys by deformation of the samples during the action of oscillations with great amplitude.

Card 1/1 Authors' conclusions

GRIDNEV, V.N., otv.red.; LARIKOV, L.N., kand.khim.nauk, red.; POLOTSKIY, I.G., doktor khim.nauk, red.; FAYNERMAN, I.D., doktor tekhn.nauk, red.; LEPKIY, S.D., red.izd-va; RAKHLINA, N.P., tekhn.red.

[Use of ultrasonic waves for the investigation of properties, quality control and the working of metals and alloys] Primenenie ul'trazvukovykh kolebanii dlia issledovaniia svoistv, kontrolia kachestva i obrabotki metallov i splavov. Kiev, 1960. 106 p. (MIRA 13:6)

1. Akademiya nauk USSR, Kiyev. Institut metallofiziki. 2. Chlen-korrespondent AN USSR (for Gridnev).

(Metals--Testing) (Metalwork--Testing)
(Ultrasonic testing)

Polotskiy, I. G.

18(7) PHASE I BOOK EXPLOITATION SOV/3355

Akademiya nauk SSSR. Institut metallurgii. Nauchnyy sovet po probleme zharoprochnykh splavov

Issledovaniya po zharoprochnym splavam, t. IV (Studies on Heat-resistant Alloys, vol. 4), Moscow, Izd-vo AN SSSR, 1959. 400 p. Errata slip inserted. 2,200 copies printed.

Ed. of Publishing House: V. A. Klimov; Tech. Ed.: A. P. Guseva; Editorial Board: I. P. Bardin, Academician; G. V. Kurdyumov, Academician; N. V. Ageyev; Corresponding Member, USSR Academy of Sciences; I. A. Oding, I. M. Pavlov, and I. P. Zudin, Candidate of Technical Sciences.

PURPOSE: This book is intended for metallurgists concerned with the structural metallurgy of alloys.

COVERAGE: This is a collection of specialized studies of various problems in the structural metallurgy of heat-resistant alloys. Some are concerned with theoretical principles, some with descriptions of new equipment and methods, others with properties of specific materials. Various phenomena occurring under specified conditions are studied and reported on. For details, see Table of Contents. The articles are accompanied by a number of references, both Soviet and non-Soviet.

SOV/3355

Studies (Cont.)

SOV/3355

Studies (Cont.)

Card 7/12

POLOTSKIY, I.G.; BENIYEVA, T.Ya.; KHODOV, Z.L.

Effect of alloy elements on the temperature relation of elasticity modulus in nickel and nichrome alloys. Issl. po zharopr. splav. 3:310-324 ' 58. (MIRA 11:11)

(Nickel alloys--Testing) (Elasticity)
(Metals, Effect of temperature on)

24(6), 18(6)

AUTHORS: Polotskiy, I. G. and Khodov, Z. L. SOV/126-7-2-17/39

TITLE: Temperature Dependence of the Modulus of Shear and Internal Friction of a Few Nickel-Base Alloys (Temperaturnaya zavisimost' modulya sdviga i vnutrennego treniya nekotorykh splavov na nikelevoy osnove)

PERIODICAL: Fizika Metallov i Metallovedeniye, 1959, Vol 7, Nr 2, pp 274-277 (USSR)

ABSTRACT: Within the last few years a series of papers has appeared which is devoted to the study of the modulus of shear and internal friction of metals and alloys. The investigations carried out by Ke (Refs 1-5), Nowic (Refs 6 and 7), Finkel'shteyn (Refs 8 and 9) and Rostnikov (Refs 10 and 11) are of great interest. The authors of this paper have investigated the temperature dependence of the modulus of shear and internal friction of nickel-molybdenum alloys, as well as nicrome with additions of titanium and aluminium. In this work the torsional oscillation method has been used. The difference between the method used by the authors and

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that described by other investigators (Refs 8-10) consists in the application of an electronic measuring device for the determination of the period of torsional oscillation. The measurements were carried out as follows (see Fig 1): a beam of light passing through a narrow slit falls on a mirror, which reflects it onto a screen behind which there is a photoelectric cell. As the rays pass through the slit in the screen, a stress impulse forms at the entrance to the starter mechanism, which is so arranged that its time of action is equal to four periods of torsional oscillation. During this time the electronic measuring device counts the number of oscillations of a quartz generator working at a frequency of 2.5 kilocycles. This enables the period of torsional oscillation to be determined with an accuracy of up to a tenth of a millisecond. For the determination of the absolute value of the modulus of shear, the periods of oscillation of the system were measured at two different magnitudes of moment of inertia, corresponding to two different positions of the load on the torsion rod. The modulus for nickel alloys at

