S/853/62/000/000/006/008
A006/A101

Specific features in thermal fatigue tests of...

ance. Four types of specimens are proposed. Bi-axial thermal stresses, attaining maximum values on the surface are characteristic for flat specimens; cylindric--shaped samples are characterized by volumetric thermal stresses, whose longi--tudinal components are highest on the surface and axis; plane thermal stresses with maximum values of the longitudinal components in the thin ribs, are charac-teristic for triangular and trough-shaped specimens. Heating should be performed as if under operational conditions; the cooling rate should range between 50 to 400 degree/sec; cooling by a compressed air jet is recommended. A criterion for a general quantitative evaluation of thermal fatigue does not exist. Criteria used are thermal fatigue curves, which relate the number of cycles until the breakdown to the magnitude of the temperature drop, total (elastic and plastic) deformation, accumulated deformation, or to reference stresses, calculated from deformation values. Test results should be analyzed by methods of mathematical statistics. Method I is recommended for studying the nature of thermal fatigue and to determine a quantitative relationship between the parameters determining thermal fatigue resistance. Method II is recommended for determining thermal fatigue. There are 5 figures.

Card 2/2

YAKOVLEV, Yu.A.

Always on the go. Geog. v shkole 26 no.2:58-59 Mr-Ap '63.
(MIRA 16:4)

(Geography—Study and teaching)

YAKOVLEV, Yu.A.

Always on the go. Geog. v shkole 26 no.2:58-59 Mr-Ap '63.
(MIRA 16:4)

(Geography—Study and teaching)

KUL'BA, F.Ya.; YAKOVLEV, Yu.B.; MIRONOV, V.Ye.

Potentiometric study of nitrate and acetate complexes of thallium (III). Zhur. neorg. khim. 10 no.7:1624-1631 Jl '65.
(MIRA 18:8)

1. Kafedra obshchey khimii Leningradskogo tekhnologicheskogo instituta imeni Lensoveta.

REVINA, A.A.; ARIPDZHANOV, Sh.A.; BAKH, N.A.; Prinimali uchastiye:
YAKOVLEV, Yu.B.; MITINA, N.I.

Electron paramagnetic resonance study of the formation of free
radicals in the irradiation of palmitic acid and its derivatives.
Dokl.AN SSSR 145 no.2:363-365 Jl '62.   (MIRA 15:7)

1. Institut elektrokhimii AN SSSR. Predstavleno akademikom
A.N.Frumkinym.
     (Palmitic acid)   (Radiation)   (Radicals (Chemistry))

MIRONOV, V.Ye.; KUL'BA, F.Ya.; YAKOVLEV, Yu.B.

Diffusion potentials. Zhur. neorg. khim. 9 no.3:718-723
Mr '64.
(MIRA 17:3)

KUL'BA, F. Ya.; YAKOVLEV, Yu.B.; MIRONOV, V. Ye.

Hydrolysis ' trivalent thallium salts.   Zhur. neorg. khim. 9
no.11:2573-2577 N '64   (MIRA 18:1)

KUL'BA, F.Ya.; MIRONOV, V.Ye.; MAVRIN, I.F.; YAKOVLEV, Yu.B.

Thermodynamics of the formation of univalent thallium associates.
Zhur. neorg. khim. 10 no.9:2053-2056 S '65.   (MIRA 18:10)

1. Leningradskiy tekhnologicheskiy institut imeni Lensoveta, kafedra
obshchey khimii.

YAKOVLEV, Yu.I.; ZAYDEL'SON, M.I.

Estimation of prospects for finding gas in Permian sediments
based on the hydrogeological characteristics of Kuybyshev
and Orenburg Provinces. Trudy VNIIGAZ no.15:176-192 '62.

(MIRA 15:8)

(Kuybyshev Province—Gas, Natural—Geology)
(Orenburg Province—Gas, Natural—Geology)

YAKOVLEV, Yu.I.

Hydrogeological conditions in the Bashkatovskoye underground
gas storage. Trudy VNIIGAZ no.15:193-198 '62.   (MIRA 15:8)
          (Buguruslan region—Gas, Natural—Storage)
          (Buguruslan region—Water, Underground)

ZOR'KIN, L.M.; STADNIK, Ye.V.; YAKOVLEV, Yu.I.

Gas saturation of the reservoir waters of the sediments of the
Middle Carboniferous of the southeast of the Russian Platform
in connection with an evaluation of the prospects for finding
oil and gas. Neftegaz. geol. i geofiz. no.9:41-44 '64.

(MIRA 17:11)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut prirodnogo gaza.

SAVCHENKO, V.P.; VINOGRADOV, V.L.; YAKOVLEV, Yu.I.

Front and rear effect and its prospecting importance. Geol.
nefti. i gaza 9 no.7:36-40 Je '65.

(MIRA 18:12)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut prirodnogo
gaza.

ZOR'KIN, L.M.; PETSYUKHA, Yu.A.; STADNIK, Ye.V.; YAKOVLEV, Yu.I.

Gas saturation in the formation waters of the Lower
Carboniferous and Upper Devonian carbonate sediments in the
southeastern part of the Russian Platform. Trudy VNIIGAZ
no. 25:88-94 '65.   (MIRA 18:12)

FEYGIN, Leonid Aleksandrovich, YAKOVLEV, Yuriy Mikhaylovich: MER, I.I.,
redaktor; AVBUSHENKO, P.A., redaktor izdatel'stva; KONYASHINA, A.D.,
tekhnicheskiy redaktor

[Machines and equipment for the construction and operation of city
streets] Mashiny i oborudovanie dlia stroitel'stva i ekspluatatsii
gorodskikh putei soobshcheniia. Moskva, Izd-vo Ministerstva kom-
munal'nogo khoziaistva RSFSR, 1956. 369 p.   (MIRA 10:1)
        (Road machinery)

YAKOVLEV, YU.M.

ALEKSANDROV, Ye.A., inzhener; YAKOVLEV, Yu.M., inzhener.

Conveyer system in finishing operations. Der.prom. 6 no.6:18-19
Je '57.   (MLRA 10:8)

1.Novgorodskaya mebel'naya fabrika.
                   (Conveying machinery)
                   (Wood finishing)

FEYGIN, L.A.; YAKOVLEV, Yu.M.; YERETSKIY, M.I.; VISHNEPOL'SKIY, A.M.;
STANKOVSKIY, A.P., dotsent, nauchnyy red.; KROMOSHCH, I.L.,
red.izd-va; RUDAKOVA, N.I., tekhn.red.

[Using building machinery and equipment] Ekspluatatsiia
stroitel'nykh mashin i oborudovaniia. Moskva, Gos.izd-vo lit-ry
po stroitel'stvu, arkhit. i stroit.materialam, 1960. 257 p.
(MIRA 14:4)

(Building machinery)

IVANOV, N.N., prof.; OSADCHAYA, L.N., aspirant; YAKOVLEV, Yu.M., aspirant

New method for a rapid evaluation of the strength of nonrigid
pavements. Avt.dor. 24 no.4:23-25 Ap '61.   (MIRA 14:5)
(Pavements--Testing)

IVANOV, N.N., prof., doktor tekhn.nauk; BARZDO, V.I., dotsent;
YAKOVLEV, Yu.M., aspirant; OSADCHAYA, L.M., inzh.
KOVRIZHNYKH, L.P., red.; DONSKAYA, G.D., tekhn.red.

[New methods of designing and testing flexible road pavements]
Novye metody rascheta i ispytaniia dorozhnykh odezhd nezhestkogo
tipa. Pod obshchei red. N.N.Ivanova. Moskva, Avtotransizdat,
1962. 37 p. (MIRA 15:4)

1. Moscow. Avtomobil'no-dorozhnyi institut. 2. Zaveduyushchiy
kafedroy stroitel'stva i ekspluatatsii dorog Moskovskogo avto-
mobil'no-dorozhnogo instituta (for Ivanov).
(Pavements)

20975
S/058/61/000/004/022/042
A001/A101

24,7900 (1055,1137,1147,1158)

AUTHOR: Yakovlev, Yu.M.

TITLE: The measurement of parameters of ferrite ferromagnetic resonance

PERIODICAL: Referativnyy zhurnal. Fizika, no 4, 1961, 333, abstract 4E569 ("Izv.
             Leningr. elektrotekhn. in-ta", 1960, no 43, 163 - 173)

TEXT: The author describes the results of an investigation of the reson-
ance curve width ΔH for spherical specimens of ferrites, placed in a reentrant
resonator, at a frequency of 2,869 Mc. In measurements, the method of determining
ΔH is used which is based on reflection coefficient Γ of the reflecting re-
sonator at the points where χ'', imaginary component of the external tensor of
high-frequency magnetic susceptibility $\chi = \chi' - i\chi''$, has the value $\frac{1}{2}\chi\chi''_{res}$ (?);
this method was extended to the case of reentrant resonator. The author presents
formulae of relations between Γ and transmission coefficient T of the reentrant
resonator on the one side and parameters of the ferrite specimen on the other side.
He shows that the present method enables one to determine, fast and simple, the
ΔH width from the T(H) curve at points where χ'' has the value $\frac{1}{2}\chi''_{res}$ as well

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20975

The measurement of parameters of ferrite ferromagnetic.. S/058/61/000/004/022/042
A001/A101

as to determine the magnitude of X''_{res}. The measurements were performed on fer-
rite spheres whose diameter varied from 1.32 to 3.07 mm. It was established that
ΔH is independent, within the measurement errors, of diameter of the given speci-
mens. It was determined that $\Delta H = 59$ oe for Mg-Cr-ferrite and $\Delta H = 30$ oe for
yttrium garnet ferrite.

