"APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5

IVANOV, O.D.

Use of magnetic prospecting in searching for copper pyrite deposits. Razved. i okh. nedr 27 no.9:32-35 S 61. (MIRA 17:2)

1. Berchogurskaya geofizicheskaya ekspeditsiya.

APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5"

"APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5

L 42121-66

ACC NR: AT6028379 SOURCE CODE: UR/0000/65/000/000/0142/0154 15

AUTHOR: Bachin, A. P.; Bekzhanov, G. R.; Brodovoy, V. V.; Gol'dshmidt, V. I.; Zhivoderov, A. B.; Zlavdinov, L. Z.; Ivanov, O. D.; Klenchin, I. N.; Kolmogorov, Yu. A.; Kotlyarov, V. M.; Kuz'min, Yu. I.; Kuminova, M. V.; Kunin, N. Ya.; Lyubetskiy, V. G.; Melent'yev, M. I.; Morozov, M. D.; Tret'yakov, V. G.; Tychkova, T. V.; Tsaregradskiy, V. A.; Eydlin, R. A.

ORG: none

TITLE: Geophysical sketch map of Kazakhstan

SOURCE: International Geological Congress. 22d, New Delhi, 1964. Geologicheskiye rezul'taty prikladnoy geofiziki (Geological results of applied geophysics); doklady sovetskikh geologov, problema 2. Moscow, Izd-vo Nedra, 1965, 142-154

TOPIC TAGS: ~~Kazakhstan~~ geophysical, map, ~~geophysical mapping~~, tectonics, ~~geotectonics~~ ~~tion~~ regional study

ABSTRACT: On the basis of regional geophysical and geological investigations (seismic, gravimetric, magnetoelectric), a composite geophysical sketch map of the physical fields of Kazakhstan has been compiled. From this map, the major tectonic zones, deep structures, and geological structural zones are defined. Long zones representing high field gradients in the gravitational and magnetic fields reflect deep geosutures, which seismic sounding data suggest are scarps in the M-discontinuity

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ACC NR: AT6028379

Among the major structural zones of Kazakhstan defined are: 1) the Turgayskaya, 2) the Petropavlovskaya, 3) the Uspenskaya, 4) the Tokrauskaya, and 5) the Dzhalair-Naymanskaya. Regions of magmatism are also defined. In the tectonic depression zones, contour lines indicate the thickness of the sedimentary cover, overlying the folded basement, and possible oil-bearing formations. Orig. art. has: 1 figure. [DM]

SUB CODE: 08/ SUBM DATE: 06Jan65/ ATD PRESS: 5063

Card 2/2

APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5"

"APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5

IVANKOV, O.N.

Stressed state of the walls of welded crane girders. Sbor. naush. trud. Dnepr. inzh.-stroi. inst. no.31:95-102 '63 (MIRA 18:1)

APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5"

"APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5

KIRILOVSKIY, G.S. [Kyrylovs'kyi, H.S.]; IVANOV, O.F.; KATS, S.A.

Standard shoes with leather sole and rubber half heel. Leh.prom. no.4:28-29 O-D '62. (MIRA 16:5)

1. Kiyevskaya obuvnaya fabrika No.6.
(Shoe manufacture) (Rubber goods)

APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5"

"APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5

IVANOV, O.I.

Phytoplankton of Eastern Sivash. Pratsi Inst. gidrobiol. AN URSR no.35:19-30 '60. (MIRA 14:4)
(Sivash—Phytoplankton)

APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5"

"APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5

IVANOV, O.I.

Phytoplankton of Lake Molochnoye. Pratsi Inst. gidrobiol. AN URSR no.35:123-130 '60. (MIRA 14:4)
(Molochnoye, Lake—Phytoplankton)

APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5"

"APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5

TER-GALUSTOV, S.A.; VOROBKOV, L.N.; IVANOV, O.I.

Forces of friction arising between drilling supports and the soil of the wall of bores treated with clay. Osn., fund. i mekh. grun. 3 no.4:5-7 '61. (MIRA 14:8)

(Friction) (Boring)

APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5"

"APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5

RAKHMANOV, V. A., prof.; IVANOV, O. L., aspirant

Histochemical studies of the connective tissue of the skin in chronic lupus erythematosus. Vest. derm. i ven. 36 no.7:23-28 Jl '62. (MIRA 15:7)

1. Iz kafedry kozhnykh i venericheskikh bolezney (zav. - chlen-korrespondent AMN SSSR prof. V. A. Rakhmanov) I Moskovskogo ordena Lenina meditsinskogo instituta imeni I. M. Sechenova.

(LUPUS ERYTHEMATOSUS) (CONNECTIVE TISSUE)

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"APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5

ACCESSION NR: AP4019201 S/0056/64/046/002/0415/0430

AUTHORS: Balandin, M. P.; Ivanov, O. I.; Moiseyenko, V. A.; Sokolov, G. L.

TITLE: Investigation of the absorption of 40--70 MeV charged pions in carbon nuclei with the aid of a propane bubble chamber

SOURCE: Zhurnal eksper. i teor. fiz., v. 46, no. 2, 1964, 415-430

TOPIC TAGS: pion, charged pion, charged pion absorption, absorption cross section, charge exchange cross section, pion absorption in carbon, prong number distribution, proton energy distribution, prong angular distribution, secondary particle angular distribution, angular distribution anisotropy

ABSTRACT: The absorption of $\pi^{\pm}$ mesons of equal energy by carbon nuclei at 40--70 MeV was investigated with a 30 cm propane bubble chamber, with an aim at obtaining more data on the two stages of the

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ACCESSION NR: AP4019201

pion absorption process (pion energy transfer to internal primary nucleons and emission of final particles). Data were obtained on the total cross section for $\pi^{\pm}$ absorption and charge exchange in carbons (98^{+17}_{-10} and 99^{+24}_{-19} mb for π^{+} and π^{-}, respectively), the distribution of pion absorption vs. number of prongs (average $2.22^{+0.13}_{-0.11}$ and $0.94^{+0.14}_{-0.13}$ prongs for π^{+} and π^{-} mesons), distribution of mean proton energy vs. the number of prongs, and angular distribution of the prongs. The results show that the angular distribution of the charged particles emitted by the carbon nuclei is isotropic for negative pions but not for positive ones. It is concluded that in most cases the pion energy is transferred during the first absorption stage to a neutron-proton primary pair with probability 0.65 ± 0.10. Causes of differences in the behavior of positive and negative pions are discussed. "In conclusion the authors thank B. M. Pontecorvo for continuous interest and valuable suggestions; M. G. Meshcheryakov,

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"APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5

ACCESSION NR: AP4019201

S. S. Gershteyn, and V. G. Solov'yev for discussions; Yu. D. Prokoshkin for extracting the pion beams; Ye. P. Zhidkov and A. F. Luk'yantsev for assistance with electronic computer data reduction; V. L. Trifonov and A. I. Sharov for assistance with the experiments; Ye. A. Burov for processing the photographs; and the group directed by I. A. Pankov and K. A. Baycher for constructing the bubble chamber." Orig. art. has: 9 figures, 15 formulas, and 3 tables.

ASSOCIATION: Ob"yedinenny*y institut yaderny*kh issledovaniy (Joint Institute of Nuclear Research)

SUBMITTED: 09May63 DATE ACQ: 27Mar64 ENCL: 02

SUB CODE: PH NO REF SOV: 005 OTHER: 020

Card 3/5

APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5"

"APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5

BALANDIN, M.P.; IVANOV, O.I.; MOISEYENKO, V.A.; SOKOLOV, G.L.

Use of a propane bubble chamber in studying the absorption of 40-70 Mev. π^- and π^+ - mesons by carbon nuclei. Zhur. eksp. i teor. fiz. 46 no.2:415-430 F '64. (MIRA 17:9)

1. Ob"yedinennyy institut yadernykh issledovaniy.

APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5"

"APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5

IVANOV, A.K. [Ivanov, O.K.]; VUL', M.A. [Vul', M.IA.]; SHCHEPAK, V.M.

Formation of the Kadobno gas field. Dop. AN URSR no.4:510-514 '65. (MIRA 18:5)

1. Institut geologii i geokhimii goryuchikh iskopayemykh AN UkrSSR.

APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5"

"APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5

IVANOV, O.L., starshiy inzh.-leytenant

Providing for the seaworthiness of submarine boats during repairs.
Mor. sbor. 48 no.12:68-72 D '64.

(MIRA 18:2)

APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5"

"APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5

RAKHMANOV, V.A., prof.; IVANOV, O.L.

Significance and prospects of histochemical analysis in dermatology. Vest. derm. i ven. no.3:3-8 '65.
(MIRA 18:11)

1. Kafedra kozhnykh i venericheskikh bolezney (zav. - chlen-korrespondent AMN SSSR prof. V.A. Rakhmanov) I Moskovskogo meditsinskogo instituta imeni I.M. Sechenova.

APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5"

"APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5

IVANOV, O. M.

ZAVADSKIY, Vyacheslav Svyatoslavovich; IVANOV, O.M., kandidat tekhnicheskikh nauk, nauchnyy redaktor; BEGAK, B.A., redaktor izdatel'stva; SMOL'YAKOVA, M.V., tekhnicheskiy redaktor

[Air-entrained concrete; properties, manufacture and use] Avtoklavnye gazobetony; ikh svoistva, proizvodstvo i primenenie. Moskva, Gos.izd-vo lit-ry po stroit. i arkhit., 1957. 154 p.
(Air-entrained concrete) (MLRA 10:9)

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"APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5

IVANOV, O.M.

20

Hardening of concrete in chlorine and steam. A. I. Avakov and O. M. Ivanov. *Stroitel. Prom.* 16, No. 7, 61-3(1938).—$CaCl_2$ is added in an amount of 2% of the wt. of the cement, the densified concrete mass is treated with 1-2 g./l. of gaseous chlorine and after chlorination is treated with steam at 80° during 5-6 hrs. (after a 2-hr. rise of temp.). R. R. Stefanowsky

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5"

"APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5

IVANOV, O.M.