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Temperature Dependence of the Modulus of Shear and Internal Friction of a Few Nickel-Base Alloys

various temperatures has been worked out. Experimental nickel-molybdenum alloys, as well as nichrome-aluminium and nichrome-titanium alloys, were made in a high frequency furnace in an argon atmosphere. The purity of the raw materials was: nickel - 99.99%, molybdenum - 99.93%, aluminium 99.95%, titanium - 99.6% and chromium - 98.5%. From each alloy a 500 g ingot was cast. The ingots were forged into rods of 8 mm diameter, after which they were drawn into wire of 0.8 mm diameter. The chemical composition of the nickel alloys investigated is shown in the Table, p 275. In order to determine the modulus of shear and internal friction, wire specimens, 0.8 mm diameter and 330 mm long, were made. All measurements were taken in vacuum. The alloys were investigated in the annealed condition. For heat treatment the specimens were sealed in a quartz tube, from which air was pumped out until a vacuum of 10^{-3} mm Hg col. was attained. The nickel-molybdenum alloys were given the following annealing treatment: the specimens were heated to 1200°C

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Temperature Dependence of the Modulus of Shear and Internal Friction of a Few Nickel-Base Alloys

and soaked at this temperature for 48 hours. Alloys of nichrome containing additions of titanium or aluminium were heated to 900°C, held there for 5 hours, and cooled in air. The modulus of shear and internal friction of each of the investigated alloys were determined using two specimens, and the period of torsional oscillation of the system was measured five times in the temperature range under investigation. In Fig 2 the temperature dependence of the modulus of shear and internal friction of nickel-molybdenum alloys, is shown. In Fig 3 the temperature dependence of the modulus of slip, internal friction and Poisson coefficient of alloys of nichrome and aluminium or titanium is shown: 1 - nichrome + 2.2 at.% Al; 2 - nichrome + 2.5% at Ti; -o- modulus of shear; —— modulus of internal friction; ---- Poisson coefficient. As a result of the above experiments, the authors have arrived at the following conclusions:

1. For the investigated nickel alloys, a deviation of the temperature dependence of the modulus of shear from linearity, and a sharp increase in internal friction,

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Temperature Dependence of the Modulus of Shear and Internal Friction of a Few Nickel-Base Alloys

occur in the same temperature range, and are probably due to elastic imperfections and, more important, to plastic slip along the grain boundaries.

2. The Poisson coefficient for nichrome containing 2.5% Ti begins to increase noticeably at 400 to 500°C, which may be associated with a considerable increase in plasticity of this alloy.

There are 3 figures, 1 table and 12 references, 6 of which are Soviet, 6 English.

ASSOCIATION: Institut metallofiziki AN Ukr.SSR (Institute of Metal Physics, Ac. Sc., Ukr. SSR)

SUBMITTED: April 16, 1957

Card 5/5

124-58-6-6403

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 6, p 16 (USSR)

AUTHORS: Polotskiy, I.G., Khodov, Z.L.

TITLE: Ultrasonic-wave Propagation Velocity in Some Binary Fluid Systems and Their Compressibility (Skorost' ul'trazvuka v nekotorykh dvoynykh zhidkikh sistemakh i ikh szhimayemost')

PERIODICAL: Sb. nauchn. rabot labor. metallofiziki AN UkrSSR, 1954, Nr 5, pp 34-44

ABSTRACT: Measurements were made of the velocity of sound with an ultrasonic interferometer at temperatures of 20-50°C (in the range of concentration from 0 to 100%), and the compressibility was calculated for a number of binary fluid systems in which reactions between like molecules differed from those between unlike molecules. Investigated were the following four systems: 1) a benzene-toluene system in which the forces of reaction between like molecules were approximately identical with those of reactions between unlike molecules; 2) an allyl-mustard-oil/piperidine system in which the components reacted chemically amongst themselves; 3) a chloroform/ethyl-ether system in which the forces of reaction between unlike molecules greatly

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124-58-6-6403

Ultrasonic-wave Propagation Velocity in Some Binary Fluid (cont.)