N. Smol'kov

[Abstracter's note: Complete translation.]

Card 2/2

S/058/62/000/010/075/093
A061/A101

$\mathcal{Z}4,7900$

AUTHOR: Yakovlev, Yu. M.

TITLE: The internal tensor of the magnetic susceptibility of a magneto-
              anisotropic ferromagnetic ellipsoid

PERIODICAL: Referativnyy zhurnal, Fizika, no. 10, 1962, 48, abstract 10E375
              ("Izv. Leningr. elektrotekhn. in-ta", 1961, no. 46, 179 - 183)

TEXT: A formula, presented in the general form, correlates the components
of the internal tensor of the magnetic susceptibility of a ferromagnetic ellip-
soid with the components of the external tensor of the magnetic susceptibility
and the components of the tensor of the demagnetizing factor. Specific expres-
sions are given for the components of an ellipsoid magnetized along one of the
major axes. In the author's opinion, the relations obtained can be used to cal-
culate the parameters of ferromagnetic semiconductor single crystals.

                                                      N. S.

[Abstracter's note: Complete translation]

Card 1/1

$24.7900 (1055, 1144, 1163)$

AUTHOR: Yakovlev, Yu. M.

TITLE: Spin wave excitation by local surface magnetic irregularities .

PERIODICAL: Fizika tverdogo tela, v. 4, no. 2, 1962, 407-412

TEXT: Magnetic relaxation and the role of spin waves was studied in ferromagnetic resonance, when spin waves were excited on local centers. Magnetic irregularities were artificially created on the surface of spherical yttrium garnet specimens 0.4 mm in diameter, which were successively polished with abrasives from 70 down to 5 and 3μ. Measurements were carried out at 9070 Mc/s in a $TE_{103}(TYe_{103})$ reflecting square resonator with $Q = 620$. The variation in ferromagnetic resonance line width was investigated with the garnet spheres rotating. The maximum variation in line width was 15%. With specimens polished with 3μ emery cloth maximum line width was in the $[11\bar{1}]$ direction, minimum at $[10\bar{0}]$ and medium values at $[110]$. Three peaks were observed between 0 and $90°$, at 57, 39 and $15°$. The $57°$ maximum was analyzed. From the

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Spin wave excitation by local surface ...

resulting graph (Fig. 2) it can be seen that the peaks are shift with a change in abrasive grain size: From 40 to 20 to 10μ the peak shifts from 59 to 57 to 54.5°. The condition for wave degeneracy reads

$$\frac{\omega_K}{\omega_0} = 1, \text{ with}$$

$$\frac{\omega_k}{\omega_0} = [(1 - N_t p + q k^2 p)(1 - N_s p + q k^2 p + 4 \pi p \sin^2 \theta_k)]^{1/2},$$

(2);

$p = M_0/H_0$, $\omega_0 = \gamma H_0$, M_0 – saturation magnetization for a given temperature, H_0 – resonance field, N_z – demagnetizing factor in the direction of the constant magnetic field, q – exchange interaction parameter. q is related to the interaction parameter D known from literature (J. Appl. Phys. 32, 167, 1961) by $D = \gamma \hbar q$. When the degeneracy condition is satisfied the frequency of uniform precession of a sphere with $\kappa \to 0$ corresponds to the angle

Card 2/0

34234
S/181/62/004/002/017/051

Spin wave excitation by local surface ...   B102/B138

$$\theta_o = arc\ sin\ \sqrt{\frac{1-(1-N_z p)^2}{4\pi p(1-N_z p)}}\ ;\ \text{for}\ M_o = 139\ \text{gauss,}\ H_o = 3290\ \text{oe and}\ N_z = 4\pi/?$$

$\theta_c = 59^{\circ}20'$. It was confirmed theoretically that the line broadening observed was due to degeneracy of uniform and spin wave precession. The spin wave propagation rate was calculated for $k = 6.28 \cdot 10^{-3}$:

$v_s = 2\pi\frac{f_o}{k} = 9.07 \cdot 10^6\ \text{cm/sec}$. The spin wave travels $\sim 10^{-2}$ cm within a relaxation time of $\tau_k = 10^{-9}$. There are 4 figures and 6 references: 3 Soviet and 3 non-Soviet. The four most recent references to English-language publications read as follows: P. E. Seiden. J. Phys. Chem. Solids, 17, 259, 1961; R. C. Le Craw et al. Phys. Rev. 110, 1311, 1958; R. C. Le Craw, L. R. Walker. J. Appl. Phys. 32, 167S, 1961; M. Sparcs et al. Phys. Rev. 122, 791, 1961.

Card 3/8

34234
S/181/62/004/002/017/051
Spin wave excitation by local surface ...   B102/B138

ASSOCIATION: Leningradskiy elektrotekhnicheskiy institut im.
Ul'yanova (Lenina) (Leningrad Electrotechnical Institute
imeni V. I. Ul'yanov (Lenin))

SUBMITTED: August 18, 1961

Fig. 2. Ferromagnetic line width in dependence on specimen orientation.
(1) "natural" line anisotropy, (2), (3), (4), (5) - anisotropy
when specimens were treated with 5, 20, 40 and 10μ abrasives,
respectively.

Card 4/8

S/181/62/004/007/002/037
B102/B104

AUTHORS: Lebed', B. M., and Yakovlev, Yu. M.

TITLE: Study of the temperature and frequency dependences of the
            resonance curve width in polycrystalline ferrites

PERIODICAL: Fizika tverdogo tela, v. 4, no. 7, 1962, 1695 - 1700

TEXT: The width ΔH of the resonance curves was measured as a function of
t ($^\circ$C) and f (Mc) on spheres of two polycrystalline ferrites: 0.45 MgO $\times$
$\times 0.76Fe_2O_3 \cdot 0.38Cr_2O_3 \cdot 0.12CuO$ and $3Y_2O_3 \cdot 4.65Fe_2O_3 \cdot 0.35Al_2O_3$. The measurements
were made in the range from -190 to +300°C at 500, 647, 1001, 1496, 2590
and 9253 Mc/sec. The diameter of the sample was 4mm for 500 Mc/sec, but
was smaller for the higher frequencies. The measurement curves ($\Delta H(t)$,
$\Delta H(f)$, $\delta(t)$; σ-magnetization) show that $\Delta H(t)$ in polycrystalline samples is
similar to that in single crystals. At low frequencies the low-temperature
broadening of the resonance curve has another cause than at high frequen-
cies: in the former it is due to temperature dependence of the relaxation
frequency, as well as to magnetization, and the effect of domain structure,
Card 1/2

Study of the temperature ...

S/181/62/004/007/002/037
B102/B104

whereas in the latter it is an effect of impurities, and principally an effect of the maximum which they cause at low temperatures. The broadening of the resonance curve near the Curie point is due to the temperature fluctuations in the intensity of magnetization. Unlike in single crystals of $3Y_2O_3 \cdot 5Fe_2O_3$, the ΔH here depends notably on the frequency, probably because of magnetic inhomogeneity. There are 4 figures.

ASSOCIATION: Leningradskiy elektrotekhnicheskiy institut im. V. I. Ul'yanova (Lenina)(Leningrad Electrotechnical Institute imeni V. I. Ul'yanov (Lenin))

SUBMITTED: December 28, 1961

Card 2/2

YAKOVLEV, Yu.M.

Anisotropy of the spin wave spectrum in yttrium garnet single
crystals. Fiz.tver.tela 4 no.12:3626-3633 D '62. (MIRA 15:12)

1. Leningradskiy elektrotekhnicheskiy institut im. V.I.Ul'yanova
(Lenina).
(Yttrium)   (Ferromagnetic resonance) (Nuclear spin)

YAKOVLEV, Yu. M., aspirant

Internal magnetic susceptibility tensor of a magneto-anisotropic
ferromagnetic ellipsoid. Izv. LETI 59 no.46:179-183 '62.
                                                    (MIRA 15:10)

(Magnetic materials)   (Cores(Electricity))
            (Magnetic circuits)

S/181/62/004/012/042/052
B125/B102

AUTHORS: Yakovlev, Yu. M., and Lebed', B. M.

TITLE: The temperature and frequency dependences of the ferromagnetic
             resonance line width of ferrite monocrystals with garnet
             and spinel structures

PERIODICAL: Fizika tverdogo tela, v. 4, no. 12, 1962, 3654-3662

TEXT: A report is given on experimental investigation of the temperature
dependence (between room temperature and the Curie point) and frequency
dependence (at the 4 fixed frequencies 1000, 1496, 2590 and 9200 Mc) of
the ferromagnetic resonance line width of spherical ferrite monocrystals
having garnet structure. Polycrystalline specimens of this type were
already investigated by B. M. Lebed', Yu. M. Yakovlev (FTT, 4, 1695, 1962).
It is pointed out that their values for the frequency dependence of the
line width of ferrites are inconsistent with those obtained by R. C.
Le Crow et al (Phys. Rev., 110, 1311, 1958) and by J. F. Dillon (Phys.
Rev., 105, 759, 1957). The monocrystals of the ferrite
$Mg_{0.52}Mn_{0.87}Fe_{1.74}O_4$ were grown by the Verneuil method. The yttrium iron

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The temperature and frequency ...