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

20

Utilization of waste from the production of slag-concrete blocks. A. I. Avakov and O. M. Ivanov. *Stroitel. Prom.* 17, No. 8, 54 (1939).—Batches composed of granulated slag, waste from the production of concrete blocks from activated slag, boiler slag and slaked lime gave a mortar that can efficiently replace portland cement-lime mortars. R. R. Stefanowsky

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5"

"APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5

DESOV, A.Ye., laureat Stalinskoy premii, professor, doktor tekhnicheskikh nauk; IVANOV, O.M., kandidat tekhnicheskikh nauk, nauchnyy redaktor; ROSTOVTSEVA, M.P., redaktor; VORONIN, K.P., tekhnicheskiy redaktor

Vibration platforms; design and calculations. Nauchnoe soobshchenie TSentral'nogo nauchno-issledovatel'skogo instituta promyshlennykh sooruzhenii no.10:3-71 '53. [Microfilm] (MLRA 7:10)
(Vibration)

APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5"

"APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5

MIRONOV, S.A., laureat Stalinskoy premii, doktor tekhnicheskikh nauk, professor, redaktor; IVANOV, O.M., kandidat tekhnicheskikh nauk, nauchnyy redaktor; ROSTOVTSEVA, M.P., redaktor; SMOL'YAKOVA, M.V., tekhnicheskiy redaktor.

[Handbook for a laboratory technician in building-laboratories] Spravochnik laboranta postroechnykh laboratorii. Pod red. Laureata Stalinskoi premii S.A.Mironova. Odobren Tekhnicheskim upravleniem Ministerstva stroitel'stva SSSR 20 aprelia 1954 g. Moskva, Gos. izd-vo lit-ry po stroit. i arkhitekture, 1954. 424 p. (MLRA 7:12)

1. Moscow. TSentral'nyy nauchno-issledovatel'skiy institut promyshlennykh sooruzheniy.
(Building materials--Testing)

APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5"

"APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5

KOV'TUN, I.P., kandidat tekhnicheskikh nauk; IVANOV, O.M., kandidat tekhnicheskikh nauk; nauchnyy redaktor; ROSTVTSEVA, M.P., redaktor; SMOL'YAKOVA, M.V., tekhnicheskiy redaktor

[Activated and plasticized concrete on a base of blast furnace slags] Aktivirovannyi i plastifitsirovannyi beton na baze domennykh shlakov. Moskva, Gos. izd-vo lit-ry po stroitel'stvu i arkhitekture, 1954. 37 p. (MIRA 8:4)

(Concrete) (Slag cement)

APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5"

"APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5

SIMONOV, Mikhail Zakharyevich, laureat Stalinskoy premii, d-r tekhnicheskikh nauk, professor; IVANOV, O.M., kandidat tekhnicheskikh nauk; YEGOROVA, N.O., redaktor; MEDVEDEV, L.Ya., tekhnicheskiy redaktor

[Porous aggregate concrete and reinforced concrete] Beton i zhelezobeton na poristykh zapolniteliakh. Moskva, Gos. izd-ve lit-ry po stroit. i arkhitekture, 1955. 253 p. (MIRA 8:6)
(Lightweight concrete)

APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5"

"APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5

IVANOV, O.M.

SKRAMTAYEV, Boris Grigor'yevich, professor, doktor tekhnicheskikh nauk, laureat Stalinskoy premii; Ivanov, O.M., kandidat tekhnicheskikh nauk, redaktor; KOSTOVTSEVA, M.P., redaktor; TOKER, A.M. tekhnicheskiy redaktor.

[Coarsely porous concrete and its use in construction] Krupnoporistyi beton i ego primenenie v stroitel'stve. Moskva, Gos. izd-vo lit-ry po stroitel'stvy i arkhitekture, 1955. 118 p. (Concrete construction) (MLRA 8:10)

APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5"

"APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5

VOLOZHENSKIY, A.V., professor, redaktor; SHVARTSZAYD, M.S., kandidat tekhnicheskiy nauk, redaktor; IVANOV, O.M., kandidat tekhnicheskikh nauk, nauchnyy redaktor; TUMARKIN, D.M., inzhener, redaktor izdatel'stva; VOLKOV, V.S., tekhnicheskiy redaktor; MEL'NICHENKO, F.P., tekhnicheskiy redaktor

[Autoclave materials and articles; a collection of articles] Avtoklavnye materialy i izdeliia; sbornik statei. Pod red. A.V. Volzhenskogo i M.S.Shvartszaida. Moskva, Gos. izd-vo lit-ry po stroit. i arkhitekture, 1956. 125 p. (MLRA 9:7)

1. Akademiya arkhitektury SSSR, Moscow. 2. Chlen-korrespondent Akademii arkhitektury SSSR (for Volzhenskiy)
(Autoclaves)

APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5"

"APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5

DESOV, Arseniy Yefremovich, professor, doktor tekhnicheskikh nauk; IVANOV, O.M., kandidat tekhnicheskikh nauk, nauchnyy redaktor; ROSTOVTSEVA, M.P., redaktor izdatel'stva; KOTIK, B.A., redaktor izdatel'stva; TOKER, A.M., tekhnicheskiy redaktor

[Vibration concrete] Vibrirovannyi beton. Moskva, Gos. izd-vo lit-ry po stroit. i arkhitekture, 1956. 228 p. (MLRA 9:9)
(Concrete)

APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5"

"APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5

VOROB'YEV, Vasiliy Aleksandrovich, professor, doktor tekhnicheskikh nauk; KOLOKOL'NIKOV, V.S., dotsent, kandidat tekhnicheskikh nauk; IVANOV, O.M., kandidat tekhnicheskikh nauk, retsenzent; SHCHEPETOV, A.M., kandidat tekhnicheskikh nauk, nauchnyy redaktor; GORSHKOV, A.P., redaktor izdatel'stva; TOKER, A.M., tekhnicheskiy redaktor

[Building materials and elements] Stroitel'nye materialy i detali. Moskva, Gos. izd-vo lit-ry po stroit. i arkhitekture, 1956. 284 p. (MLRA 10:3)
(Building materials)

APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5"

"APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5

ZAVADSKIY, Vyacheslav Svyatoslavovich, inzhener; IVANOV, O.M., kandidat tekhnicheskikh nauk, nauchnyy redaktor; BEGAK, B.A., redaktor izdatel'stva; SMOL'YAKOVA, M.V., tekhnicheskiy redaktor

[Autoclave gas concretes; their properties, manufacture and use] Avtoklavnye gazobetony; ikh svoistva, proizvodstvo i primenenie. Moskva, Gos.izd-vo lit-ry po stroit. i arkhit., 1957. 154 p. (Lightweight concrete) (MIRA 10:9)

APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5"

"APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5

BLOKHIN, Boris Nikolayevich, prof.; GALAKTIONOV, Aleksandr Alekseyevich, dots.; VOROB'YEV, V.A., prof., retsenzent; KHIGEROVICH, M.I., prof., retsenzent; IVANOV, O.M., dots., retsenzent; RUFFEL', N.A., dots., retsenzent; KOKIN, A.D., retsenzent; ZHELUDKOV, V.I., inzh., nauchnyy red.; LYTKINA, L.S., red.izd-va; KASIMOV, D.Ya., tekhn. red.

[Finishing materials and operations]Otdelochnye materialy i raboty. Moskva, Gosstroiizdat, 1962. 275 p. (MIRA 15:7)

1. Zaveduyushchiy kafedroy "Organicheskiye stroitel'nyye materialy i plastmassy" Moskovskogo inzhenerno-stroitel'nogo instituta im. V.V.Kuybysheva (for Vorob'yev). 2. Kafedra "Stroitel'nyye materialy "Moskovskogo inzhenerno-stroitel'nogo instituta im. V.V.Kuybysheva (for Khigerovich, Ivanov). 3. Kafedra "Tekhnologiya stroitel'nogo proizvodstva "Moskovskogo inzhenerno-stroitel'nogo instituta im. V.V.Kuybysheva (for Ruffel'). 4. Glavnyy inzhener Upravleniya otdelochnykh rabot Glavnogo upravleniya po stroitel'stvu i vosstanovleniyu zheleznodorozhnykh mostov (for Kokin).

(Building--Details)

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"APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5

SOROKER, Vitaliy Il'ich, prof., doktor tekhn. nauk; GORYAYNOV, K.E., prof., doktor tekhn. nauk; IVANOV, O.M., kand. tekhn. nauk, nauchn. red.; CHERKINSKAYA, R.L., red.

[Problems and examples in the technology of concrete and reinforced concrete products] Zadachi i primery po tekhnologii betonnykh i zhelezobetonnykh izdelii. Moskva, Izd-vo lit-ry po stroit., 1964. 235 p. (MIRA 17:5)

1. Zaveduyushchiy kafedroy tekhnologii proizvodstva stroitel'nykh materialov Vsesoyuznogo zaochnogo inzhenerno-stroitel'nogo instituta (for Goryaynov).

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"APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5

ACCESSION NR: AP5014970 UR/0228/64/000/007/004/005

AUTHOR: Ivanov, O. M.; Domokeyev, A. G.; Denisov, A.I.; Kul'kova, N. M.; Anashkin, F. P.