exceeded those of reactions between like molecules; 4) a benzene-nitrobenzene system in which the associated component dissociated. In the benzene-toluene system the compressibility isotherms had a weakly expressed maximum. It is assumed that this is related to the fact that the reactions between unlike molecules were somewhat less vigorous than those between like molecules. In the benzene-nitrobenzene system the speed of sound was a linear function of the concentration. In the chloroform/ethyl-ether system the dependence on concentration of the speed of sound was likewise nearly linear. The compressibility isotherms of the allyl-mustard-oil/piperidine system had a clearly identifiable minimum at temperatures of 25 and 50°. The presence of the minimum was an indication of a powerful reaction between the system components. The point is made that the study of the adiabatic compressibility of binary fluid systems has made it possible to arrive at certain conclusions concerning the nature of the interaction between the molecules. Bibliography: 23 references.

I. G. Mikhaylov

1. Ultrasonic radiation--Velocity
2. Ultrasonic radiation--Propagation
3. Liquids--Ultrasonic properties 4. Liquids--Physical properties

Card 2/2

SOV/137-58-8-17913

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 8, p 246 (USSR)

AUTHORS: Polotskiy, I. G., Beniyeva, T. Ya.

TITLE: The Influence of Audio- and Ultrasonic-frequency Vibrations on the Process of Crystallization in Metals (Deystviye kolebaniy zvukovoy i ul'trazvukovoy chastoty na protsess kristallizatsii metallov)

PERIODICAL: Sb. nauchn. rabot In-ta metallofiz. AN UkrSSR, 1957, Nr 8, pp 163-169

ABSTRACT: It is demonstrated that audio-frequency vibrations eliminate the tendency for the formation of columnar crystals in the course of crystallization, and facilitate the attainment of a fine crystalline structure. It is assumed that high-frequency ultrasonic vibrations influence the size of grains more effectively than low-frequency oscillations. The effect of ultrasonic frequencies on the process of crystallization in a melt is examined briefly, including the formation of excess pressures and tensile stresses, dispersion of growing crystals and particles of impurities, appearance of additional crystallization nuclei, and the effect of transverse vibrations of the walls of the molds. Bibliography: 26 references. 1. Metals--Crystallization 2. Metals--Crystal structure 3. Vibration--Metallurgical effects

Card 1/1 G. M.

POLOTSKIY, I.G.; BENIYEVA, T.Ya.; KHODOV, Z.L.

Effect of ultrasonic waves on the crystallization process. Trudy Inst. chern. met. AN URSR 6:91-100 '53. (MIRA 11:4)
(Solidification) (Ultrasonic waves)

POLOTSKIY, I.G.

46-4-2-11/20

AUTHORS: Polotskiy, I.G., and Khodov, Z.L.

TITLE: Ultrasound Velocity in Liquid Tin-Bismuth Alloys and Their Compressibility (Skorost' ul'trazvuka v zhidkikh splavakh olovo-vismut i ikh szhimayemost')

PERIODICAL: Akusticheskiy Zhurnal, 1958, Vol IV, Nr 2, pp 184-186 (USSR)

ABSTRACT: Dependence of the ultrasound velocity and adiabatic compressibility on concentration was measured in sub-eutectic and trans-eutectic liquid tin-bismuth alloys at temperatures of 10-15°C above the melting point. The ultrasound velocity and adiabatic compressibility were obtained also at 300°C. The adiabatic compressibility was calculated from the ultrasound velocity and the literature data on tin-bismuth and their liquid alloys' densities (Refs 6, 7). For certain composition the density was calculated by interpolation. The ultrasound velocity was measured by a pulse method. The method used (developed at the Institute of Metal Physics of the Academy of Sciences of the Ukrainian S.S.R.) differs from that described in Refs 2-4 in that the measurements were made by displacement of the reflector and determination of the time necessary to travel