S/181/62/004/012/042/052
B125/B102

garnets were obtained from a PbO melt at a cooling rate of $2°$/hour. The measuring methods are described in the previous work first cited. The temperature dependence of the line width ΔH has the same character at all frequencies. The line width of all specimens increases strongly in the vicinity of the Curie point. The characteristic temperature at which the line width of the iron yttrium garnets changes discontinuously is determined by the passage through the frequency $\omega_0/2$ of the lower limit of the spin-wave spectrum. Using a monocrystalline disk made from yttrium iron garnet, the measurements of the temperature dependence of ΔH were checked and found to be correct. This discontinuous change in the line width is due to a nonlinear three-magnon process with a low threshold field $h_{thr} \sim 2$ millioersteds. The line width of optically polished yttrium iron garnets is, in practice, independent of the frequency. The line width ΔH of such garnets as have a rough surface depends weakly on the frequency. As the frequency increases from 1000 to 9200 Mc, ΔH increases by almost 100%, which cannot be explained by relaxation processes due to microscopic magnetic inhomogeneities. Owing to the discrepancies between the theory developed by A. M. Clogston et al. and the experimental data

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The temperature and frequency ...   S/181/62/004/012/042/052
B125/B102

obtained (Journ. Appl. Phys., 29, 429, 1958) it has so far not been possible adequately to describe the magnetic relaxation processes. The dissipative term in the equation of motion for ferromagnetic materials reads either $\lambda\left[\vec{M} \times (\vec{M} \times \vec{H})/M^2\right]$ (Landau-Lifshits) or $\omega_r\left[\lambda_0\vec{H} - \vec{M}\right]$. The losses are characterized by the parameters λ or ω_r. $\tau = 1/\omega_r$ is the relaxation time. There are 6 figures.

ASSOCIATION: Leningradskiy elektrotekhnicheskiy institut im. V. I. Ul'yanova-Lenina (Leningrad Electrotechnical Institute imeni V. I. Ul'yanov-Lenin)

SUBMITTED: May 19, 1962 (initially)
              July 18, 1962 (after revision)

Card 3/3

YAKOVLEV, Ye.N.

Effect of resonance absorption of spatially inhomogeneous electro-
magnetic radiation in ferromagnetics. Fiz. tver. tela 4 no.6:
1589-1596 Je '62.   (MIRA 16:5)

1. Institut fiziki vysokikh davleniy AN SSSR, Moskva.
        (Electromagnetic waves) (Ferromagnetic resonance)

LEBED', B.M.; YAKOVLEV, Yu.M.

    Temperature and frequency dependence of the resonance curve
    width in polycrystalline ferrates. Fiz.tver.tela 4 no.7:1695-
    1700 Jl '62.   (MIRA 16:6)

    1. Leningradskiy elektrotekhnicheskiy institut imeni V.I.
    Ul'yanova (Lenina).
              (Ferromagnetic resonance)   (Ferrates)

ACCESSION NR: AP4010251   S/0138/63/000/012/0005/0010

AUTHORS: Miylen, D. A.; Selivanovskiy, S. A.; Fermor, N. A.; Khazanovich, I. G.;
Yakovlev, Yu. M.

TITLE: Continuous polymerization of monomers in the synthesis of latexes

SOURCE: Kauchuk i rezina, no. 12, 1963, 5-10

TOPIC TAGS: polymerization, monomer polymerization, polymerization product
dispersion, latex, batch process, continuous process, emulsion polymerization,
reactor, productivity, particle size, surface tension, surface film saturation

ABSTRACT: The accumulated experience of VNIISK in the production of synthetic
latexes by continuous process is compared with the batch process. Latexes SKS-
65GP, SKS-50PG, SKN-10P and SK-30ShKhP were synthesized by both procedures for 15
weeks. The particle size was determined by soap titration and by means of Tesla's
electron microscope model BS-242, using as standard styrene latex with a particle
size of 250 millimicrons. To counteract the flattening out of the particles and to
increase the outline sharpness, the emulsions were stabilized with Leukanol and
subjected to bromination. The surface tension in the latex-air interface and the
degree of saturation of the globular membrane with the emulsifier were also deter-
Card 1/3

ACCESSION NR: AP4010251

mined. The average volume-surface diameter of the latex particles obtained by continuous polymerization was in all instances larger than those synthesized in batches. The surface tension in latexes produced continuously was smaller, the polydispersity of particles much higher, and the degree of saturation of the particle membranes with the emulsifier greater than in latexes produced in batches. It is expected that the enumerated colloidal changes in the latexes produced by the continuous process would affect their technical and technological properties. The productivity coefficient η for the apparatus used with a series of polymerizers can be computed from the A. N. Planovskiy formula

$$\eta = \frac{\int_{x_0}^{x_2} \frac{dx}{f(x)}}{\frac{x_1 - x_0}{f(x_1)} + \frac{x_2 - x_1}{f(x_2)} + \cdots + \frac{x_k - x_{k-1}}{f(x_k)}}$$

where x is the amount of material used, f(x) is the velocity of reaction. Orig. art. has: 2 charts, 4 tables, and 1 equation.

Card 2/3

ACCESSION NR: AP4010251

ASSOCIATION: Vsesoyuzny*y nauchno-issledovatel'skiy institut sinteticheskogo kauchuka im. S. V. Lebedeva (All-Union Scientific Research Institute of Synthetic Rubber)

SUBMITTED: 00   DATE ACQ: 03Feb64   ENCL: 00

SUB CODE: CH   NO REF SOV: 007   OTHER: 005

Card 3/3

YAKOVLEV, Yu.M.

Macroscopic dynamic equation for ferromagnetic substances.
Izv. AN SSSR. Ser. fiz. 27 no.12:1480-1482 D '63.

Spectrum of spin waves in magnetic-anisotropic cubic
crystals. Ibid.:1483-1486   (MIRA 17:1)

L 12933-65   EWT(1)/EPA(s)-2/EWT(m)/EWP(·)/EWP(h)   Pt-10   IJP(c)   JD/JG/
GG   AS(mp)-2/AFWL/ASD(a)-5/RAEM(a)/ESD(ws)/ESD(t)
ACCESSION NR: AP4046603   S/0181/64/006/010/2953/2957

AUTHORS: Yakovlev, Yu. M.; Lebed', B. M.

TITLE: Minimum width of ferromagnetic resonance line of yttrium
garnet single crystals

SOURCE: Fizika tverdogo tela, v. 6, no. 10, 1964, 2953-2957

TOPIC TAGS: yttrium iron garnet, single crystal, ferromagnetic reso-
nance, line width, relaxation process

ABSTRACT: This is a continuation of earlier investigations by the
authors (FTT v. 4, 3, 654 and 1695, 1962), except that the measure-
ments were made under conditions in which the non-intrinsic relaxa-
tion has been reduced to a minimum. The temperature dependence of
the line width of ferromagnetic resonance of spherical samples of
single crystal yttrium garnet was investigated in the linear region
of the variable-magnetization amplitude at six fixed frequencies

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ACCESSION NR: AP4046603

(500, 640, 1000, 1500, 2590, and 9200 Mcs) in the temperature inter-
val 200--300C. The test procedure for measuring the temperature
and frequency dependences of the line width was described by the
authors in detail elsewhere (PTE No. 6, 107, 1962). The $Y_3Fe_5O_{12}$
single crystals from which the investigated specimens were grown by
crystallization from a molten PbO solvent under cooling at a rate
of approximately 1° per hour. The method of preparing the samples
from the single crystals was described by I. Ye. Gubler (PTE No. 5,
145, 1960). The results show that the rate of the fluctuation
mechanism of relaxation depends on the frequency. Two relaxation
mechanisms seem to be in operation. 1. A fluctuation mechanism,
which causes the line width to increase at high temperatures. 2. A
mechanism which leads to an increase in the line width of low tem-
peratures. At each frequency, the temperature dependence was such
that the line width increased at low and at high temperatures, with
a fairly flat minimum in an intermediate region. It is shown that
both relaxation mechanisms are inherent in an ideal ferromagnet.

Card   2/3

L 12933-65

2

ACCESSION NR: AP4046603

"The authors thank A. G. Gurevich for a useful discussion of the work." Orig. art. has: 4 figures and 6 formulas.