TITLE: Concrete floors with epoxy resin coverings

SOURCE: Stroitel'nyye materialy, no. 7, 1964, 4-5

TOPIC TAGS: concrete, epoxy plastic

Abstract: The Moscow Construction Engineering Institute (MISI) imeni V. V. Kuybyshev investigated grade ED-6 epoxy resin coverings containing the plasticizer -- dibutylphthalate; wettling agent -- polyethylene polyamine; filler -- ground quartz sand; pigments, and cement. Phthalic

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"APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5

Abstract: [illegible] V. V. Kuybyshev investigated grade ED-6 epoxy resin coverings containing the plasticizer -- dibutylphthalate; settling agent -- polyethylene polyamine; filler -- ground quartz sand; pigments, and cement. Phthalic anhydride was used as settling agent during hot polymerization. Tests were conducted for wearing properties and hardness. The wear of the dissolved specimens covered with protective films based on epoxide resin is $1\frac{1}{2}$-2 times less in comparison with concrete specimens without the protective coverings. The absolute indexes of the wear are very close to the values of the wear of specimens made of high-strength concrete. The Brinell hardness is somewhat lower than in the specimens without coverings. Other tests showed that epoxy resin protective coverings are water-resistant and frost-resistant. Orig. art. has 1 table.

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"APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5

ACCESSION NR: AP5014970

ASSOCIATION: none

SUBMITTED: 00 ENCL: 00 SUB CODE: MT

NO REF SOV: 003 OTHER: 000 JPRS

Card 2/2

APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5"

"APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5

IVANOV, O.M., kand. tekhn. nauk; DOMOKEYEV, A.G., kand. tekhn. nauk; DENISOV, A.I., kand. tekhn. nauk; KUL'KOVA, V.M., inzh.

Durable concrete floors. Strot. mat. no.11:19-20 N '65. (MIRA 18:12)

APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5"

"APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5

IVANOV, C.M.; DOMOKHYEV, [illegible]; [illegible]; [illegible]; ANASHKIN, [illegible]

Concrete floors with epoxy resin coverings. Strod. mat. 10 no.7: 4-5 Jl '64 (MIRA 18:1)

APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5"

"APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5

S/0198/64/010/002/0149/0157

ACCESSION NR: AP4023365

AUTHOR: Ivanov, O. M. (Ivanov, O. M.) (Lyubertsi)

TITLE: Fundamental vibrations of orthotropic shells under the action of hydrostatic pressure and longitudinal forces

SOURCE: Pry*kladna mekhanika, v. 10, no. 2, 1964, 149-157

TOPIC TAGS: orthotropic shell, fundamental vibration, hydrostatic pressure, longitudinal force, differential equation

ABSTRACT: Taking into account the hypotheses of the technical theory of cylindrical shells, the author uses the method of S. P. Timoshenko /Stability of elastic systems, Gostekhizdat, 1955/ to obtain the following system of differential equations for the fundamental vibrations of a cylindrical orthotropic shell:

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$$\frac{\partial T_1}{\partial \alpha}+\frac{\partial S}{\partial \beta}-pR\left(\frac{\partial^2 v}{\partial \alpha \partial \beta}+\frac{1}{R}\frac{\partial w}{\partial \alpha}\right)=\varrho h\frac{\partial^2 u}{\partial t^2};\quad \frac{\partial T_2}{\partial \beta}+\frac{\partial S}{\partial \alpha}+T_a\frac{\partial^2 v}{\partial \alpha^2}=\varrho h\frac{\partial^2 v}{\partial t^2};$$

$$\frac{\partial N_1}{\partial \alpha}+\frac{\partial N_2}{\partial \beta}+T_a\frac{\partial^2 w}{\partial \alpha^2}-\frac{T_2}{R}+pR\left(\frac{w}{R^2}+\frac{\partial^2 w}{\partial \beta^2}\right)=\varrho h\frac{\partial^2 w}{\partial t^2}; \qquad (1)$$

$$\frac{\partial H}{\partial \alpha}+\frac{\partial M_2}{\partial \beta}=N_2;\quad \frac{\partial H}{\partial \beta}+\frac{\partial M_1}{\partial \alpha}=N_1.$$

Here T_1 and T_2 are meridional and circular forces, respectively; S is the displacement force; N_1 and N_2 are transverse forces; M_1 and M_2 are bending moments; H is the twisting moment; T_a is the longitudinal force; (these values are given assuming unit arc length of the coordinate u, v, and w lines) are the component displacements of the center of the shell's surface along the α - axis of the shell, along the tangent to the cross-section (axis β), and along the γ axis, which coincides with the external normal at the center of the surface /see enclosure/; R is the radius of curvature at the center of the

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shell's surface; ϱ is the density of the material; h is the shell's thickness; p is the internal stress; and t is time.

As long as the shell has an internal stress p and a longitudinal force P, given assuming unit length of the cross-section, then T_a can be written:

$$T_a = \frac{pR}{2} + P. \qquad (2)$$

For a shell composed of an orthotropic material /see S. A. Ambartsumyan, the theory of anisotropic shells, Fizmatgiz, 1961/,

$$T_1 = \frac{E_1 h}{1 - \nu_1\nu_2}(\varepsilon_1 + \nu_2\varepsilon_2); \quad T_2 = \frac{E_2 h}{1 - \nu_1\nu_2}(\varepsilon_2 + \nu_1\varepsilon_1); \quad S = G_{12}h\omega;$$
$$M_1 = \frac{E_1 h^3}{12(1 - \nu_1\nu_2)}(\varkappa_1 + \nu_2\varkappa_2); \quad M_2 = \frac{E_2 h^3}{12(1 - \nu_1\nu_2)}(\varkappa_2 + \nu_1\varkappa_1); \quad H = G_{12}\frac{h^3}{12}\tau. \qquad (3)$$

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where

$$\varepsilon_1 = \frac{\partial u}{\partial \alpha}; \quad \varepsilon_2 = \frac{\partial v}{\partial \beta} + \frac{w}{R}; \quad \omega = \frac{\partial u}{\partial \beta} + \frac{\partial v}{\partial \alpha}; \tag{4}$$

$$\varkappa_1 = -\frac{\partial^2 w}{\partial \alpha^2}; \quad \varkappa_2 = -\frac{\partial^2 w}{\partial \beta^2}; \quad \tau = -2\frac{\partial^2 w}{\partial \alpha \partial \beta}.$$

In the formulas (3) E_1 and E_2 are Yung modules in the directions α and β: respectively; G_{12} is the shift module; ν_1, ν_2 are Poisson coefficients in the direction of the α axis and β axis, respectively.

Incorporating formulas (3) and (4) into equation (1), we get

$$\frac{\partial^2 u}{\partial \alpha^2} + \frac{G_0 + F_2}{E_1}\frac{\partial^2 v}{\partial \alpha \partial \beta} + \frac{G_0}{E_1}\frac{\partial^2 u}{\partial \beta^2} + \frac{F_2}{E_1 R}\frac{\partial w}{\partial \alpha} = \varrho\frac{1 - \nu_1 \nu_2}{E_1}\frac{\partial^2 u}{\partial t^2}, \tag{5}$$

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$$\frac{G_0 + E_2\nu_1}{E_2}\frac{\partial^2 u}{\partial\alpha\partial\beta} + \frac{F_1}{E_2}\frac{\partial^2 v}{\partial\alpha^2} + \frac{\partial^2 v}{\partial\beta^2} + \frac{1}{R}\frac{\partial w}{\partial\beta} = \varrho\frac{1-\nu_1\nu_2}{E_2}\frac{\partial^2 v}{\partial t^2}, \qquad (6)$$

$$-\frac{1}{R}\frac{\partial v}{\partial\beta} - \frac{\nu_1}{R}\frac{\partial u}{\partial\alpha} - \frac{w}{R^2} - \frac{h^2}{12}\left[\frac{E_1}{E_2}\frac{\partial^4 w}{\partial\alpha^4} + \frac{4G_0 + 2\nu_1 E_2}{E_2}\frac{\partial^4 w}{\partial\alpha^2\partial\beta^2} + \right.$$

$$\left. + \frac{\partial^4 w}{\partial\beta^4}\right] + \psi_2\frac{\partial^2 w}{\partial\alpha^2} + \psi_1\left(\frac{w}{R^2} + \frac{\partial^2 w}{\partial\beta^2}\right) = \varrho\frac{1-\nu_1\nu_2}{E_2}\frac{\partial^2 w}{\partial t^2}, \qquad (7)$$

where

$$G_0 = G_{12}(1-\nu_1\nu_2); \quad F_1 = G_{12}(1-\nu_1\nu_2) + E_2\psi_1; \quad F_2 = E_1\nu_2 - E_2\psi_1.$$

and

$$\psi_1 = \frac{pR(1-\nu_1\nu_2)}{E_2 h}; \quad \psi_2 = \frac{T_\alpha(1-\nu_1\nu_2)}{E_2 h}.$$

The author then rewrites equations (5), (6) and (7) in such a way that in u and w will dependent, in the other v and w will be dependent, and in the third only w will be dependent. The resultant equations are

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$$-\frac{E_1F_1}{E_2}\frac{\partial^4 u}{\partial\alpha^4}+F_2\frac{\partial^4 u}{\partial\alpha^2\partial\beta^2}-G_0\frac{\partial^4 u}{\partial\beta^4}-\frac{F_1F_2}{E_2R}\frac{\partial^3 w}{\partial\alpha^3}+\frac{G_0}{R}\frac{\partial^3 w}{\partial\alpha\partial\beta^2}=\varrho(1-\nu_1\nu_2)\times$$

$$\times\left[\varrho\frac{1-\nu_1\nu_2}{E_2}\frac{\partial^4 u}{\partial t^4}-\frac{F_1+E_1}{E_2}\frac{\partial^4 u}{\partial\alpha^2\partial\beta^2}-\frac{G_0+E_2}{E_2}\frac{\partial^4 u}{\partial\beta^2\partial t^2}-\frac{F_2}{E_2R}\frac{\partial^3 w}{\partial\alpha\partial t^2}\right],\tag{8}$$

where

$$F_2=2G_0\nu_1-E_1(1-\nu_1\nu_2)-G_0(\psi_1+\psi_2)-E_2\nu_1\psi_1.$$

$$-F_1\frac{\partial^4 v}{\partial\alpha^4}+\frac{F_2E_2}{E_1}\frac{\partial^4 v}{\partial\alpha^2\partial\beta^2}-\frac{G_0E_2}{E_1}\frac{\partial^4 v}{\partial\beta^4}+\frac{E_2}{E_1R}(F_2-G_0\nu_1+G_0\psi_2)\frac{\partial^3 w}{\partial\alpha^2\partial\beta}-$$

$$-\frac{G_0E_2}{E_1R}\frac{\partial^3 w}{\partial\beta^3}=\frac{\varrho(1-\nu_1\nu_2)}{E_1}\left[\varrho(1-\nu_1\nu_2)\frac{\partial^4 v}{\partial t^4}-(F_1+E_1)\frac{\partial^4 v}{\partial\alpha^2\partial\beta^2}-\right.$$

$$\left.-(G_0+E_2)\frac{\partial^4 v}{\partial\beta^2\partial t^2}-\frac{E_2}{R}\frac{\partial^2 w}{\partial\beta\partial t^2}\right].\tag{9}$$