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46-4-2-11/20

Ultrasound Velocity in Liquid Tin-Bismuth Alloys and Their Compressibility

the additional path. To avoid oxidation of the liquid alloys studied their surface was covered by a layer of paraffin wax. To improve the contact between the rod transmitting the ultrasonic pulses and the liquid alloys, the rod was covered by a thin layer of paraffin wax. A table on p. 185 gives the measured values of the ultrasound velocity (α, in m/sec, third column of the table) and adiabatic compressibility (β, in $10^{-12}cm^2/dyn$. fourth column). The first column of the table gives the composition in atomic per cent of bismuth and the last two columns give α and β at 300°C. A figure on p. 186 shows the ultrasound velocity (two straight lines) and the compressibility (two slightly convex curves) of Sn-Bi alloys as a function of composition expressed in atomic per cent of Bi. With increase of Bi content the ultrasound velocity decreases linearly and the adiabatic compressibility increases. For each of these two quantities a distinct break occurs at the eutectic point, near 40% Bi. The presence of these breaks indicates structural changes in the liquid alloy on transition to the eutectic composition. At this composition a quasi-eutectic structure was reported to exist in liquid phase (Ref 9). Since on increase of temperature from 150 to 300°C the ultrasound velocity and the adiabatic compressibility of the eutectic composition alloy do not change, the authors conclude

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SOV/46-5-2-12/34

AUTHORS: Polotskiy, I.G., Taborov, V.F. and Khodov, Z.L.

TITLE: Apparatus for Measurement of Ultrasound Velocity in Liquid Metals (Ustanovka dlya izmereniya skorosti ul'trazvuka v zhidkikh metallakh)

PERIODICAL: Akusticheskiy zhurnal, 1959, Vol 5, Nr 2, pp 202-205 (USSR)

ABSTRACT: The paper describes a new method of measurement of ultrasound velocity in liquid metals and alloys. The method is based on measurement of the time of travel of a short ultrasonic pulse between a source and a reflector which can be moved about in the liquid metal. In this way sound velocity can be measured with an accuracy of 0.3%. The metal was placed in a 30 mm diameter, 50 mm high heated quartz tube (Fig.1). The tube was closed from below by a transmitting rod 2 (40 mm diameter, 110 mm high). A polished hollow quartz reflector 4 was placed in the metal and its motion was controlled to within 0.005 mm by a micrometer 5. The molten metal was covered by a layer of paraffin to prevent oxidation. Good contact between the rod 2 and the metal was achieved by

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Apparatus for Measurement of Ultrasound Velocity in Liquid Metals SOV/46-5-2-12/34

placing a thin layer of wax on top of the rod. The rod 2 was excited by a piezo-quartz plate (1 Mc/s working frequency) kept at a constant temperature by means of a water-cooled jacket. Pulses reflected from the upper end of the transmitting rod (pulse 2 in Fig.3) and from the reflector (pulse 3 in Fig.3) were displayed on a c.r.o. screen. The oscillator circuit supplying the quartz plate was based on a thyratron TG 0.1/1.3 (Fig.5). The apparatus was checked by measuring sound velocity in water: the value obtained agreed with Mikhaylov's value (Ref.6) to within 0.1%. Then the apparatus was used to measure sound velocities in liquid tin, bismuth, cadmium and lead at 10 - 15°C above their respective melting points. The values found were: Sn, c = 2454 μ/sec at 247°C; Bi, c = 1663 μ/sec at 285°C; Cd, c = 2215 μ/sec at 335°C; Pb, c = 1834 μ/sec at 340°C. The results for Bi, Cd and Pb agree with those reported by other workers (Refs.1-3). Sound velocity in Sn differs from the values reported earlier. There are 5 figures, 1 table and 6 references, of which 2 are Soviet, 3 English and 1 translation from English into Russian.

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Apparatus for Measurement of Ultrasound Velocity in Liquid Metals SOV/46-5-2-12/34

ASSOCIATION: Institut metallofiziki AN USSR Kiyev (Institute of Metal Physics, Ac. Sc. Ukr.SSR, Kiyev)

SUBMITTED: October 25, 1957

Card 3/3

POLOTSKIY, I.G. [Polots'kyi, I.H.]; KHODOV, Z.L.; LEVIN, G.I. [Levin, H.I.]

Effect of oxygen impurities and alloying additions on the elastic properties and internal friction of chromium [with summary in English]. Ukr. fiz. zhur. 4 no.1:116-121 Ja-F '59. (MIRA 12:6)

1. Institut metalofiziki AN USSR.
(Chromium alloys) (Oxygen)

18(4,7); 25(1) PHASE I BOOK EXPLOITATION SOV/2306

Akademiya nauk Ukrainskoy SSR. Institut metallofiziki

Voprosy fiziki metallov i metallovedeniya (Problems in the Physics of Metals and Metallography) Kiyev, Izdo-vo AN Ukrainskiy SSR, 1959. (Series: Its: Sbornik nauchnykh rabot, Nr 9) Errata slip inserted. 3,000 copies printed.

