

MIRKIN, L.I., inzh.; KACHANOV, N.N., kand.tekhn.nauk; UMANSKIY, Ya.S.,  
doktor tekhn.nauk, prof.

Effect of high temperature heat treatment on the fine crystalline  
structure of steel. Izv. vys. ucheb. zav.; chern.met. no.7:153-  
156 J1 '58. (MIRA 11:10)

1. Moskovskiy institut stali.  
(Steel--Heat treatment) (Metallography)

PHASE I BOOK EXPLOITATION

80V/3987

Kachanov, Nikolay Nikolayevich, and Lev Iesifovich Mirkin

Rentgenostruktarnyy analiz /polikristallov/; prakticheskoye rukovodstvo.  
(X-Ray Analysis /of Polycrystals/; Handbook) Moscow, Mashgiz, 1960. 215 p.  
Errata slip inserted. 5,000 copies printed.

Reviewer: V.G. Kostogonov, Engineer; Ed.: V.S. Lyuttsan, Candidate of Technical Sciences; Ed. of Publishing House: V.V. Rzhavinskiy, Engineer; Tech. Ed.: A.F. Uvareva; Managing Ed. for Literature on Metal Working and Instrument Making (Mashgis): V.V. Rzhavinskiy.

**PURPOSE:** This book is intended for personnel in various types of metallurgical plant laboratories, and may be useful to persons in scientific research institutes and specialists in related fields.

**COVERAGE:** This handbook contains practical information on procedure in taking, processing and interpreting roentgenograms and on the application of x-ray analysis to various problems in metallurgy. Data on preparing specimens and selecting the type of camera for taking roentgenograms are given. Methods of

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S/028/60/000/010/006/020  
B013/B063AUTHOR: Kachanov, N. N.TITLE: Standard for the Temperability of Bearing Steel 18PERIODICAL: Standartizatsiya, 1960, No. 10, pp. 28 - 31 25

TEXT: This is a report on the elaboration of a standard for the temperability of bearing steel, which has become necessary because the automation of the heat treatment of bearings was complicated on account of the varying temperability of steel. An investigation carried out at the Matematicheskii institut AN SSSR im. Steklova (Institute of Mathematics of the AS USSR imeni Steklov) (Ref. 2) has shown that a standard can be worked out with 140-150 specimens melted at different plants at different times. 150 specimens supplied by the Izhevskiy metallurgicheskiy zavod (Izhevsk Metallurgical Plant), Chelyabinskiy metallurgicheskiy zavod (Chelyabinsk Metallurgical Plant), and zavod Dneprospetsstal' (Dneprospetsstal' Plant) were examined (Figs. 1 and 2). Relations were established between the dimensions of bearing parts (rollers and rings) and the temperability of steel (Fig. 3), and between the tempering depth of steel on its

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Standard for the Temperability of Bearing Steel

S/028/60/000/010/006/020  
B013/B063

temperability for constant cross sections of rollers and rings (Fig. 4). On the strength of calculations basing on experimental data, a depth of 6.5 mm is recommended as a standard for the temperability of steel. The diagram of Fig. 2 shows that the theoretical amount of scrap can reach 20% with a temperability of 6.5 mm. On the average it is, however, 12% (Fig. 5). The highest amount was found at the Dneprospetsstal' Plant (22%) and the lowest (7-8%) at the metallurgical plants of Izhevsk and Chelyabinsk. As the introduction of the new standard proved to be very difficult, the author recommends a two-stage introduction. A. V. Kutay and Kh. B. Kordonskiy are mentioned. There are 5 figures and 6 Soviet references. ✓

Card 2/2

KACHANOV, N.M.; SPRISHNYSKIY, A.I.; KHASIN, G.A.; BERNSHTEYN, M.L.

What should a modern metallographic microscope be like?  
Zav.lab. 26 no.6:770-773 '60. (MIRA 13:7)

1. Nauchno-issledovatel'skiy i eksperimental'nyy institut podshipnikovoy promyshlennosti (for Kachanov and Sprishevskiy). 2. Tsentral'naya zavodskaya laboratoriya Zlatoustovskogo metallurgicheskogo zavoda imeni I.V.Stalina (for Khasin). 3. Moskovskiy institut stali im. I.V.Stalina (for Bernshteyn).

(Microscope)

S/028/61/000/001/001/005  
B021/B054

AUTHOR: Kachanov, N. N.

TITLE: Determination of hardenability of steel by end hardening

PERIODICAL: Standartizatsiya, no. 1, 1961, 22-25

TEXT: Conditions and methods of determining the hardenability of steel are specified in ГОСТ 5657-51 (GOST 5657-51). Experience, however, has shown that this standard should be improved since the prescribed holding time of specimens at the hardening temperature takes no account of differences in their chemical composition. The same holding time is provided for both carbon and alloy steels. Figs. 1-4 show curves of hardenability for four steel types with different contents of carbon and alloying elements, which were obtained as a function of holding time at hardening temperature. The steel types 20X2H4A (20Kh2N4A), 40X (40Kh), УХ9 (ShKh9), and УХ15 (ShKh15) are ordered by increasing content of carbides. The diagrams given show that the effect of holding time at hardening temperature on the hardenability of steel is the greater, the more carbon and alloying elements the steel contains. In steels with a carbon content

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Determination of hardenability ...