ASSOCIATION: Leningradskiy elektrotekhnicheskiy institut im. V. I. Ul'yanova (Lenina) (Leningrad Electrotechnical Institute)

SUBMITTED: 14Mar64   ENCL: 00

SUB CODE: SS, EM   NR REF SOV: 007   OTHER: 001

Card 3/3

L 12934-65   EWT(1)/EPA(s)-2/EWT(m)/EWP(b)   Pt-10   IJP(c)   JD/JG/GG
ASD(a)-5/AS(mp)-2/AFWL/RAEM(a)/ESD(gs)
ACCESSION NR: AP4046604   S/0181/64/006/010/2958/2962

AUTHORS: Lebed', B. M.; Yakovlev, Yu. M.
                                                              B

TITLE: Ferromagnetic relaxation in polycrystalline yttrium iron
garnet near the upper end point of the spin wave spectrum

SOURCE: Fizika tverdogo tela, v. 6, no. 10, 1964, 2958-2962

TOPIC TAGS: yttrium iron garnet, polycrystal, spin wave, ferromag-
netic resonance, line width, line broadening

ABSTRACT: To clarify some of the doubtful assumptions made in
earlier deductions by various authors that the maxima of the ferro-
magnetic resonance line broadening are in accord with the spin-wave
theory, the authors measured the temperature dependence of the line
width of polycrystalline and single-crystal samples of yttrium iron
garnet $Y_3Fe_5O_{12}$ and single crystal nickel ferrite $NiFe_2O_4$. The mea-
surements were made at frequencies 1000, 1496, 2590, and 2950 Mcs

Card 1/3

L 12934-65
ACCESSION NR: AP4046604

using a method described by the authors earlier (PTE No. 6, 107, 1956). A maximum was observed on the temperature dependence of the line width at 2590 and 2950 Mcs at a temperature corresponding to magnetization at which the frequency of the homogeneous precession is contained in the spin-wave band. No maximum was observed at 1000 and 1496 Mcs. The ratio of the homogeneous precession frequency to the magnetization frequency was constant for both frequencies. The observed intensity of the line-width peaks at 2950 and 2590 Mcs, and the absence of peaks at 1496 and 1000 Mcs, is in accord with the theory of line broadening in polycrystalline ferrites, proposed by Schlomann (Phys. Chem. Solids v. 6, 242, 1958). It is shown that if the homogeneous precession frequency lies within the spin-wave spectrum, the magnitude of the line broadening does not agree with the Schlomann theory. Possible causes for this discrepancy are discussed. "In conclusion the authors thank A. G. Gurevich for valuable advice and a useful discussion of the present work." Orig. art. has: 4 formulas and 2 figures.

Card 2/3

L 12934-65
ACCESSION NR: AP4046604   /

ASSOCIATION: Leningradskiy elektrotekhnicheskiy institut im. V. I.
Ul'yanova (Lenina) (Leningrad Electrotechnical Institute)

SUBMITTED: 14Mar64   ENCL: 00

SUB CODE: SS, EM   NR REF SOV: 002   OTHER: 004

Card 3/3

ACC NR: AP6037005   (A, N)   SOURCE CODE: UR/0181/66/008/011/3407/3410

AUTHOR: Yakovlev, Yu. M.; Burdin, Yu. N.

ORG: none

TITLE: Angular dependence of the frequency of ferromagnetic resonance in an arbitrarily oriented plane of a cubic crystal

SOURCE: Fizika tverdogo tela, v. 8, no. 11, 1966, 3407-3410

TOPIC TAGS: ferromagnetic resonance, cubic crystal, magnetization, magnetic anisotropy, crystal orientation

ABSTRACT: In view of the fact that previously derived formulas for the resonant frequencies, with allowance for the crystallographic anisotropy, were confined to particular directions of the magnetic field, the authors derive present more general formulas that apply to a number of different particular cases. A general formula is derived for the angular dependence of the resonant frequency for the case when the constant magnetic field lies in a plane arbitrarily oriented relative to the crystallographic axis of a cubic lattice. The calculation method is the same as that described by A. G. Gurevich (Ferrity na sverkhvysokikh chastotakh [Ferrites at Microwave Frequencies] Fizmatgiz, 1960) or by I. R. McDonald (Proc. Phys. Soc., v. A64, 968, 1951). The problem reduces to the determination of the tensor of the demagnetizing factors of the crystallographic anisotropy. Several particular cases (weak magneti-

Card 1/2

ACC NR: AP6037005

zation plane perpendicular to the diagonal of the cubic lattice) are considered. It is also shown that when the magetization and the field vectors coincide (when the anisotropy field is much weaker than the main field), the (111) plane is an almost isotropic plane in a cubic crystal (0.01% anisotropy). Orig. art. has: 1 figure and 9 formulas.

SUB CODE: 20/ SUBM DATE: 29Jan66/ ORIG REF: 002/ OTH REF: 006

Card 2/2

MIYLEN, D.A.; SELIVANOVSKIY, S.A.; FERMOR, N.A.; KHAZANOVICH, I.G.;
YAKOVLEV, Yu.M.

Continuous polymerization of monomers in latex synthesis.
Kauch. i rez. 22 no.12:5-10 D '63.   (MIRA 17:9)

1. Vsdsoyuznyy nauchno-issledovatel'skiy institut sinteticheskogo
kauchuka imeni Lebedeva.

YAKOVLEV, Yu. N., Cand Tech Sci -- (diss) "Effect of the conditions

of the feed of metal to the casting molds upon the formation of

ingots of bubble-free steel." Dnepropetrovsk, 1958. 13 pp

Min of Higher Education UkSSR. Dnepropetrovsk Order of Labor

Red Banner Metallurgical Inst im I.V. Stalin. Chair of Metallurgy

of Steel)   (KL,38-59, 118)

57

AUTHOR: Yakovlev, Yu. N.

TITLE: Formation of Surface Layers of an Ingot in Bottom Pouring Into Per-
            forated Molds (Formirovaniye poverkhnostnykh sloyev slitka v prot-
            sesse napolneniya skvoznykh izlozhnits sifonnym sposobom)

PERIODICAL: Izv. vyssh. uchebn. zavedeniy. Chernaya metallurgiya, 1958, Nr
            3, pp 34-41

ABSTRACT: Hydraulic model simulation, with subsequent verification of the re-
            sults obtained on Al and steel ingots is used to study distribution of
            liquid (L) flows within a mold (M) during bottom pouring and of the
            influence of these flows upon the formation of the external layers of
            an ingot. The experiments were run on models of big-end-down
            bottom-pouring M, made of organic glass, in 1:4 natural size with
            similar scaling of the conditions of delivery of L thereto. Water is
            used to simulate the metal. Measurement of the velocity head of the
            L is made at various levels of the model. The investigations are run
            at various rates of filling and at various filling levels. It is found
Card 1/2   that the axis of the submerged stream introduced into an M deviates

SOV/137-58-12-24237

Formation of Surface Layers of an Ingot in Bottom Pouring Into Perforated (cont.)

from the vertical toward the wall opposite to the side from which the L is introduced and that all the stream parameters depend upon the height to which the M is filled. It is shown that the angle formed by the M axis and the boundary of the stream facing the wall opposite the side of L introduction grows with increase in filling rate and with rise in the L level in the M, while the angle between the opposite boundary of the stream and the M axis reduces with these changes in parameters. The maximum changes in these angles occur at a height equal to from 16 to 28 diameters of the runner bringing the L to the M. Observations have established the presence of downcurrents forming at the initial stage of filling, both at the M wall adjacent to the center wall and at the opposite wall. As the L level in the M rises, the first of these streams become stronger and the latter virtually disappear, becoming upcurrents. The angle of divergence of the stream is identical in all directions and comes to ~65-70°. An investigation of rings cut out of hollow sleeves formed by draining the unsolidified ingot cores confirmed the existence and the nature of the flows described above. The interior surface of the rings cut from these steel sleeves revealed a graininess, which is particularly noticeable on the washed side of the skin. It is also found that longitudinal outside cracks in ingots form where the skin is thinnest. The tendency to longitudinal-crack formation rises with ingot height.

Card 2/2   I. G.

LAPITSKIY, V.I., doktor tekhn.nauk, prof.; STUPAR', N.I., dotsent;
    STUPEL', S.I., inzh.; TARAPAY, M.A., inzh.; TIMOFEYEV, V.L., inzh.;
    YAKOVLEV, Yu.N., inzh.

Certain problems in the preparation of steel ingots for wheels.
Izv. vys. ucheb. zav.; chern.met. no.5:21-28 My '58.   (MIRA 11:7)

1.Dnepropetrovskiy metallurgicheskiy institut i zavod im. K.
Libknekhta.
                    (Steel ingots)

YEFIMOV, Viktor Alekseyevich; LAPITSKIY, V.I., prof., doktor tekhn.nauk, retsenzent; YAKOVLEV, Yu.N., kand.tekhn.nauk, retsenzent; DANILIN, V.I., retsenzent; DOBROKHOTOV, N.N., akademik, red.; GROMOV, N.D., red.izd-va; VAYNSHTEYN, Ye.B., tekhn.red.

[Steel ingots; casting and formation of the ingot] Stal'noi slitok; razlivka stali i formirovanie slitka. Pod red. N.N.Dobrokhotova. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1961. 356 p. (MIRA 14:3)

1. AN USSR (for Dobrokhotov). 2. Nachal'nik TSentral'noy zavodskoy laboratorii zavoda "Krasnyy Oktyabr'" (for Danilin).
(Steel ingots)

YAKOVLEV, Yu.N.

Geology, mineral composition, and genesis of the Kurzhunkul'skiy iron
ore deposit. Zap. LGI 42 no.2. 38-64 '62.   (MIRA 15:6)
        (Turgay Gates--Ore deposits)

YAKOVLEV, Yu.N.

Spherulitelike magnetite aggregates and tabular pyrite isolations in
the Kurzhunkul'skiy ore deposit. Zap. LGI 42 no.2:65-77 '62.

(MIRA 15:6)

(Turgay Gates--Magnetite)   (Turgay Gates--Pyrites)

ISAYEV, Ye.I.; KUSHNAREV, I.T.; TARAPAY, M.A.; YAKOVLEV, Yu.N.;
LAPITSKIY, V.I., prof., doktor tekhn.nauk, nauchnyy rukovo-
ditel' raboty

Developing an efficient type of nozzle and stopper for the
continuous casting of steel. Izv.vys.ucheb.zav.; chern.met.
6 no.1:42-49 '63.   (MIRA 16:2)

1. Dnepropetrovskiy metallurgicheskiy institut.
          (Continuous casting--Equipment and supplies)

PARIMONCHIK, I.B.; SOROKIN, A.A.; ZAGREBA, A.V.; YAKOVLEV, Yu.N.;
PAVLOVTSEVA, N.I.; UL'YANOV, D.P.; FURS, I.L.