Ed. of Publishing House: V.L. Shkurko; Tech. Ed.: M.I. Yefimova; Editorial Board: V.N. Svechnikov, Academician, Academy of Sciences, Ukrainian SSR (Resp. Ed.); S.D. Gertsriken, Doctor of Physical and Mathematical Sciences; and I.Ya. Dekhtyar, Doctor of Technical Sciences.

PURPOSE: This collection of articles is intended for scientific workers, aspirants, and engineers in the fields of the physics of metals, metallography, and metallurgy. It may also be useful to students of advanced courses in metallurgical and physical faculties.

COVERAGE: This collection of articles deals with the following topics: effect of high-speed heating, heat treatment, deformations, and crystallization conditions on phase transformations, structures, and properties of metals and alloys; the effect of additional alloying components on volumetric and intercrystalline diffusion in alloys; and the effect of repeated quench hardening and radioactive and ultrasonic treatment on the physical properties of alloys. No personalities are mentioned. References follow several of the articles.

AVAILABLE: Library of Congress

Card 12/12

00/ajr
10-12-59

POLOTSKIY, I.L.

ANTROPOV, A.V.; POLOTSKIY, I.L., inzh.

New drilling chucks. Izobr.v SSSR 2 no.10:37-38 O '57. (MIRA 10:11)
(Chucks)

OZERSKIY, A.S., kandidat tekhnicheskikh nauk; POLOTSKIY, I.V.; ARABYAN, S.G.

Causes of increased wear in the brass bearings of tractor engines. Avt. trakt. prom. no.6:17-20 Je '55. (MLRA 8:9)

1. Nauchno-issledovatel'skiy avtomotornyy institut
(Tractors--Engines)

ARDASHEV, Gavriil Romanovich; BAZAROV, I.V.; MIKHAYLOV, I.N.; MORSHIN, A.V.; POLOTSKIY, I.V.; HUDENKO, A.I.; SITNIKOV, A.P.; SPERANSOV, N.N.; KRYUKOV, V.L., red.; DEYNVA, V.M., tekhn.red.

[Maintenance of tractors and agricultural machinery] Tekhnicheskoe obsluzhivanie traktorov i sel'skokhoziaistvennykh mashin. Moskva, Gos.izd-vo sel'khoz.lit-ry, 1961. 470 p. (MIRA 14:4)

(Tractors--Maintenance and repair)
(Agricultural machinery--Maintenance and repair)

POLOTSKIY, L.

27-8-14/32

SUBJECT: USSR/Schooling - Machinery Upkeep

AUTHOR: Zaytsev, I., Director of the Gomel' Agricultural Mechanization School # 34, Polotskiy L., Senior Foreman of above school

TITLE: The Machines are in good Condition.....(Mashiny v polnom poryadke....)

PERIODICAL: Professional'no - Tekhnicheskoye Obrazovaniye, Aug. 1957, # 8, p 21-22 (USSR)

ABSTRACT: The article has a sub-title reading "The Control Point's work experience in technical maintenance and organization of repair at a machine-tractor park" and the article describes how the maintenance and repair of agricultural machinery and tractors is organized at the Agricultural Mechanization School # 34 at Gomel'. The school has had considerable experience in training highly qualified mechanizers and has been awarded prizes at All-Union competitions. Among the machines used by the school are the tractors "АТ-54", plows "П-5-35", sowing machines "СКГ-4".

Card 1/2

VOLOTSKIY I.M., TARANOV, V.

Effect of heat treatment and plastic deformation on the absorption of ultrasound in copper monocrystals. Akust. zhur. 7 no.4:470-474 '61. (MIRA 14:10)

1. Institut metallografii AN UkSSR, Kiyev.
(Absorption of sound)
(Copper crystals)

SHADRIN, A.A.; POLOTSKIY, L.M., kand. tekhn. nauk, red.

[Experimental and graphic method of designating the composition of concrete; practices of the Meleuz Plant of Reinforced Concrete Construction in the "Volgotransstrom" Trust] Eksperimental'no-graficheskiy metod naznacheniia sostavov betonov; iz opyta Meleuzskogo zavoda zhelezobetonnykh konstruktsii tresta "Volgotransstrom". Moskva, Gosstroiizdat, 1962. 53 p. (MIRA 17:4)

1. Akademiya stroitel'stva i arkhitektury SSSR. Nauchno-issledovatel'skiy institut organizatsii, mekhanizatsii i tekhnicheskoy pomoshchi stroitel'stvu. 2. Glavnyy tekhnolog tresta "Volgotransstrom" (for Shadrin).