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$$-(F_1\psi_1 - F_2\psi_2)\frac{\partial^6 w}{\partial\alpha^4\partial\beta^2} + \left(F_2\psi_1 - \frac{G_0E_2\psi_2}{E_1}\right)\frac{\partial^6 w}{\partial\alpha^2\partial\beta^4} - \frac{G_0E_2\psi_1}{E_1}\frac{\partial^6 w}{\partial\beta^6} =$$

$$= \varrho(1-\nu_1\nu_2)\left\{-\frac{\varrho^2(1-\nu_1\nu_2)^2}{E_1E_2}\frac{\partial^6 w}{\partial t^6} + \frac{\varrho(1-\nu_1\nu_2)}{E_1E_2}(F_1+E_1)\frac{\partial^6 w}{\partial\alpha^2\partial t^4} - \right.$$

$$-\left(\frac{F_1}{E_2} + \frac{\psi_2(F_1+E_1)}{E_1}\right)\frac{\partial^6 w}{\partial\alpha^4\partial t^2} + \frac{1}{E_1}[F_2 - (F_1+E_1)\psi_1 -$$

$$-(G_0+E_2)\psi_2]\frac{\partial^6 w}{\partial\alpha^2\partial\beta^2\partial t^2} + \frac{\varrho(1-\nu_1\nu_2)}{E_1E_2}[G_0+E_2(1+\psi_2)]\frac{\partial^6 w}{\partial\beta^2\partial t^4} - \frac{1}{E_1}[G_0 +$$

$$+(G_0+E_2)\psi_1]\frac{\partial^6 w}{\partial\beta^4\partial t^2} - \frac{h^2}{12}\left[\varrho(1-\nu_1\nu_2)\left(\frac{1}{E_2}\frac{\partial^8 w}{\partial\alpha^4\partial t^2} + \right.\right.$$

$$+\frac{2(2G_0+E_2\nu_1)}{E_1E_2}\frac{\partial^8 w}{\partial\alpha^2\partial\beta^2\partial t^4} + \frac{1}{E_1}\frac{\partial^8 w}{\partial\beta^4\partial t^4}\Big) - \frac{F_1+E_1}{E_2}\frac{\partial^8 w}{\partial\alpha^6\partial t^2} -$$

$$-\frac{1}{E_1E_2}(2F_1(2G_0+E_1\nu_2) + 5G_0E_1 + E_1E_2(1-\nu_1\nu_2))\frac{\partial^8 w}{\partial\alpha^4\partial\beta^2\partial t^2} -$$

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$$-\frac{1}{E_1E_2}((G_0+E_2)(4G_0+2E_2\nu_1)+E_2(F_1+E_1))\frac{\partial^8 w}{\partial\alpha^4\partial\beta^4\partial t^2}-$$

$$-\frac{G_0+E_2}{E_1}\frac{\partial^8 w}{\partial\beta^6\partial t^2}\Bigg]-\frac{\varrho(1-\nu_1\nu_2)}{E_1R^2}(1-\psi_1)\frac{\partial^4 w}{\partial t^4}+\frac{1}{E_1R^2}(F_1+E_1F_4-$$

$$-(F_1+E_1)\psi_1)\frac{\partial^4 w}{\partial\alpha^2\partial t^2}+\frac{1}{E_1R^2}[G_0-\psi_1(G_0+E_2)]\frac{\partial^4 w}{\partial\beta^2\partial t^2}\Bigg\}, \quad (10)$$

where

$$F_4=1-\nu_1\nu_2+\nu_2\psi_1;\quad F_5=2G_0\nu_2-E_2(1-\nu_1\nu_2)-G_0(\psi_1+\psi_2)\frac{E_2}{E_1}-E_2\nu_2\psi_1;$$

$$F_7=G_0(2\nu_1-\psi_1-\psi_2).$$

A solution to (8), (9) and (10) is sought in the form

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$$u = \sum_i A_i e^{\lambda_i \alpha/l} \cos m\varphi \sin \omega t; \quad v = \sum_i B_i e^{\lambda_i \alpha/l} \sin m\varphi \sin \omega t;$$

$$w = \sum_i C_i e^{\lambda_i \alpha/l} \cos m\varphi \sin \omega t, \tag{11}$$

where $\varphi = \frac{\beta}{R}$; m is an arbitrary integer equal to the number of waves in the circumferential direction; l is the length of the shell; A_i, B_i, and C_i are the roots of the characteristic equation obtained from the equation for the vibrations.

In view of the mathematical difficulties arising in subsequent manipulations, the author makes two simplifications, which lead to the following equation involving the vibrational frequencies:

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$$\frac{\Omega^2}{E_1} - \frac{\Omega^2}{E_1}\left\{1 - \psi_1 + \frac{m^2}{E_2}[G_0 + E_2(1 + \psi_1)] + km^4 E_2\right\} + \frac{\Omega m^2}{E_1 E_2}\{G_0[1 - \psi_1 +$$

$$+ (1 + \psi_1) m^2] - E_2\psi_1(1 - m^2) + km^4 E_2(G_0 + E_2)\} - \frac{km^6 G_0}{E_2} -$$

$$- \frac{m^4(m^2 - 1) G_0\psi_1}{E_1 E_2} - \frac{1}{E_2^2}\left\{F_1[F_4 - (1 - m^2)\psi_1] -\right.$$

$$\left. - \frac{E_2 m^2}{E_1}(F_7 - E_1 F_4)\right\}\left(\frac{l\pi nR}{l}\right)^4 -$$

$$- \frac{m^2}{E_1 E_2}\{(m^2 - 1)(F_7 - E_1 F_4)\psi_1 - (m^2 + 1) G_0\psi_2\}\left(\frac{l\pi nR}{l}\right)^2 = 0. \quad (25)$$

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ACCESSION NR: AP4023365

Finally, the author considers three cases of boundary values. Orig. art. has: 29 equations, 1 figure.

ASSOCIATION: none

SUBMITTED: 19Apr63 DATE ACQ: 15Apr64 ENCL: 01

SUB CODE: PH NO REF SOV: 007 OTHER: 000

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"APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5

IVANOV, O.N. [Ivanov, O.N.] (Lyubertsy)

Natural vibrations of orthotropic shells under the action of a hydrostatic pressure and longitudinal forces. Prykl. mekh. 10 no.2:149-157 '64 (MIRA 17:7)

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"APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5

IVANOV, O.N. [Lyubertsy)

Stressed state of an axisymmetrically heated orthotropic bottom weakened by a circular hole. Prikl. mekh. 1 no.10: 127-132 '65. (MIRA 18:12)

1. Submitted October 4, 1964.

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L 39286-65 EWT(d)/EWT(m)/EWP(w)/EPF(c)/EWA(d)/EWP(v)/EPR/EWP(j)/T/EWP(k)/
EWA(h) Pc-4/Pf-4/Pr-4/Ps-4/Peb WW/EM/GS/RM
ACCESSION NR: AT5000830 S/0000/64/000/004/0339/0354

AUTHOR: Ivanov, O. N. (Moscow)

TITLE: The design of laminated orthotropic cylindrical shells with connections which yield under shear

SOURCE: Nauchnoye soveshchaniye po teplovym napryazheniyam v elementakh konstruktsiy, 4th. Teplovyye napryazheniya v elementakh konstruktsiy (Thermal stresses in construction elements), doklady soveshchaniya, no. 4. Kiev, Naukova dumka, 1964,

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SOURCE: Nauchnoye soveshchaniye po teplovym napryazheniyam v [illegible] tsiy, 4th. Teplovyye napryazheniya v elementakh konstruktsiy (Thermal stresses in construction elements); doklady soveshchaniya, no. 4. Kiev, Naukova dumka, 1964, 339-354

TOPIC TAGS: satellite design, laminated shell, cylindrical shell, orthotropic cylindrical shell, shear stress, shell design 24

ABSTRACT: The paper considers the axiosymmetrical problem of the design of laminated orthotropic cylindrical shells under internal hydrostatic pressure and thermal [illegible] assumed to depend on the temperature. The orthotropic lay- [illegible] layers which are absolute r rigid radially. [illegible] of the moduli of rigidity of all connecting layers is less than the sum [illegible] of rigidity of all orthotropic layers. Equations are derived consider-

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The sum of the moduli of rigidity of all connecting layers is less than the sum of the moduli of rigidity of all orthotropic layers. Equations are derived consider-

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ing that the thickness of each filler layer is much lower than the thickness of any orthotropic layer. Equations are given for the equilibrium state deformations and the relationship of elasticity for each shell layer. The author then derives a common differential equation with constant coefficients for a multi-layer orthotropic cylindrical shell under internal hydrostatic pressure. With the elastic parameters considered as a function of the temperature, equations are given for a triple-layer orthotropic cylindrical shell under internal hydrostatic pressure and transformed when it is considered that the

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tropic cylindrical shell under internal hydrostatic pressure. [illegible] parameters considered as a function of the temperature, equations are given for a triple-layer orthotropic cylindrical shell under internal hydrostatic pressure and a temperature field. The equations are transformed when it is considered that the temperature along the axis is constant. The solutions of the final equations are given for three cases: all roots of the equation are positive; all roots are complex conjugate by pairs; and two roots are positive while two are complex conjugate. Orig. art. has: 2 figures and 29 formulas.