Studying metal flow in the top pouring of rail steel by
high-speed motion picture photography. Stal' 24 no.5:
414-417 My '64.   (MIRA 17:12)

PARIMONCHIK, I.B., inzh.; SOROKIN, A.A., inzh.; KUTSENKO, A.D., inzh.;
        KARPUNIN, A.M., inzh.; PAVLOVTSEVA, N.I., kand. tekhn. nauk;
        KOBURNEYEV, I.M., inzh.; YAKOVLEV, Yu.N., kand. tekhn. nauk;
        TRUSEV, A.I., inzh.; ORGIYAN, V.S., inzh.;

Improving the flow during metal pouring. Stal' 24 no.5:
425-426 My '64.   (MIRA 17:12)

YAKOVLEV, Yu.N., kand. tekhn. nauk; PANIOTOV, Yu.S.; ZHERNOVSKIY, V.S.;
BELYAYEV, Yu.P.

Slag formation and smelting in 650 and 900-ton capacity
open-hearth furnaces. Met. i gornorud. prom. no.6:24
N-D '64.   (MIRA 18:3)

YAKOVLEV, Yu.N., kand. tekhn. nauk; KUSHNAREV, I.T.; LAPITSKIY, V.I.,
doktor tekhn. nauk, rukovoditel' raboty;

Hot longitudinal cracks on flat, continuous ingots. Met. i
gornorud. prom. no.4:31-35 Jl-Ag '64.   (MIRA 18:7)

YAKOVLEV, YU. P.

Dissertation: "The Problem of an Investigation of Evaporation in a Two-Phase Flow."
Cand Tech Sci, Kazan' Aviation Inst, Kazan', 1954. (Referativnyy Zhurnal--Fizika,
Moscow, Aug 54)

SO: SUM 393, 28 Feb 1955

21(7)

AUTHORS: Ostroumov, V. I., Yakovlev, Yu. P.   SOV/56-35-6-6/44

TITLE: Multi-Charged Particles Emitted During the Nuclear Splitting of
              Carbon by Protons With Energies of 660 Mev (Mnogozaryadnyye
              chastitsy, ispuskayemyye pri rasshcheplenii yader ugleroda protona-
              mi s energiyey 660 MeV)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1958, Vol 35,
              Nr 6, pp 1358-1363 (USSR)

ABSTRACT: O.V. Lozhkin, N.A. Perfilov (Ref 1), V.M. Sidorov, Ye.L. Grigor'yev
              (Ref 2) as well as Ostroumov, Perfilov and R.A. Filov (Ref 3)
              already worked in this field. The results they obtained are dis-
              cussed in short in the introduction. The authors themselves in-
              vestigated multi-charged particles emitted by carbon nuclei bombard-
              ed with 660 Mev protons. The target consisted of a 20μ thick poly-
              styrene film which was pasted on to the photoplate. The fragments
              emitted by the film were recorded in the emulsion layer (P-9).
              Proton irradiation was carried out on the synchrocyclotron of the
              OIYaI (United Institute for Nuclear Research). Exposure was in
              three orientations of the emulsion towards the main direction of
              the beam: a) parallel, b) vertical, and c) at an angle of 36°. The
Card 1/3   results obtained by the investigations are very clearly shown by

Multi-Charged Particles Emitted During the Nuclear Splitting of Carbon by Protons With Energies of 660 Mev

figures 1a and 1b:
Figure 1a shows the connection between the total structural thickness of the trace T and the particle range R at an angle of inclination towards the emulsion plane of up to 30°; figure 1b shows the same for an angle between 30 and 60°. The curves (straights) for He_{2}^{4}, Li_{3}^{8}, B_{5}^{8}, and N_{7}^{14} are within the ranges $50 < T < 300$ and $5 < R < 40\mu$. Figure 2 shows the corresponding trace distribution according to T, and figure 3 shows the energy spectrum of the fragments with a range of $> 40\mu$; figure 4 shows the angular distribution of the fragments with respect to the proton beam compared with that calculated in reference 1. (The calculation method is discussed in an appendix to this paper). The authors further investigated the effective production cross section σ_{frag} for multi-charged particles from C-nuclei. The proton flux was determined according to the number of stars formed in all plates on emulsion nuclei. The star production cross section is 1060 mb (Ref 6). For σ_{frag} the value 1.4 ± 0.5 mb is given. This value holds for the emission of particles with a range of > 20 and a charge of > 3. The effective

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Multi-Charged Particles Emitted During the Nuclear Splitting of Carbon by
Protons With Energies of 660 Mev

cross section for the emission of a Li_3^8-nucleus with $E > 10$ Mev is

equal to $(5 \pm 2).10^{-29} cm^2$. The experimental data obtained agree
well with those obtained by Lozhkin and Perfilov (Ref 1).
In conclusion, the authors thank O.V. Lozhkin, Yu.I. Serebrennikov,
and R.A. Filov for their help and discussions, and N.A. Perfilov
for his interest in this work.- There are 5 figures and 9 references,
6 of which are Soviet.

ASSOCIATION: Leningradskiy politekhnicheskiy institut
                 (Leningrad Polytechnic Institute)

SUBMITTED: June 16, 1958

Card 3/3

$\mathcal{5.1170}$

68956

SOV/81-60-2-5281

Translation from: Referativnyy zhurnal. Khimiya, 1960, Nr 2, p 304 (USSR)

AUTHOR: Yakovlev, Yu.P.

TITLE: Investigation of the Evaporation of a Liquid in a Vertical Pipeline

PERIODICAL: Tr. Kazansk. aviats. in-ta, 1958, Vol 38, pp 219 - 238

ABSTRACT: The analysis of experimental data obtained in the process of eva-
              poration in a two-phase flow leads to an equation which comprises all
              essential parameters: $Gu_x/Gu_o = 1.25\cdot10^{-3} Re^{0.52}(l/d)^{-075}G^{-0.2}$, where
              $Gu = (t_d - t_m)/t_d$ is Guchmann's criterion of the parametric type which
              is the relative potential of drying; Gu_o and Gu_x are the Gu values at
              the initial and at a given point of the two-phase flow; t_d and t_m the
              temperatures of the dry and the moist thermometers; $G = G_l/G_a$; G_l and
              G_a are the weight consumptions of liquid and air. It has been noted
              that the equation describes well all experimental data obtained in the
              following range of parameter changes: t_d 10 -100° C; t_m 1 - 90°C;
              relative humidity 0.01 - 1.0; flow velocity 0 - 100 m/sec; Re $23\cdot10^3$ -
              $450\cdot10^3$; G 0.02 - 0.1.

Card 1/1   A. Rovinskiy

ACCESSION NR: AP4009137   S/0056/63/045/006/2072/2073

AUTHORS: Bogatin, V. I.; Lozhkin, O. V.; Yakovlev, Yu. P.

TITLE: Formation of fast residual nuclei

SOURCE: Zhurnal eksper. i teoret. fiziki, v. 45, no. 6, 1963, 2072-2073

TOPIC TAGS: residual nucleus, fast residual nucleus, fast residual nucleus formation, fast fragment formation, nuclear disintegration, fragmentation, direct nuclear interaction theory, lithium 8, beryllium 8, few nucleon reaction

ABSTRACT: To study the momentum distribution of the residual nuclei in the case of simple few-nucleon reactions of the type (p, 2p) or (p, pn), when high energy particles interact with light nuclei, and to ascertain the feasibility of a large momentum transfer in such reactions (this is necessary to explain fragmentization by heavy nuclei), experiments were made with the $Be^9(p, 2p)Li^8$ reaction with 660 MeV protons, under conditions similar to those described by

Card 1/2

ACCESSION NR: AP4009137

the authors earlier (DAN SSSR v. 151, 826, 1963). The energy spectra determined from 1184 Li^8 tracks in emulsion indicate clearly that large momentum transfer (on the order of 1000 MeV/c) is possible in reactions where one nucleon breaks away from a light nucleus. "The authors are indebted to Prof. N. A. Perfilov for interest in the work and useful discussions, to Prof. V. P. Dzhelepov for support of the program on the fragmentation process, of which this investigation is a part, and to S. P. Tret'yakova and V. P. Perelygin for help with the processing of the nuclear emulsions." Orig. art. has: 1 figure and 1 table.

ASSOCIATION: None

SUBMITTED: 11Sep63   DATE ACQ: 02Feb64   ENCL: 00

SUB CODE: PH   NO REF SOV: 003   OTHER: 000

Card 2/2

L 17540-63   EWP(q)/EWT(m)/BDS   AFFTC/ASD   JD/JG

ACCESSION NR: AP3004420   S/0020/63/151/004/0826/0828

AUTHORS: Lozhkin, O. V.; Perfilov, N. A.; Yakovlev, Yu. P.

TITLE: Singularities of the formation of Li_3^8 during the reaction of 660 Mev protons with C_6^{12} nuclei.