POLOTSKIY, L.M., kand.tekhn.nauk; GERSHKOVICH, B.M., inzh.; SAVCHENKO, L.Yu., inzh.

Device for determining the resistance of materials to breaking up by crushing and grinding. Stroi. i dor. mash. 8 no.5:27-28 My '63. (MIRA 16:5)

(Milling machinery)

GEL'PERIN, N.I., doktor tekhn.nauk, prof.; POLOTSKIY, L.M., inzh.

Investigating the process of crushing hard materials into fine particles in a vibration mill. Khim.mash. no.1:28-33 Ja '60. (MIRA 13:5)

(Milling machinery)

Pololovskiy, L.S.

KAPLYANSKIY, A.Ye., doktor tekhn. nauk, prof.; POLOLOVSKIY, L.S., kand. tekhn. nauk, dots.; SOKOLOV, N.F., inzh.; PETROV, P.I., kand. tekhn. nauk (Leningrad).

Extinction of a direct-current electric arc in a rotating magnetic field. Elektrichestvo no.12:29-32 D '56. (MIRA 11:3)
(Electric arc) (Magnetic fields)

DANILOVA, T., kand.tekhn.nauk (Leningrad); YAKOVLEVA, V., inzh. (Leningrad); POLOTOVSKIY, M., inzh. (Leningrad)

Waterproofing basements. Zhil.-kom.khoz. 12 no.8:29 Ag '62. (MIRA 16:2)

(Waterproofing) (Basements)

KEDRINSKIY, Vasiliy Nikolayevich; PISMANIK, Kalman Matveyevich; POLOTSKIY, M.S., kand. tekhn. nauk, retsenzent; PAVLOV, Z.P., red.; EL'KIND, V.D., tekhn. red.

[Machines for cutting bevel gears] Stanki dlia narezaniia konicheskikh zubchatykh koles. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry, 1958. 534 p. (MIRA 11:9)
(Gear-cutting machines)

TRUBIN, Georgiy Konstantinovich, kand. tekhn. nauk; POLOTSKIY, M.S., kand. tekhn. nauk, retsenzent; GUT'YAR, Ye.M., doktor tekhn. nauk, prof., red.; CHERNOVA, Z.I., tekhn. red.; UVAROVA, A.F., tekhn. red.

[Contact fatigue of gear-wheel materials] Kontaktnaia ustalost' materialov dlia zubchatykh koles. Moskva, Mashgiz, 1962. 402 p. (MIRA 15:6)

(Metals—Fatigue) (Gearing)

POLOTSKIY, M. S., A. N. GRUBIN and M. B. LIKHTSIER.

Zuboreznyi instrument. Moskva, Mashgiz, 1946. 2 v. diagrs.

Bibliography: v.2, p.229-(230).

(Gear-cutting tool.)

DLC: TJ187.G7
(w.:v.1.)

SO: Manufacturing and Mechanical Engineering in the Soviet Union, Library of Congress, 1953.

1. POLOTSKIY, M. S.

2. SSSR (600)

4. Gearing

7. Establishing a scientific method of calculating gear transmissions. Izv. AN SSSR Otd. tekh. nauk No. 9, 1952

9. Monthly List of Russian Accessions, Library of Congress, February 1953. Unclassified.

CHASOVNIKOV, Lev Dmitriyevich, kand. tekhn. nauk, dotsent; BOROVICH, L.S., kand. tekhn. nauk, retsenzent; DIKER, Ya.I., kand. tekhn. nauk, retsenzent; KIST'YAN, Ya.G., kand. tekhn. nauk, retsenzent; POLOTSKIY, M.S., kand. tekhn. nauk, retsenzent; KLENNIKOV, V.M., inzh., red.; MERENSKAYA, I.Ya., red. izd-va; SOKOLOVA, T.F., tekhn. red.