ASSOCITION: None

SUBMITTED: 02Jun64 ENCL: 00 SUB CODE: AS

NO REF SOV: 009 OTHER: 001

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APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5"

"APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5

IVANOV, O.N., aspirant

Designing highly perforated circular plates and tube plates having U-form tubes. Trudy MIKHM 14:105-124 '57. (MIRA 11:9)
(Elastic plates and shells)

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"APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5

IVANOV, O.N., Cand Tech Sci -- (diss) "Study of round perforated plated and tubular ~~grates~~ grids of heat exchangers." Mos, 1958, 23 pp with ~~sketches~~ drawings (Min of Higher Education USSR. Mos Inst of Chemical Machine Building) 150 copies (KL, 50-58, 124)

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"APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5

IVANOV, O.N.

Designing tube plates for heat exchangers with floating heads.
Izv. vys. ucheb. zav.; mashinostr. no.3/4:24-34 '58. (MIRA 12:5)

1.Moskovskiy institut khimicheskogo mashinostroyeniya.
(Heat exchangers)

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"APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5

IVANOV, O.N.

Designing tubular plates of heat exchangers with U-type pipes. Nauch.dokl.vys.shkoly; mash.i prib. no.4:59-64 '58. (MIRA 12:5)

1. Stat'ya predstavlena kafedroy "Raschety i konstruirovaniye mashin khimicheskoy promyshlennosti" Moskovskogo instituta khimicheskogo mashinostroyeniya.
(Heat exchangers)

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"APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5

IVANOV, O.N.

Two methods for designing tube plates with U-shaped tubes for heat exchangers. Nauch. dokl. vys. shkoly; mash. i prib. no.2:95-103 '59. (MIRA 12:12)

(Heat exchangers)

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SOV/184-59-4-11/18

~~5(1)~~ 5.1230

AUTHOR: Ivanov, O.N., Engineer

TITLE: Calculation of Tubular Grates of Heat-Exchangers With U-Shaped Tubes

PERIODICAL: Khimicheskoye mashinostroyeniye, 1959, Nr 4, pp 32 - 37 (USSR)

ABSTRACT: When the grate is bent, reactive moments occur in tubes in the places of fixing. Depending on the distribution of reactive moments, two calculation schemes and calculating methods are possible. At numerous and closely placed tubes, the grate can be considered as a plate on an elastic base of moments. According to the other calculation scheme, the tubular grate is considered as a perforated plate, loaded with a uniformly distributed pressure over its surface, and with a system of concentrated reactive moments applied at the center of each tube. The main advantage of the secondmethod, called energy method [Ref 2] is, that it makes possible to determine directly the thickness of the tubular plate, whereas by the first calculation scheme a check calculation only is possible. For the first time the calculation of a round plate on an elastic base of moments was carried out in 1956 [Ref 5]. A somewhat different solution of this problem is described in the article; it was independently developed by the author in 1957. The auther investigates the application of

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Calculation of Tubular Grates of Heat-Exchangers With U-Shaped Tubes

these two methods to two special cases: to a grate fastened at the edge, and at a grate freely supported at the edge. In conclusion the author states that by taking into account the rigidity of tubes, the thickness of the tubular grate can be considerably reduced (as the author shows, by about 30%), and since in practice the grates are usually elastically fixed, their thickness can be reduced even more.
There are: 4 diagrams, 1 table and 5 references, 4 of which are Soviet and 1 Polish.

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"APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5

SOV/184-59-5-10/17

AUTHOR: Ivanov, O.N., Engineer

TITLE: Thermal Stresses in Tubular Lattice of Heat Exchangers With U-Shaped Tubes

PERIODICAL: Khimicheskoye mashinostroyeniye, 1959, Nr. 5, pp. 30-32 (USSR)

ABSTRACT: In distinction from a previously published calculation of elastically fixed tubular lattices of heat exchangers with U-shaped tubes (Ref. 1), the author discusses in this paper the thermal deformations of the lattice, casing and head as well as the shift of the ends of the casing caused by a turn of flanges and of the tubular lattice. Corresponding formulas are derived which are based on previous publications by the author (Ref. 2) and by Professor Z.B. Kantorovich (Ref. 3). A numerical example is given. They show that an elastic fixing of the lattice results in a considerable reduction of stresses caused by the temperature drop. Consequently, it is possible to reduce the thickness of the lattice. There are 3 diagrams and 4 Soviet references.

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"APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5

IVANOV, O.N., kand. tekhn. nauk

Temperature stresses in plate tubes of heat exchangers of rigid construction. Khim. mash. no.6:34-38 N-D '59. (MIRA 13:3)

(Heat exchangers) (Strains and stresses)

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"APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5

IVANOV, O.N., kand.tekhn.nauk; IVANOV, I.N., inzh.

Rigidity of round, highly perforated plates in which the openings are distributed over the tops of squares. Khim. mash. no.1:33-35 Ja '60. (MIRA 13:5)
(Strength of materials)

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"APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5

20164

S/184/60/000/006/009/012
A104/A130

26.2181

AUTHOR: Ivanov, O. N., Candidate of Technical Sciences

TITLE: The calculation of tube screens of heat exchangers with floating heads, taking into account the thermal stress

PERIODICAL: Khimicheskoye mashinostroyeniye, no. 6, 1960, 37-38

TEXT: This article deals with a particular problem of the general solution published at an earlier date (Ivanov, O. N. - Ref. 1: Khimicheskoye mashinostroyeniye, no. 6, 1959), i. e. the calculation of static, loaded screens, constructed analogous to the already described mobile screen and operating in identical conditions. Reference 1 showed that five Equations of system (2) led to Equation (4) $A_1C_1 - A_2C_2 = A_3$. The Equation (6) of the system (2) applied to heat exchanger with a floating head is substituted by

$$[Q(x)]\,x_a = \frac{D_1}{\beta^3}(-C_1 \mathrm{bei}'x_a - C_2 \mathrm{ber}'x_a) = \frac{(p_{MT}-p_T)R}{2},$$

on which all further calculations are based. The author uses the same symbols as in Reference 1 and refers to Figures 1 and 3 of his earlier paper. Points of extreme axial load in tubes are determined according to $\frac{dp_o(x)}{dx} = 0$,

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20164

S/184/60/000/006/009/012
A104/A130

The calculation of tube screens of...

or according to the Graph on Page 38 based on $\frac{ber'x}{bei'x} = F$. The Graph on Page 38 is also applicable to tubes of rigid heat exchangers. The example shows the calculating process in respect of the heat exchanger discussed in Reference 1 to which a mobile screen has been added. This example shows that stresses in the static screen can be abruptly reduced by addition of a mobile screen, and the thickness of screens considerably decreased. There is 1 figure and 2 references: 1 English and 1 Soviet. The English-language publication text reads as follows: "Trans. Amer. Inst. of Elec. Eng.", 1939, 787-791.

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"APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5

S/184/60/000/006/009/012
A104/A130

The calculation of tube screens of...

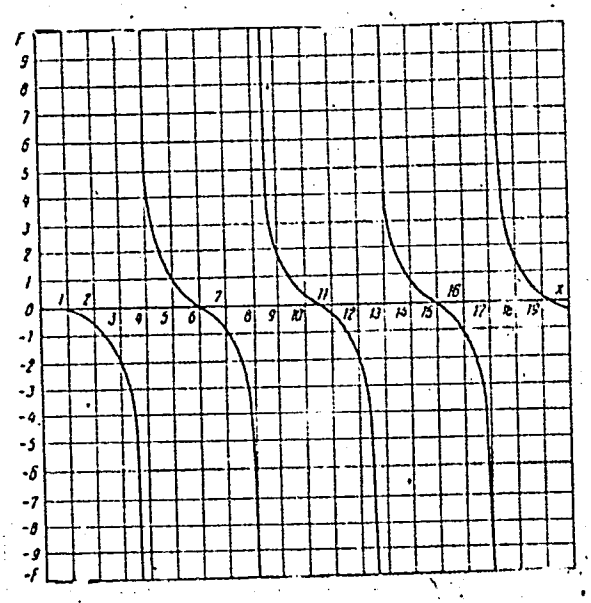

Figure: (p. 38)

Graphic representation of points of extreme axial load in tubes

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"APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5

S/145/60/000/006/012/015/XX
D221/D304

26.2181

AUTHOR: Ivanov, O.N., Candidate of Technical Sciences

TITLE: Design of tubular grids elastically mounted in heat exchangers with rigid design

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Mashinostroyeniye, no. 6, 1960, 98 - 104

TEXT: The tubular grid is considered as a circular plate with a generalized elastic base; the rigidity of the external ring, the flangers etc., and edge displacements are taken into account. The author uses the results of Yu.V. Yakovlev (Ref. 1: K raschetu teploobmennykh apparatov, Trudy Khar'kovskogo aviatsionnogo instituta, no. 15, 1954) concerning the deflections, angle of twist, bending moments and shear forces. The forces and moments in the butt section between the grid and the frame, head and flanges of the heat exchanger are analyzed. There are six unknown parameters; a system of six equations for them is deduced and solved. The values of functions used here are tabulated in Ref. 1 (Op.cit.). Expressions for maximum stresses in the

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S/145/60/000/006/012/015/XX
Design of tubular grids elastically ... D221/D304

tubular grid are deduced. There are 2 figures and 6 references: 5 Soviet-bloc and 1 non-Soviet-bloc. The reference to the English-language publication reads as follows: Yi Yuan Yu, J. Appl. Mech., v. 23, no. 3, 1956.