SOURCE: AN SSSR, Doklady*, v. 151, no. 4, 1963, 826-828

TOPIC TAGS: Li_3^8, Li, C, C_6^{12}, phasotron, polystyrene, polyethylene, B_5^8

ABSTRACT: Authors studied the angular distribution of the fragments of Li_3^8 and their energy spectra upon splitting of C_6^{12} nuclei. Thin films of polystyrene and polyethylene were irradiated in a vacuum chamber by a beam 10^{13} protons per cm^2 from the phasotron of the consolidated institute for nuclear studies. The proton energy was 660 Mev. The fragments were recorded photographically at angles of 20, 47, 90, and 137° relative to the proton beam. Practically all of the observed tracks belonged to Li_3^8 nuclei. Absence of the B_5^8 isobar is significant, because it indicates an asymmetry of the nuclear structure of C_6^{12} in relation to the mirror clusters of B_5^8 and Li_3^8. Conclusions are drawn concerning the origin

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L 17540-63

ACCESSION NR: AP3004420   6

of the soft part of the spectra, and other features of the observed distributions.
"In conclusion, the authors express their deep gratitude to Prof. V. P. Dzhelepov
for the support of this work, to R. G. Vasil'yev, V. N. Kuz'min, Ye. S. Rozhkov,
and R. M. Yakovlev for the help with the experiments, and to P. A. Gorichev for
the discussion of several problems touched upon in this paper". Orig. art. has:
2 figures.

ASSOCIATION: none

SUBMITTED: 01Mar63   DATE ACQ: 21Aug63   ENCL: 00

SUB CODE: PH   NO REF SOV: 005   OTHER: 001

Card 2/2

AVDEYCHIKOV, V. V.; BOGATIN, V. I.; LOZHKIN, O. V.; PERFILOV, N. A.; YAKOVLEV, Yu. P.

"Concerning the Possibility of Investigation of Multi-Nucleon Clustering in the Periphery of Nuclei by Reactions with Fast Particles."

report submitted for All-Union Conf on Nuclear Spectroscopy, Tbilisi, 14-22 Feb 64.

Radium Inst.

KUZ'MIN, V. N.; YAKOVLEV, R. M.; YAKOVLEV, Yu. P.

"Investigations of $He^4(p,nn,x\pi)He^3$ Reactions with 660 MeV Protons."

report submitted for All-Union Conf on Nuclear Spectroscopy, Tbilisi, 14-22 Feb 64.

Radium Inst.

LOZHKIN, O. V.; YAKOVLEV, Yu. P.

"Investigation of the Momentum Distribution of Protons in the p-Shell of Be^9."

report submitted for All-Union Conf on Nuclear Spectroscopy, Tbilisi, 14-22 Feb 64.

Radiyevyy Institut (Radium Inst)

ACCESSION NR: AP4019202   S/0056/64/046/002/0431/0434

AUTHORS: Bogatin, V. I.; Lozhkin, O. V.; Perfilov, N. A.; Yakovlev, Yu. P.

TITLE: Energy spectra and angular distribution of Li-8 fragments produced in interactions between 660-MeV protons and aluminum nuclei

SOURCE: Zhurnal eksper. i teor. fiz., v. 46, no. 2, 1964, 431-434

TOPIC TAGS: lithium 8, lithium 8 fragment, intranuclear reaction mechanism, fragmentation, surface cluster formation, proton aluminum interaction, lithium fragment energy spectrum

ABSTRACT: This work is part of a study of the relation between quasielastic knockout of fragments and the various mechanisms of intranuclear reactions, in which the formation of each specific isotope will eventually be investigated in detail over a wide range of

Card 1/3

ACCESSION NR: AP4019202

incident-particle energies and target-nucleus masses. The products of the nuclear reactions between 660-MeV protons and aluminum nuclei were registered in nuclear emulsions at several angles and the emulsion tracks corresponding to the nuclei Li^8, Li^9, Be^8, and B^8 were investigated. The observed similarity between the energy spectra of the resultant Li^8 and those of carbon, and the absence of the B^8 isobar in both cases, suggest that in both reactions the Li^8 production is due to formation of nucleon clusters localized on the surface of the target nucleus. The correspondence observed between the calculated and experimental angular distribution of Li^8 confirms this hypothesis and suggests that detailed information on the reactions accompanied by fragments on very light target nuclei will make it possible to identify and separate reactions on surface clusters. "In conclusion, the authors are grateful to Prof. V. P. Dzhelepov for support of this work and to R. G. Vasil'kov for help with the experiment. Orig. art. has: 3 figures.

Card: 2/3

AFANAS'YEVA, R.V.; LOZHKIN, O.V.; MAL'TSEV, V.M.; YAKOVLEV, Yu.P.

[Production of Li^8 in the fission of C^{12} nuclei by high-energy protons] Obrazovanie Li^8 v rasshchepleniiakh iader C^{12} protonami vysokoi energii. Dubna, Ob"edinennyi in-t iader-nykh issl., 1964. 8 p.   (MIRA 17:5)

BOGATIN, V.I.; LOZHKIN, O.V.; YAKOVLEV, Yu.P.

Formation of fast residual nuclei. Zhur. eksp. i teor. fiz.
45 no.6:2072-2073 D '63.
(MIRA 17:2)

L 15376-65 EWT(m) DIAAP/SSD/AFWL/RAEM(c)/ESD(t)

ACCESSION NR: AP4048630

S/0048/64/028/010/1573/1577 B

AUTHOR: Avdeychikov, V.V.; Bogatin, V.I.; Lozhkin, O.V.; Perfilov, N.A.; Yakovlev, Yu.P.

TITLE: Many-nucleon clusters in the peripheral nuclear region evinced in reactions with fast particles /Report, Fourteenth Annual Conference on Nuclear Spectroscopy held in Tbilisi 14-22 Feb 1964/

SOURCE: AN SSSR. Izv. Seriya fizicheskaya, v.28, no.10, 1964, 1573-1577

TOPIC TAGS: nuclear physics, nucleon clusters, carbon, aluminum, vanadium

ABSTRACT: The energy and angular distributions of Li^8 nuclei ejected from C^{12}, Al^{27} and V^{51} by 660 MeV protons were investigated. Three of the authors have described the experimental technique elsewhere (Doklady* AN SSSR 151,826,1963). The energy distribution was found to depend on the angle of expulsion. At low angles all the spectra have high energy tails corresponding to momenta of the order of the total momentum of the incident proton. The energy distributions of Li^8 from C^{12} at $20°$ and $90°$ are very similar to the corresponding distributions of residual Li^8 nuclei from the disintegration of Be^9 by high energy protons, and it is concluded

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L 15376-65
ACCESSION NR: AP4048630

that the ejected Li^8 nucleus is formed by direct reaction of the incident proton with a Be^9 cluster within the C^{12} nucleus. The spectrum of Li^8 from Al^{27} was calculated on the assumption that it is formed from a Be^9 cluster and is subject to absorption by the residual nucleus. Good agreement with experiment was found. The spectrum of Li^8 from V^{51} was calculated on the assumption that Li^8 is formed only during the evaporation stage of the reaction. Fair agreement with experiment was obtained for large expulsion angles, but the observed yield at low angles was considerably greater than the calculated. It is concluded that direct reactions with clusters in the peripheral region make a significant contribution in this case also. Orig.art.has: 3 figures.

ASSOCIATION: none

SUBMITTED: 00   ENCL: 00

SUB CODE: NP   NR. REF SOV: 003   OTHER: 000

2/2

BOGATIN, V.I.; LOZHKIN, O.V.; PERFILOV, N.A.; YAKOVLEV, Yu.P.

Energy spectra and angular distribution of Li^9 fragments produced in the interaction between 660 Mev. protons and aluminum nuclei. Zhur. eksp. i teor. fiz. 46 no.2:431-434 F '64.

(MIRA 17:9)

S/0056/64/047/001/0007/0011

ACCESSION NR: AP4042360

AUTHORS: Lozhkin, O. V.; Yakovlev, Yu. P.

TITLE: Features of production of fast residual nuclei in the reaction $Be^9(p, 2N \times \pi)Li^8$

SOURCE: Zh. eksper. i teor. fiz., v. 47, no. 1, 1964, 7-11

TOPIC TAGS: proton interaction, beryllium, lithium, momentum transfer, elastic scattering

ABSTRACT: The purpose of the investigation was to study the characteristics of the transfer of large momenta to residual nuclei, and to ascertain the extent to which the interaction between the incident and bound nucleons is quasi-free. The singularities in the production of fast residual nuclei in the reaction $Be^9(p, 2N\times\pi)Li^8$ were investigated to this end. The reasons for choosing Be^9 as a target nucleus and the experimental procedure are described. An analysis

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ACCESSION NR: AP4042360

of the results indicates that at least up to 750 MeV/c the large momentum transfer to the residual nuclei Li^8 can be explained by assuming quasi-free interaction between the incident proton and the nucleon. In view of its importance, it is concluded that a review of this process is necessary with allowance for elastic scattering, which was neglected in the present analysis, and with an examination of the alternate possibility of transfer of large momentum to the Li^8 nucleus by knock-on from the Be^9 nucleus. "In conclusion the authors are deeply grateful to Professor N. A. Perfilov for interest in the work and for a discussion of problems connected with its performance, to Professor V. P. Dzhelepov for making it possible to carry out the experiment in the laboratory of nuclear problems OIYaI, V. M. Mal'tsev for valuable advice and discussions, S. N. Shumilov and Ye. S. Rozhkov for help in organization of the experiment and to V. P. Perely*gin for collaboration in processing of the nuclear emulsions." Orig. art. has: 4 figures and 1 formula.