[Gear transmissions; tooth and worm gears] Peredachi zatsepleniem; zubchatye i cherviachnye. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry, 1961. 478 p. (MIRA 14:7)
(Gearing)

ZABLONSKIY, K.I., kand.tekhn.nauk, otv.red.; BOROVICH, L.S., kand.tekhn. nauk, red.; BELYAYEV, M.S., inzh., red.; GENKIN, M.D., kand.tekhn. nauk, red.; ZAK, P.S., kand.tekhn.nauk, red.; KIST'YAN, Ye.G., kand.tekhn.nauk, red.; KUDRYAVTSEV, V.N., doktor tekhn.nauk, red.; MAL'TSEV, V.F., kand.tekhn.nauk, red.; POLOTSKIY, M.S., kand.tekhn. nauk, red.; ERLIKH, L.B., kand.tekhn.nauk, red.; NIKIFOROV, I.P., inzh., red.; KOMISSARENKO, A.R., tekhred.

[Design, construction, and investigation of transmissions; proceedings of the conference on design, construction, and investigation of transmissions; proceedings of the conference on design, construction, and investigation of gear and flexible transmissions of September 23-28, 1957] Raschet, konstruirovanie i issledovanie peredach; trudy konferentsii po voprosam rascheta, konstruirovaniia i issledovanii zubchatykh peredach i peredach gibkoi sviaz'iu 23-28 sentiabria 1957 g. Odessa, Izd.Odesskogo politekhn.in-ta. Vol.3. 1959. 123 p. (MIRA 12:10)

1. Odessa. Politekhnicheskiy institut.
(Gearing)

POLOTSKIY, M. S.

Gearing

Dynamic stresses on the teeth of gears. Inzh. sbor. no. 11, 1952.

Monthly List of Russian Accessions, Library of Congress, November 1952. UNCLASSIFIED

POLOTSKIY, Solomon Gertsovich; LOGINOV, S.P., kand. ekon. nauk, retsenzent; SATANOVSKIY, Ya.S., inzh., retsenzent; SHUL'KIN, P.S., nauchnyy red.; SHAKHNOVA, V.M., red.; TSAL, R.K., tekhn. red.

[Some problems in the economics of shipbuilding] Nekotorye voprosy ekonomiki sudostroeniia. Leningrad, Gos. soiuznoe izd-vo sudostroit. promyshl., 1961. 194 p. (MIRA 15:2)
(Shipbuilding)

LIVSHITS, I.A.; POLOTSKIY, Yu.S.

Regulation of the concentration of the vapor of solvents by means of the SGG-2 signaling indicator of combustible gases. Lakokras. mat. i ikh prim. no.3:75-77 '63. (MIRA 16:9)
(Spray painting—Safety appliances)

A-1

I. G. POLOTZKI

Chemical effect of ultrasonic waves. [illegible] Frazos [illegible] and I. G. Polotzki (*J. Gen. Chem. Russ.*, 1939, 10, 812–814). Exposure to ultrasonic waves has no effect on the rate of decomp. of CCl_3COOH in NH_4Br, or of contact effect of fused NH_4CNS to $CS(NH_2)_2$. R. T.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

Reporting by [redacted] S. S. Urazovski and I. G. [redacted] —A piezo-quartz [redacted] per sec. was used. [redacted] per Li and 1.8-7 g. in [redacted] Ag, respectively, [redacted] g. in [redacted] Ag, respectively, and 1.5 g. in [redacted] Ag. [redacted] by substituting Ag or Cu [redacted] of Ag or Cu were [redacted] J. J. R.

[redacted] Cu, [redacted] Cu, [redacted] Cu, [redacted] for [redacted] were [redacted]

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

PROCESSES AND PROPERTIES INDEX

BC

A-1

Luminescence of water when subjected to ultrasonic vibrations. I. G. Polotzki (J. Gen. Chem. Russ., 1938, 8, 1691—1695).—Exposure to ultrasonic vibrations of H_2O saturated at 1 atm. with air, N_2, or O_2, but not with H_2 or CO_2, or at pressures of 10 or 1140 mm., caused luminescence, of which about half was in the ultra-violet region. In the case of air, the H_2O contained finally HNO_3 0·166, HNO_2 0·159, and H_2O_2 0·151 mg.-%. R. T.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

POLOTZKY, I. G.

"Determination of $NO_2^{/}$, $NO_3^{/}$ and H_2O_2 in the Water exposed in the Ultra-acoustic field." (p. 654)

SO: Journal of General Chemistry, (Zhurnal Obshchei Khimii), 1947, Vol. 17, No. 4