ASSOCIATION: Moskovskiy institut khimicheskogo mashinostroyeniya (Moscow Institute of Chemical Machine Construction)

SUBMITTED: February 28, 1959

Card 2/2

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"APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5

S/145/60/000/010/013/014
D234/D304

AUTHOR: Ivanov, O.N., Candidate of Technical Sciences

TITLE: Design of tubular grids of heat exchangers of rigid type

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Mashinostroyeniye, no. 10, 1960, 155 - 161

TEXT: The author considers the general case when there are pressures in the tubular and inter-tubular spaces. It is assumed that temperature varies linearly across the thickness of the grid. The grid is treated as a circular plate on a generalized elastic support, elastically fixed along its edge. Expressions for the deformations, bending moments and shearing force are quoted for a previous publication. There are six unknown quantities for determining which six equations of compatibility of deformations are formulated. Several constants are found and it is stated that with the aid of these the unknown quantities are determined. The author refers to Yu.V. Yakovlev (Ref. 5: K raschetu teploobmennykh preparatov, Trudy

Card 1/2

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"APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5

Khar'kovskogo aviatsionnogo instituta, v. 15, 1954) for tables of special functions used in the text. Expressions for maximum stresses are quoted and a numerical example is given. There are 1 figure and 7 references: 4 Soviet-bloc and 3 non-Soviet-bloc. The references to the English-language publications read as follows: K.A. Gardner, Heat exchanger tube sheet design - 2, fixed tub sheets, II applied mechanics, v. 19, no. 2, 1952; K.A.G. Miller, The design of tube plates in heat exchangers. Proc. of inst. mech. engrs. VIB, no. 6, 1952; Yi-Yuan-Yu, Rational analysis of heat exchanger tube sheet stresses. II appl. mech., v. 23, no. 3, 1956.

ASSOCIATION: Moskovskiy institut khimicheskogo mashinostroyeniya (Moscow Institute of Chemical Machine Construction)

SUBMITTED: July 14, 1959

APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5"

"APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5

IVANOV, O.N., kand.tekhn,nauk

Design of tube plates in heat exchangers equipped with lens-type compensators. Khim.mash. no.2:33-34 Mr-Ap '61. (MIRA 14:3)
(Heat exchangers)

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"APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5

IVANOV, O.N., kand.tekhn.nauk

Circular plate on a generalized flexible base which is spread over the area of a circle concentric to the circumference of the plate contour. Izv.vys.ucheb.zav; mashinostr. no.4:3-7 '61. (MIRA 14:6)

1. Moskovskiy institut khimicheskogo mashinostroyeniya.
(Elastic plates and shells)

APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5"

"APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5

S/125/63/000/001/011/012
A006/A106

AUTHOR: Ivanov, O. N.

TITLE: On nickel welds intended for operation in alkaline media

PERIODICAL: Avtomaticheskayasvarka, no. 1, 1963, 91 - 92

TEXT: To prevent corrosion failure of nickel crucibles it is recommended that the composition of the weld should approach that of the base metal. For this purpose experiments were made on argon arc welding with non-consumable electrode and a filler wire having the same composition as the metal to be welded, i.e. containing manganese; other experiments were made without filler wire. The welding process was conducted on d-c of direct polarity; the intensity was 110 - 130 amps. Tungsten electrode 3 mm in diameter, was used. Satisfactory shielding of the welding pool was assured at 6 - 8 mm diameter of the tip outlet-aperture and at 10 - 15 liter/hour argon consumption. The welded joints produced without manganese-containing filler wire show high corrosion resistance in alkaline media. There were no traces of corrosion detected after the part was held in sodium peroxide at 600°C. There are 2 figures.

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"APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5

SMIRNOV, G.M. [Smyrnov, H.M.], kand.tekhn.nauk; IVANOV, O.O., kand.tekhn.nauk; SAVCHENKO, O.M.

Experimental testing of the electric drive of the automatic AT-100-1 loom. Leh.prom. no.3:75-76 Je - Ag '62. (MIRA 16:2)

1. Zhdanovskiy matallurgicheskiy institut.
(Looms—Electric driving)

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"APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5

SIL'NYA, V.G.; IVANOV, O.P.; GONTAR', N.V.

Tests of the operating capacity of bucket loaders in inclined workings. Trudy NPI 130:65-77 '61. (MIRA 15:4)
(Coal handling machinery—Testing)

APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5"

"APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5

SIL'NYA, V.G.; GAGIN, O.D.; IVANOV, O.P.; KHAZANOVICH, G.Sh.

Methods of determining bucket-loading machine parameters.
Trudy NPI 158:69-78 '64.

Geometry of the operating part of bucket-loading machines.
Ibid.:79-89 (MIRA 18:11)

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15

Influence of Low Temperatures on Quenched Steels. *EI* 173 and *EI* 184. N. Minkevich, O. Ivanov and Ya. Dovgalevskiy. (Stal, 1938, No. 4, pp. 63–65). (In Russian). The steels examined had the following compositions: *EI* 173—carbon 1·10%, silicon 0·25%, manganese 0·4%, tungsten 2·38%, vanadium 0·81%, chromium 9·20%; and *EI* 184—carbon 0·08%, silicon 0·62%, manganese 0·4%, tungsten 4·08%, vanadium 1·50%, chromium 8·68%. The influence of low temperatures was investigated on quenched test-pieces by measuring the change in hardness, magnetic saturation and specific electrical resistance. It was found that in these steels quenched from 1200° C. in oil, the residual austenite (50–60%) commenced to change into martensite if the temperature of the specimen was reduced below −20° C. This transformation ceased on cooling to about −80° to −100° C. without the whole of the austenite having undergone the transformation. Further cooling down to −183° C. (liquid oxygen temperature) caused no further structural changes. The steels after quenching and supercooling to −183° C. underwent ageing on heat-treating at 100° C., the ageing being accompanied by a reduction in electrical resistance and an increase in hardness of 1·5–2 Rockwell units. In a series of quenched specimens, some of which had and some of which had not been cooled to −183° C., tempering for 2 hr. at temperatures between 200° and 650° C. caused, in general, a decrease in the difference, at room temperature, in the magnetic saturation and hardness values of the cooled and untreated specimens; this difference practically disappeared after tempering at 550° C.

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IVANOV, O.S.

CA

9

The standardization of high-speed steels. O. S. Ivanov. *Vestnik Mashinostroyeniya* 13, No. 10, 6-10(1933); *Chem. Zentr.* 1934, I, 2967-8. A no. of high speed steels either free from W or poor in W which have been suggested by various Russian (Kazeev, Godtzov) and German investigators (Hondremont, Schroer, Rapatz) are discussed with particular attention to compit. and cutting properties. Of these, the following 4 are recommended for listing in Russian standard reports: (1) C 1-1.2, Mn up to 0.4, Si up to 0.6, Cr 8.5-10, V 2-2.5, Fe 0.3-0.5%. This steel is suitable for milling cutters. (2) C 0.9-1.1, Mn up to 0.4, Si up to 0.6, Cr 5-6, Mo 3-4 and V 2-2.5%. This is suitable for the manuf. of heavy duty cutters and drills. (3) C 0.8-1, Mn up to 0.4, Si up to 0.6, Cr 7-8.5, W 3-4 and V 1-1.5%. This is also satisfactory for heavy duty cutters and drills. (4) C 0.9-1.1, Mn up to 0.4, Si up to 0.6, Cr 5-6, W 1-1, Mo 3-4 and V 2-2.5%. The high speed steel meets the most exacting requirements.

M. G. Moore

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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"APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5

IVANOV, O.S.

Moscow Steel Inst. im. Stalin

Low-Alloy High-Speed Steels. O. S. Ivanov. (Vestnik Metallopromyshlennosti, 1939, No. 9, pp. 23–33). (In Russian). The author reviews, mainly in tabular and graphical form, the chemical compositions, heat treatments and cutting properties of fifteen low-alloy high-speed tool steels which have been suggested for production purposes and discusses their relative merits. They all contain chromium which in some cases is as high as 10–13%. The presence of this element in this or lower proportions, with additions of molybdenum and vanadium and, in a few cases, silicon, eliminates the need for tungsten additions. The high chromium content tends to cause a large amount of austenite to be retained after quenching. This has a special bearing on the correct quenching temperatures, which frequently approach closely to the incipient melting temperatures, as well as on the application of repeated tempering. As a result of the critical examination of the available data, the following compositions are recommended for use as high-speed steels :

Russian classification :	*EI172.*	*EI181.*	*EI260.*	1303.
Carbon %.	0·9–1·0	0·9–1·02	0·9–1·02	0·9–1·02
Chromium %.	9·0–10·0	7·5–8·3	4·5–5·3	7·5–8·3
Vanadium %.	2·0–2·5	1·0–1·5	2·0–2·5	1·0–1·5
Tungsten %.	...	4·0–5·0	...	...
Molybdenum %.	...	...	3·5–4·0	3·5–4·0
Rockwell hardness	C62	C63	C64	C63

It is claimed that steel *EI260* is suitable for all purposes for which high-speed steel is used.

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IVANOV, O. S., Engineer

Moscow Steel Institute imini Stalin.
"New Variants of Compositions of Low
Alloyed High Speed Cutting Steels,"
Stanki i Instrument, 10, Nos. 10-
11, 1939.

Report U-1505, 4 Oct 1951

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"APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5

IVANOV, D.S.