Card   2/3

AFANAS'YEVA, R.V.; LOZHKIN, O.V.; MAL'TSEV, V.M.; YAKOVLEV, Yu.P.

Li^8 production in the fissure of C^{12} nuclei by high-energy protons.
IAd. fiz. 1 no.1:76-79 Ja '65.   (MIRA 18:7)

1. Ob"yedinennyy institut yadernykh issledovaniy.

YAKOVLEV, Yu., inzh., YEGOSHIN, V.V.

A blasting method for roof caving in the mining of thick seams
by a combined system. Ugol' 40 no.8:33-34 Ag '65.
(MIRA 18:8)

1. Vzryvpru kombinata Kuzbassugol' (for Yakovlev). 2. Trest
Kiselevskugol' (for Yogoshin).

18.4000   2508

S/128/60/000/007/004/017
A105/A033

AUTHORS: Balandin, G.F., Gini, E.Ch., Stepanov, Yu.A. and Yakovlev, Yu.P.

TITLE: Casting With a Vibration Pouring Device

PERIODICAL: Liteynoye proizvodstvo, 1960, No. 7, pp. 34-36

TEXT: The authors mention the effect of vibration on metal crystallization and describe tests performed with a vibration pouring device (Fig.1), designed by the members of the Institut metallurgii imeni A.A. .... , AN SSSR (Institute of Metallurgy imeni A.A. Baykov of the AS USSR), G.F. Balandin and V.A. Petrunichev. Fig.2 shows macrosections of A2 aluminum ingots. The ingot shown in Fig.2a was poured with the aid of a non-vibrating device, ingot shown in Fig.2b through a vibrating funnel with a frequency of 230 oscillations/sec., an amplitude of 0.1 mm, power 1 kw, temperature of liquid aluminum $720^\circ C$, ingot weight 2 kg and pouring time 4 seconds. The ingot obtained with the vibration pouring device was finer grained and its plasticity increased by 20% (see Table). Tests showed that casting through a vibrating pouring device produces the same effect as pouring into vibrating molds. A

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considerable crushing of grains in the ingots indicates an increase of the crystallization centers in the liquid metal during vibration. Fig.3 shows specimens on which the tendency of aluminum alloys to hot cracks was tested. The specimen of AD1 aluminum (Fig.3a) was poured through a non-vibrating funnel; the one shown in Fig.3b was poured through a vibrating funnel at 720°C and showed no hot cracks. As the metal is poured through the vibrating funnel the walls become coated with a hard layer of metal. This layer is broken by the vibration of overheated liquid metal and solid metal pieces are carried into the mold together with liquid metal, where they melt partly or completely. If no complete melting is reached by the time the metal begins to solidify, these solid phases become centers of crystallization. Fig.4 shows a macrophotograph of the longitudinal section of the coating removed from the funnel walls after pouring of aluminum under vibration while Fig.5 shows the longitudinal section of an ingot completely solidified in a vibrating funnel. A distinct boundary can be observed between the acicular crystal zone and the central crushed grains zone. The grain size depends on the temperature of the metal during pouring. Higher temperatures ensure complete melting of the solid phase by the time crystallization of the metal begins. Higher resistance to hot cracks is attributed to an increase in plasticity

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of fine-grained alloys. This method improves the mechanical properties of alloys and increases their resistance to hot cracks. It can be applied to every type of mold and to a great number of alloys without changing the vibrating conditions. A satisfactory vibration effect was obtained with AL-4, AL-2, "avial"-type alloys and 15L steel. There are 6 figures, 1 table and 13 references: 11 Soviet and 2 non-Soviet.

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Table 1:

1) aluminum grade; 2) alloy;
3) pouring temperature; 4) cast-
ing conditions; 5) cast; 6) after
annealing; 7) cast; 8) rolled;
9) cast; 10) in chill molds with-
out vibration; 11) in chill molds
through a vibrating funnel; 12) in
chill molds without vibration;
13) in chill molds through vi-
brating funnel; 14) in sand molds
without vibration; 15) in sand
molds through a vibrating funnel.

| 1) Марка алю- миния	σ_b в кг/мм²	δ в %	2) Сплав	3) Темпе- ратура заанв- ки в °C	4) Условия литья
Ад1	7,7—7,9	25,0	5) Литой	700	10) В кокиль без вибра- ции
	6,2—8,5	26,0	6) После отжига	700	То же
	5,5—8,8	29,5	7) Литой	700	11) В кокиль через виб- рирующую воронку
	6,5—8,7 7,84—7,14	30,0 21,3	8) Катаный 9) Литой	720	12) В кокиль без вибра- ции
А2	7,7—8,02	26,5	·	720	13) В кокиль через виб- рирующую воронку
	4,97—5,35	4,5	·	740	14) В песчаную форму без вибрации
	5,35—5,47	7,0	·	740	15) В песчаную форму через вибрирующую воронку

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Casting With a Vibration Pouring Device
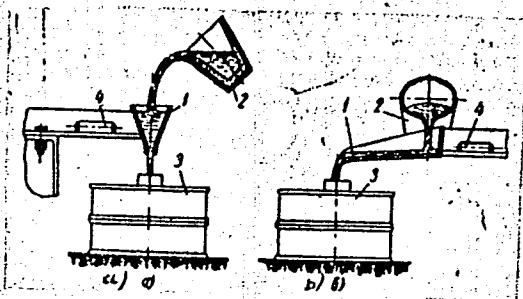
Figure 2

Figure 1

1 - funnel or channel;
2 - ladle; 3 - mold;
4 - vibrator

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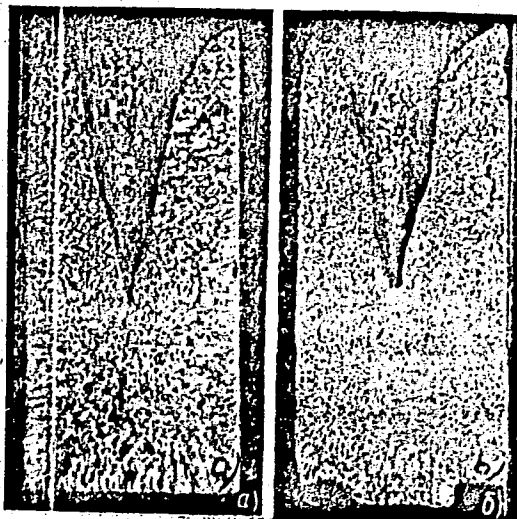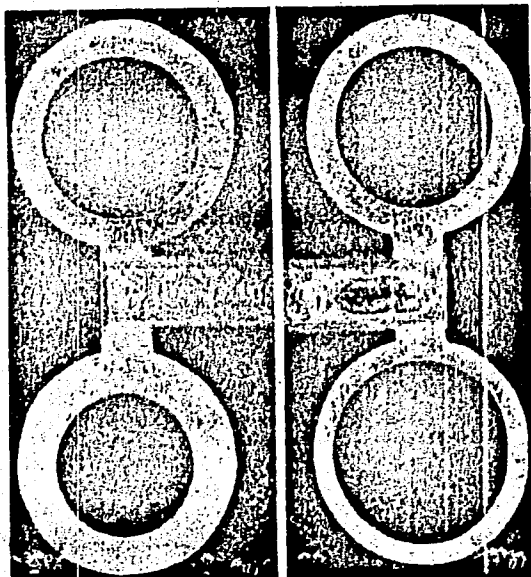
Casting With a Vibration Pouring Device

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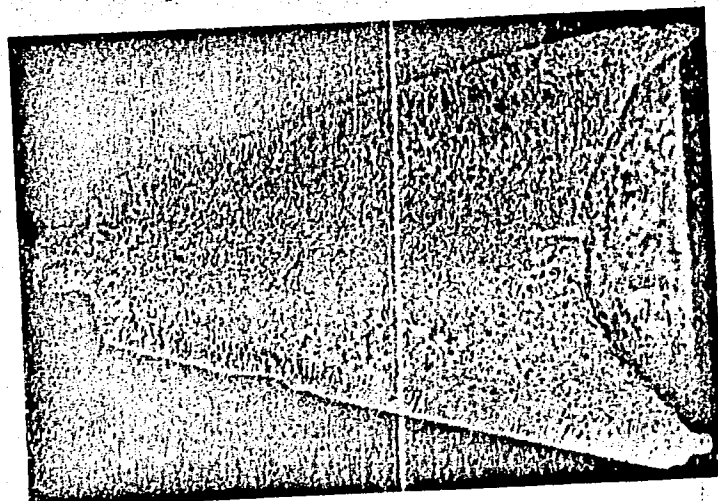A105/A033

Figure 3

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Casting With a Vibration Pouring Device

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Figure 4

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E021/E206

18.4000

AUTHORS: Balandin; G. F. and Yakovlev, Yu. P.

TITLE: The Use of Vibration During the Continuous Casting
                of Non-ferrous Metals and Alloys

PERIODICAL: Tsvetnyye metally, 1961, No. 1, pp. 75-78

TEXT: Experiments have been carried out on casting alumin-
ium alloys using a vibrating pouring arrangement with the mould
remaining still. The macrophotos (Fig. 1) show the effect of this
treatment on alloys AMn, AV and Al cast at 720°C into a water
cooled mould, 1α without any vibration and 1b with a vibrating
funnel. The method was also tried for continuous casting. Fig.
2 shows the simple apparatus used, consisting of a mould and a
vibrating channel down which the liquid metal flows. The frequency
used was 14 000 c.p.s. and the amplitude 0.1 mm. Fig. 3 shows
photographs of the fractures of zinc ingots (diameter 100 mm) made
by continuous casting at 450°C (a – without vibration, b – with
vibration). The vibration produced a much finer grain. Similar
results were obtained with aluminium. The following mechanism of
grain refinement is suggested. During casting, solid metal forms

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S/136/61/000/001/006/010
E021/E206

The Use of Vibration During the Continuous Casting of Non-ferrous Metals and Alloys

on the walls of the pouring channel. Under the action of the vibr- ations and the liquid metal, this is removed and results in solid fragments being present in the liquid metal poured into the mould. These become the crystallisation nuclei. The theory was tested by using a pouring channel at 650°C for aluminium. At this temper- ature no solid metal formed and no refinement occurred. Figs. 4a and 4b show that no change in structure occurred at this temper- ature when vibrations were used. If aluminium wire was fed into the pouring channel, however, grain refinement occurred (Fig. 4c). This confirmed the theory that solid fragments of metal were causing nucleation. In the continuous casting of aluminium and magnesium alloys, it is therefore necessary to use a cooled pouring arrangement to obtain grain refinement by vibrations. There are 5 figures and 8 references; 7 Soviet and 1 non-Soviet.

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S/128/61/000/008/004/004
A054/A127

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AUTHORS: Balandin, G. F., Gini, E. Ch., Sokolov, Ye. A., Stepanov, Yu. A. Yakovlev, Yu. P.

TITLE: Casting thin-walled, large-sized panel compounds in green sand-clay molds

PERIODICAL: Liteynoye proizvodstvo, no. 8, 1961, 38 - 39

TEXT: The casting of thin-walled, large-size panel parts of aluminum and magnesium alloys ensures a considerable saving in the weight of these components and in time. On the other hand some difficulties must be overcome, in the first place those encountered in filling the mold with the liquid metal. In the Soviet Union thin-walled panels are cast by successive crystallization or extrusion. The latter method is applied for AЛ4 (AL4) aluminum alloy sheets 800 x 1,500 x 2 - - 5 mm in size, moreover for AЛ2 and MЛ5 (ML5) alloy panels. However, when applying the method for heat-resistant and high-strength AL8, AL19, B15 (V15) alloys, hot cracks are forming. In order to establish the cause of this defect tests were carried out at the Liteynaya Laboratoriya MVTU im. Baumana (Foundry Laboratory MVTU im. Bauman) and it was found that panel elements 500 x 800 x 3 - 4 mm

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A054/A127

Casting thin-walled, large-sized ....

in size could be cast from AL19 and V15 alloys by applying the conventional cast-
ing and using green sand-clay molds. Test panels, 250 x 300 x 2 mm in size were
cast using a channel (12 x 12 mm) around the panel which considerably facilitated
the filling of the mold. The removal of air and gases from the mold cavities is
also important in this process. When applying 0.3 - 0.4 mm thick inserts on the
parting surface of the mold during the assembly, the filling of the mold improved,
the ventilation through the narrow aperture at the parting surface of the mold be-
came more intensive. The circumferential channel, the slot-type feeding system
operating over the entire periphery of the casting, a high-capacity slag-chamber
and a riser with a considerable cross section ensure a great intake of the liquid
metal and an instantaneous filling of the mold. Moreover, ribs formed on the
casting also promote a rapid filling of the narrow spaces. The gate and the ven-
tilation system based on the above principles for casting 500 x 800 x 3 - 4 mm
panels are shown. The molding mixture used consists of 55 - 60 % ПO1 (PO1) type
Tambovsk sand, 45 - 50 % quartz sand and chalk, having a humidity of 6 %, a gas
permeability of 54 units and a compresssion strength of 0.24 - 0.27 kg/cm². The
binder contained 10 % Tambovsk sand and 90 % burnt sand and had a humidity of
4.5 % and a compression strength of 0.35 kg/cm². It was found that the applica-

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Casting thin-walled, large-sized ....

tion of inserts at the parting surface of the mold had an adverse effect on the
accuracy of the panel dimensions. Therefore, to promote ventilation, instead of
using inserts, 1.0 - 1,5 mm wide grooves were cut in the parting surface along
the periphery of the casting. This arrangement required a high casting tempera-
ture, (for the AL 4 alloys: 820 - 830°C, for the AL 19 and V15 alloys: 850 - 860°
C). On the other hand the high temperature promoted the formation of cavities (in
some cases the casting split into two parts). This could be eliminated by con-
trolling the density of the mixture in the upper part of the mold by changing its
composition and the intensity of ramming. In this way panels can be cast also
from X18H9T (Kh18N9T) steel in dry sand molds. The mechanical properties of AL4,
V15 and Kh18N9T steel panels meet the standards set. A deterioration of the me-
chanical characteristics could only be observed in AL 19 panels. This was caused
by a lack of heat resistance in the metal. When coating the casting surface with
hexachlorethane, however, the casting temperature of the AL19 alloy sheets could
be reduced from 850 to 730°C. The dimensional accuracy of the castings depended
on the assembling accuracy of the mold and on the stability of the bottom plate.
During assembling the mold showed a deformation of 0.1 - 0.25 mm, while during
transportation (shocks) the deformation of the thickness of the casting attained
0.4 - 0.5 mm (20 - 30 %). For this reason the application of dry sand core or

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A054/A127

Casting thin-walled, large-sized ....

shell molds is indicated. There are 1 figure and 9 references: 7 Soviet-bloc, 2 non-Soviet-bloc. The references to English-language publications read as follows R. H. Osbrink, "Modern Castings", October 1958; N. C. Flemings et. al., Transactions A.F.S.," 1959.

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S/145/62/000/010/006/006
D263/D308

AUTHORS: Balandin, G.F., Candidate of Technical Sciences,
                  Docent, Gini, E.Ch., Aspirant, Sokolov, Ye.A., Engin-
                  eer, Stepanov, Yu.A., Assistant and Yakovlev, Yu.P.
                  Aspirant

TITLE: Filling capabilities of raw sand forms in casting
                  of aluminum alloys

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Mashinostroy-
                  eniye, no. 10, 1962, 184-191

TEXT: The article describes a series of experiments, with
various types of pairing systems and different methods of filling
sand forms for thin-walled (2 - 2.5 mm) panel type castings, conduct-
ed in order to find the most practical solutions. Conclusions: impro-
vements in filling capabilities can be obtained by using pouring sys-
tems having minimal thermal and hydraulic losses. Quick pouring im-
proves filling capability but requires good ventilation. To obtain
required accuracy and thickness of castings, rigging of increased

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D263/D308

Filling capabilities ...

rigidity is necessary. High overheating (160 - 180°C above liquidus) makes it possible to obtain castings of 500 - 800 mm-size with wall thickness of 1.5 mm. Filling capabilities can also be improved considerably by treating form surfaces with special coverings (chalk, amorphous carbon); this lowers the pouring temperature and consequently castings can be made using alloys whose properties are reduced at high overheatings. There are 4 figures and 2 tables.

ASSOCIATION: MVTU im. N.I. Baumana

SUBMITTED: December 8, 1961

Card 2/2

AUTHORS: Balandin, G.F. and Yakovlev, Yu.P.

TITLE: On the problem of the effect of vibration on
solidification of alloys in castings

TEXT: It has already been established that the effective-
ness of vibration as a means of grain-refining of the structure
of castings varies from alloy to alloy. It has been possible in
the case of some materials to determine the optimum conditions
of this treatment; in the case of other (pure zinc and the
18-8 stainless steel, in particular) materials, the treatment
seems to be ineffective irrespective of the frequency, amplitude
and intensity of vibrations employed. The present author
analyzed the relevant experimental evidence and came to the
conclusion that the most likely explanation of the different
response of various metals to vibration is best explained
in terms of the theory according to which the grain-refinement
brought about by the application of vibration to a molten alloy

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S/126/62/013/003/015/023
E193/E383

On the problem of ....

during casting is due to the fact that this treatment increases
the number of crystal fragments broken away from the solidifying
skin, providing additional crystallization nuclei. If this
theory is correct, then, all other conditions being equal, the
beneficial effect of the vibration should be closely related to
the strength of the crystals of a given alloy near its solidus.
Using his own experimental results and data obtained by
M.N. Bochay (Mechanical properties of aluminium alloys during
solidification in relation to the formation of hot-welding
cracks (Mekhanicheskiy svoystva alyuminiyevykh splavov v
protsesse kristallizatsii i ikh svyaz') - Dissertation, Moscow,
1958), the present authors constructed a graph, reproduced in
Fig. 3, where the UTS (σ, kg/mm) of Al-Si alloys near the solidus
temperature, the thickness (H, mm) of the columnar-crystals
zone and the average grain size (d, mm) in ingots cast from
a vibrated tundish are plotted against the silicon content (%)
of the alloy. It will be seen that the concentration dependence
of these three properties follows the same course. Since

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On the problem of ....

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E193/E383

graphs constructed for Al-Cu alloys and steels showed a similar relationship, it was concluded that the extent of the columnar-crystal zone and the average grain size in metal castings were in fact related to the strength at temperatures near the solidus and that this relationship determined the effectiveness of vibration treatment as a means of grain-refining of cast structures. There are 4 figures.

ASSOCIATION: Moskovskoye vyssheye tekhnicheskoye uchilishche
                im. Baumana (Moscow School of Higher Technical
                Education im. Bauman)

SUBMITTED: June 24, 1961

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