18

New Low-Alloy High-Speed Steels. N. A. Minkevich and D. S. Ivanov. (Metallurg, 1940, No. 1, pp. 31-40). (In Russian). In the introduction the authors discuss suitable alloying elements from the point of view of their carbide stability and solubility, and refer to existing Russian low-alloy high-speed-steel compositions of which the most generally used contain 7-13% of chromium with small amounts of vanadium and tungsten. The properties of these steels are inferior to those of ordinary high-speed steel. In their experimental work the authors added titanium and molybdenum to chromium steel instead of vanadium and tungsten. Steels of the following compositions were studied:

	(1)	(2)	(3)	(4)	(5)	(6)
Carbon.	0·78	0·80	1·02	1·00	1·02	1·08
Chromium.	7·72	4·49	0·76	0·77	10·02	0·72
Molybdenum.	3·67	3·76	2·02	3·70	3·86	
Vanadium.	1·21	2·21	1·28	0·30	1·25	0·22
Silicon.	0·45	0·38	0·42	0·36	0·38	0·42
Manganese.	0·34	0·13	0·42	0·22	0·32	0·28
Titanium.	...	...	...	1·00	...	0·92
Tungsten.	...	...	...	...	...	4·21

They were melted in a high-frequency furnace and forged at 1150-1050° C. Steel (2) had particularly good forging properties. The

Evaluation B-58834

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microstructure of all the annealed steels consisted of sorbite with fine secondary and coarser primary carbides. With all the steels the maximum rate of decomposition of the austenite occurred at 750-800° C. on cooling slowly. In quenched steel a higher chromium content increased the amount of residual austenite, while a reduction of the molybdenum content lowered it. The lowest residual austenite was obtained in steel (2) and its tempering was, therefore, simpler. In none of the steels could complete decomposition of the austenite be achieved, even by plunging into liquid air. The microstructure of the quenched steels and their tempering at different temperatures were studied. A hardness of Rockwell C-65 was obtained by tempering steel (1) for periods of 1 hr. at 560°, 570°, 580° C. after quenching from 1160–1180° C. The maximum resistance to high-temperature tempering was shown by the martensite in steel (2), the next greatest resistance by steel (5) and then came steel (3). Cutting tests were carried out in both the laboratory and the works. The best results, which were superior to those of ordinary high-speed steel, were obtained with steel (2), later designated as *E*7260. Up to a certain cutting speed, steel (5) also gave results superior to those of high-speed steel. Steel *E*7260 should be forged at 1150-950° C., and for cross-sections greater than 40 mm., this should be followed by annealing at 760-780° C. for 2 hr. to prevent cracking. Quenching should be from 1230° ± 10° C. in oil, or for large complicated parts in a nitrate bath at 500-550° C. The rate of heating to quenching temperature and the holding time should be the same as for tungsten tool steel. The hardness after quenching was Rockwell C-60-C-63 and the residual austenite about 30%. Tempering was carried out at 560 ± 10° C. for 1 hr. and a hardness of Rockwell C-64 was usually obtained. In conclusion, the efficiency of steel *E*7260 is compared with that of steels of various other compositions.

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IVANOV, O.S.

ON THE CAUSE OF THE FORMATION OF BE THOLLIDES IN METALLIC SYST MS. O.S. IVANOV (IZVEST. AKAD. NAUK S.S.S.R., 1944 (Khim) (4) 192-199.--(In Russian) The appearance of berthollides and da ltonides in metallic systems can be predicted from the apporpriate free-energu curves. I. calculates the va lue of free energy as a function of composition for alloys of antimony w ith iron, nickel and ccba lt. Althoughthe da ta for the calculations of the free energy were not of a high order of acurac y, the resulting curves show t at a berthollide phase can be expedted in the iron-antimony system and a daltonide phase in the nickel- antimony system. The nature of these phases depends both on their energy levels and on the energy levels of the nei-hbouring phases. V,K.

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IVANOV, O.S.

BC

No. 5

PROCESSES AND PROPERTIES INDEX

Composition of the binary eutectic separating from a ternary system at a given temperature. O. S. Ivanov (*Compt. rend. Acad. Sci. U.R.S.S.*, 1945, 48/349—352).—The composition of the binary eutectic separating from a solution of composition C at a given temp. T is not always given by the intersection of the tangent to the curve which represents the composition of the liquid with the line joining the composition of the two solid phases in equilibrium with the liquid, as has been previously accepted. With a drop (dT) in the temp. of the system, C is displaced as a result of two simultaneous processes: the change of the solid phases, and the separation of the binary eutectic. The second process tends to move C to a point C', and the composition of the binary eutectic separating at T°, is represented geometrically by the intersection of the line through C and C' with the line joining the compositions of the two solid phases in equilibrium with the liquid.

H. R. C.

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IVANOV, O.S.

4

Electrochemical alloying. E. M. Savitskii and O. S. Ivanov. **U.S.S.R. 69,302,** Sept. 30, 1947. One of the metals is electrodeposited in a rectangular container into which the appropriate soln. is fed at a const. rate. The cathode is made to adhere tightly to the walls of the container. The second metal is deposited in the same manner except that the container is turned 180°. The deposition of the 2 metals in the outlined manner can be repeated several times. For a 3-component alloy, the same method is used except that the container is triangular and is turned each time 120°. A 4-component alloy is made by depositing the fourth component on the 3 already deposited. This method of alloying is suitable for the study of the properties of alloys in small vols. M. Hosch

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"APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5

MA IVANOV, O.S.

Properties of Alloys

Constitution of Alloys Between Iron and the Compound CoAl.—I. O. S. Ivanov and M. A. Skryabina (*Izvest. Akad. Nauk S.S.S.R.*, 1949, [Khim.], (3), 243-253; *C. Abs.*, 1951, 45, 520).—[In Russian]. The investigation of this section of the Fe-Co-Al system was suggested by theoretical indications that the previously reported complete solubility at room temp. was incorrect. Since the CoAl compound has twice the molar heat of formation of FeAl, it was concluded that a two-phase region should exist in preference to a solid soln. in this section, as in the Fe-NiAl section. A 50-g. melt of each of 43 alloys was made in an induction furnace in an Al_2O_3 crucible under a NaF and Ca_2F flux with Armco Fe, high-purity Co, and master alloys of CoAl and FeAl, the latter contg. 0·20% Si and 0·015% C. Cast specimens 3 × 60 mm. were homogenized for 72 hr. at 1000° C., cooled at 10° C./hr. to 500° C., and then furnace-cooled. Their structures corresponded to equilibrium at 500°-600° C. The variation of phys. properties with compn. indicated the presence of a two-phase region. Saturation magnetization fell continuously from the max. value at 100% Fe. The coercive force reached a max. of 90 Oe. at 40:60 Fe-CoAl. Sp. elect. resistance reached a max. value of 2·3 ohm-mm.²/m. at 20:36:44 Fe-Co-Al. Debye X-ray studies confirmed the presence of a two-phase region from ~25 to 70% Fe. A given line of the 2 phases could not be separated, but superlattice lines of the CoAl phase could be observed. Photomicrographs (× 500) gave weak evidence of the presence of two phases, and thermodynamic calculations also gave further support for this view.

Evaluation B-80363

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"APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619110017-5

IVANOV, O.S.

CA

9

Investigation of the structure of Fe-CoAl-NiAl alloys. O. S. Ivanov and M. A. Skryabina. *Izvest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 1949, 337–42.—From the results of measurements of magnetic properties it was concluded that the section Fe-CoAl-NiAl of the quaternary system consists of β phase (α-Fe solid soln.) in the Fe corner, β_1 phase along the CoAl-NiAl edge, and an intervening two phase region, β and β_1. Three series of alloys were used in the work: II having the at. ratio Co/Ni = 3, III having Co/Ni = 1, and IV having Co/Ni = 1/3. For each series the coercive force, resistivity, and satn. magnetization were detd. as a function of at. % Fe. The coercive force rose from less than 1 oersted in the single phase regions to a max. of 188, 320, and 200 in the II, III, and IV series in the two-phase region. These are not the highest obtainable values since all alloys were given a homogenizing anneal at 1000–1100° for 75 hrs. with cooling to 500–300° at a rate of 10–15° per hr. Room temp. ferromagnetism disappears along the CoAl-NiAl edge only at Fe contents less than about 5%. A. G. Guy

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PA 63/49T101

USSR/Metals Jul/Aug 49
Alloys
Ferromagnetism

"Research on the Structures of the Alloys Fe - Co - CoAl - NiAl," O. S. Ivanov, M. A. Skryabina, Inst of Gen and Inorg Chem imeni N. S. Kurnakov, Acad Sci USSR, 5¼ pp

"Iz Ak Nauk SSSR, Otdel Khim Nauk" No 4

Propagation of the two-phase field $B + B_2$ in a section of Fe - CoAl - NiAl was investigated for its practical value in working with high-coercive alloys. Difference in effect of aluminum on the ferromagnetism of a solid solution with and without [redacted]

63/49T101

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cobalt and nickel was demonstrated, and explained by the presence of "molecules" of CoAl and NiAl inside the Tertiary and Quaternary solid solutions. Submitted 13 Jul 48.

[redacted]

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IVANOV, O. S.

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IVANOV, O.S.

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No. 4

The spontaneous formation of nuclei of a new phase. O. S. Ivanov (Acad. Sci., U.S.S.R.). *Doklady Akad. Nauk S.S.S.R.* 68, 729–32(1949); cf. Sirota, *C.A.* 41, 3312a.—Theoretical. The equation of Sirota is corrected by introducing terms to take care of (1) the increase in thermodynamic potential necessary for the activated particles to compensate the surface energy at the nucleus edge, (2) the proper distribution for forming the nucleus, and (3) the growth of the nucleus as a flat surface. Corrections are also added for the two-dimensional and one-dimensional growth at the limits of the 3- and 2-dimensional nuclei, resp. M. J. Sienko

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USSR.

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Basic features of phase equilibrium in iron-nickel-aluminum alloys of high coercivity. O. S. Ivanov. *Doklady Akad. Nauk S.S.S.R.* 78, 1157-60(1951).—Temp.-compn. sections of the ternary diagram were obtained for the Fe-Ni-Al section and for the 50 at. % Fe section from a study of phys. properties, microstructure, and cryst. lattice of annealed and of quenched alloys and from a study of expansion and elec. resistance during heating and cooling. In the Fe-NiAl section the $\beta + \beta_2$ region extended almost to NiAl. The highest values of coercive force, H_c, were observed in annealed $\beta + \beta_2$ alloys cooled at 10°/hr. from 1100 to 500° and contg. less than 35 at. % Fe. H_c increased continuously with decreasing percentage of Fe and reached a max. of 387 oersteds at 15 at. %. The 2-phase condition was confirmed by noting anomalous increases in elec. resistance and vol. during heating above 500°. Also, after quenching from 875°, alloys contg. less than 37.5 at. % Fe had the low values, $H_c < 0.2$, characteristic of 1-phase alloys. β_2 was a solid soln. based on NiAl, and x-ray data on alloys from NiAl to 65 at. % Fe quenched from 1100° showed superstructure lines of this phase. The upper bounding curve of the $\beta + \beta_2$ region had a max. of almost 1000° at 70 at. % Fe. In annealed alloys β_2 pptd. as spheroids and β pptd. as platelets. The binding energy of the atoms in β_2 perhaps was less than in β. The high H_c values of the annealed alloys were explained as a pptn. of a small amt. of β inside the paramagnetic β_2. With the reverse relation H_c would have been an order of magnitude lower. The microstructure of the 70 at. % Fe alloy showed that the lamellar structure of the $\beta + \beta_2$ mixt. had a definite orientation inside each grain of the initial solid soln. Therefore, the coeff. of diffusion was anisotropic and was a max. along the cube

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edges in a body-centered cubic lattice. The section at 50 at. % Fe showed the α solid soln. (austenite) extending to 10 at. % Al at low temps. and to about 13% near the melting range. Near 900° the mixt. of α with β and β_2 extended almost to 25%, the region of alloys with high H_c. With decreasing temp. the α decompd. into a eutectic mixt. of $\beta + \beta_2$ so that below 500° all alloys from 21 to 24% had only these 2 phases. These data contradict the view that pptn. of α occurs at about 850° in alloys with high H_c.

A. G. Guy

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IVANOV, O. S.

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*Influence of Composition on the High-Coercivity Condition of Iron-Nickel-Aluminium Alloys. O. S. Ivanov, Yu. M. Kazimirov, and O. A. Norikova (*Doklady Akad. Nauk S.S.S.R.*, 1951, 81, (2), 231-234).—[In Russian]. If high-coercivity Fe-Ni-Al alloys are continuously cooled from 1000°-1200° C. at some optimum rate (single heat-treatment), then the value of the coercive force (H_c) obtained is greater than the value obtained by rapid quenching followed by annealing (double heat-treatment). To investigate this phenomenon, I., K., and N. prepared specimens in the form of rods (3 mm. in dia., 50-100 mm. long) of two series of alloys : (i) contg. 90-20 at.-% Fe in the Fe-NiAl section, and (ii) contg. Fe 50, Ni 32-14, and Al 18-36 at.-%. For each alloy, the specimens were homogenized at 1100° C.; half the specimens were then quenched in water from 1100° C. and given stepped annealing treatments beginning at 400° C. and quenched in water or cooled in air; the other half were cooled from 1100° C. at various rates. For all treatments at 600°-1100° C. the specimens were sealed in evacuated quartz ampoules. After each treatment H_c and the magnetic saturation $4\pi I_s$ were measured; the results are shown graphically. For the Fe-NiAl series of alloys, H_c increased sharply as the Fe content fell below 50 at.-%, rising to a max. of 540 Oe. at ~45 at.-% Fe for single heat-treatment, and 725 Oe. at ~30 at.-% Fe for double heat-treatment. Various reasons are given why this difference cannot be due to incomplete decomposition of the initial supersaturated soln. $4\pi I_s$ varies linearly with compn. (and has the same magnitude for optimum single and double treatments for any given alloy), falling to zero at 6 at.-% Fe (the β_1 phase). For the second series of alloys, single heat-treatment gave greater values of H_c than did double treatment, and the max. values occurred at ~24-26 at.-% Al. The curves of $4\pi I_s$ for single-treatment alloys contg. 18-26 at.-% Al were somewhat lower than those for the double-treatment materials. These observations are explained in terms of the theories of Kittel' (*Uspekhi Fiz. Nauk*, 1950, 41, 452) and Kondorsky (*Doklady Akad. Nauk S.S.S.R.*, 1950, 70, 215; 1950, 14, 213; *M.A.*, 18, 500; 20, 683). H_c falls below the max. value if the d of packing of the precipitated particles of β phase increases.—G. V. B. T.

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IVANOV, O.S.; NOVIKOVA, O.A.; RYABOVA, G.G.

Study of the system iron -- cobalt -- nickel -- aluminum, based on the section with 50 % iron. Izv.Sekt.fiz.-khim.anal. 22:129-139 '53. (MLRA 7:5)

1. Institut obshchey i neorganicheskoy khimii im. N.S.Kurnakova Akademii nauk SSSR. (Iron-cobalt-nickel-aluminum alloys)

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IVANOV, O.S.

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The use of N. S. Kurnakov's pyrometer for differential thermal analysis and calorimetric studies of microsamples. O. S. Ivanov. *Izvest. Sektora Fiz.-Khim. Anal., Inst. Obshch. i Neorg. Khim., Akad. Nauk S.S.S.R.* 25, 21-40 (1954).--The use of Kurnakov's pyrometer in the thermal analysis of microsamples (order of several mg.) is described. Differential thermal curves are given for Sn, Al, and an Al-Cu-Ge alloy. The app. which is described can be used to det. the heats of formation of alloys by measuring the heat effects at the m.p. of the components. J. Roytar Leach

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IVANOV, O. Dr. Chem. Sci.

"'Hot' Laboratory," Izvestiya, No.23, page 2, 2 Oct 55

Summary translation D 411119

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IVANOV, O.S.

Resistance of metals for large current densities. V. V. Bondarenko, I. P. Kvartskhava, A. A. Plyutto, and A. A. [illegible] Zhur. Eksptl. i Teoret. Fiz. 28, 19[illegible] (1955).—The relation between the resistance of Au, Cu, Ag, Pt, and W and the current was studied at potentials up to 7 kv. Ohm's law holds for these metals up to current [illegible] of 10[illegible] amps./sq. cm. P. H. Rathmann

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IVANOV, O., doktor khimicheskikh nauk.

"Hot laboratory". Tekh.mo.24 no.1/2:47-49 Ja-F '56. (MIRA 9:7)
(Nuclear reactors) (Shielding (Radiation))

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IVANOV, O.S

137-58-1-1985

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 1, p 267 (USSR)

AUTHOR: Ivanov, O. S.

TITLE: An Apparatus for Combined Study of the Physical Properties of Alloys (Ustanovka dlya kompleksnogo izucheniya fizicheskikh svoystv splavov)

PERIODICAL: Tr. In-ta metallurgii. AN SSSR, 1957, Nr 1, pp 170-176

ABSTRACT: A detailed description is presented of a vacuum apparatus for simultaneous measurement of B_r, H_c, and ρ on a single specimen (S). A tube furnace (inside diameter 19 mm, length of heater 200 mm) for heating the S is housed within a magnetized solenoid (MS) with 5600 turns of paper-insulated Cu wire, the square section of which is 3.28x3.28 mm^2. The MS is wound on a brass tube (58 mm in diameter, 624 mm high) and yields a magnetic field of 25 Oe at 25 amp. The furnace is insulated from the MS by an asbestos layer and a water cooler. The vacuum system is closed off by a glass hood mounted on a plate of Plexiglas 30 mm thick and a rubber gasket and by a quartz tube, the sealed end of which is inserted into the furnace and the bottom end of which is ground into the plate. On a tubular holder,

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137-58-1-1985

An Apparatus for Combined Study of the Physical Properties of Alloys

within which the S is placed, there are two windings of 100 turns each of a pre-oxidized nichrome wire, 0.1 mm in diameter, one at the level of the middle of the S, and the other 65 mm lower. When the windings are connected in countercurrent, the emf induced therein when the current is turned on in the MS cancels itself out in the absence of an S. Compensation of the windings is destroyed when a ferromagnetic S is introduced into one of them. The deflection of a ballistic galvanometer when the current in the MS is switched to reverse is proportional to the magnetization of the S. Change in the length in the S is transmitted by a 3-mm diameter quartz rod to a dial-type indicator. Recording of slowly changing values (temperature, resistivity, elongation of the S) may be performed automatically on a 3-6 station potentiometer or N. S. Kurnakov's pyrometer. The magnetic properties may be recorded by a multiple-loop oscilloscope if the MS is fed by alternating current.

Yu. L.

1. Alloys--Physical properties 2. Instrumentation--Applications
3. Instrumentation--Characteristics

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137-1957-12-25382

Translation from: Referativnyy zhurnal, Metallurgiya, 1957, Nr 12, p 346 (USSR)

AUTHOR: Ivanov, O. S.

TITLE: The Microdilatometer (Mikrodilatometr)

PERIODICAL: Tr. In-ta metallurgii AN SSSR, 1957, Nr 1, pp 177-184

ABSTRACT: Description of a super-sensitive, vacuum-type quartz dilatometer (D) with a maximum magnification of 20,000 times. The expansion and contraction of the specimen (S) exposed to heat is transmitted through a quartz rod to a sliding quartz carriage which moves on steel wire rollers; one of the rollers carries a small mirror which, as the roller rotates, reflects a beam of light onto a scale or onto the photorecorder drum of N. S. Kurnakov's pyrometer. The temperature of the S may also be simultaneously recorded on the same drum. Heating of the S is accomplished in a small furnace equipped with a special temperature stabilizer, made of Nr 2 alloy. The junction of the thermocouple is separated from the S by means of a 1.5-mm thick layer of quartz. The current for the furnace is supplied through a voltage regulator, which ensures even cooling and heating. In order to protect the upper section of the D against heat, a water-cooled Cu

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