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B021/B054

below 0.45%, the effect of holding time need not be taken into account, which, however, is not true for steels of the grades  $\text{UX9}$  (ShKh9) and  $\text{UX15}$  (ShKh15), as can be seen from Figs. 3 and 4. The methods of investigation should yield comparable results. This is, however, not commended in Table 2 of GOST 5657-51. A holding time of 30 min is recommended for specimens 25 and 20 mm in diameter, which however, results in different hardenability. Fig. 5 shows diagrams of hardenability for two specimens with diameters of 25 mm (Curve 1) and 20 mm (Curves 2 and 3) which both were made of the same steel bar of the ShKh15 grade. After 30 min holding time, the specimen with the smaller diameter showed higher hardenability. At different holding times (diameter 25 mm: 30 min, diameter 20 mm: 24 min), hardenability was the same. This is especially noticeable in steels with a content of more than 0.5-0.6% of carbon and carbide-forming alloying elements. According to GOST 5657-51, muffle furnaces are approved to heat specimens with a content of less than 0.45% of carbon. For steels with a higher carbon content, only chamber furnaces should be used which also have a larger working room and a more uniform temperature. According to GOST 5657-51, specimens are 100 mm long, no tolerance being indicated. Therefore, specimens may be between 97.5

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Determination of hardenability ...

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B021/B054

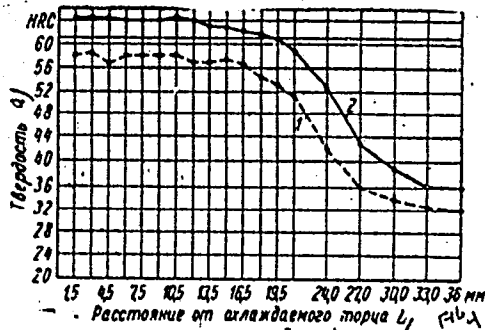
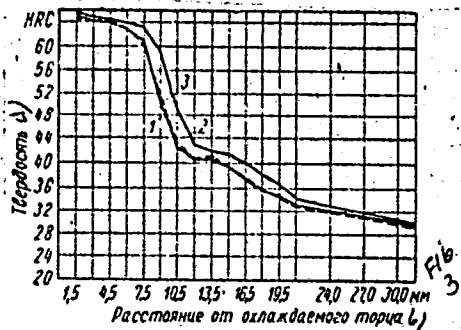
and 102.5 mm, or between 100 and 105 mm, or between 95 and 100 mm long according to existing standards, which may lead to incorrect results concerning the hardenability of steel. Experience made by the Vsesoyuznyy nauchno-issledovatel'skiy i konstruktorsko-tekhnologicheskiy institut podshipnikovoy promyshlennosti (All-Union Scientific Research, Design and Technological Institute of the Bearing Industry) showed that the measurement of hardened specimens in the apparatus recommended by GOST 5657-51 gave reduced results and a noticeable dispersion. Fig. 6 shows two curves of hardenability for the same specimen of  $\text{UX15CF}$  (ShKh15SG) steel obtained with the apparatus (Curve 1) and without it (Curve 2). The use of the apparatus reduces the hardenability. There are 6 figures.

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Determination of hardenability ...

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B021/B054



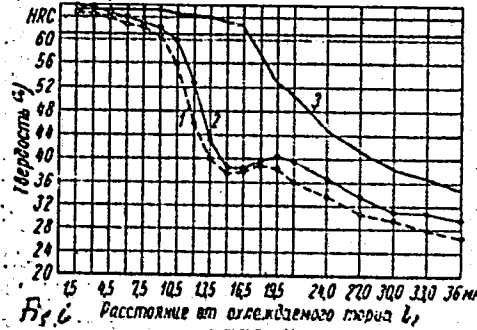
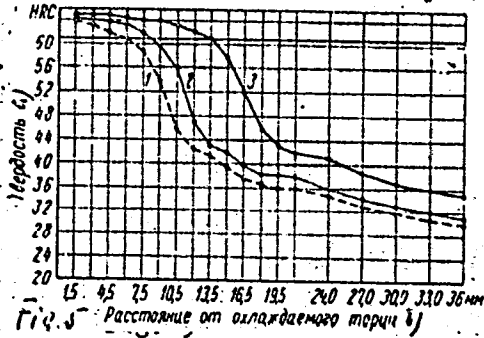
Legend to Fig. 3: Hardenability of ShKh9 steel at different holding times.  
1: 30 min; 2: 50 min; 3: 160 min;

Legend to Fig. 4: Hardenability of ShKh 15 steel at different holding times.  
1: 30 min; 2: 50 min; 3: 160 min.

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S/028/61/000/001/001/005

Determination of hardenability



Legend to Fig. 5: Hardenability of ShKh15 steel determined under different conditions. 1: specimen diameter 25 mm, holding time 30 min; 2: specimen diameter 20 mm, holding time 30 min; 3: specimen diameter 20 mm, holding time 24 min.

Legend to Fig. 6: Hardenability of ШХ15СГ (ShKh15SG) steel. 1: with the use of the GOST apparatus, 2: without GOST apparatus. The following holds for all figures: a) hardness, b) distance from the cooled end, mm.

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GORODNOV, Petr Timofeyevich, kand. tekhn. nauk; KOZLOVSKIY, I.S.,  
kand. tekhn. nauk, retsenzent; KACHANOV, N.N., kand.  
tekhn. nauk, red.; LESNICHENKO, I.I., inzh., red. izd-va;  
VLADIMIROVA, L.A., tekhn. red.

[Increasing the heat resistance of steel parts by alitizing]  
Povyshenie zharostoikosti stal'nykh izdelii metodom alitiro-  
vania. Moskva, Mashgiz, 1962. 109 p. (MIRA 15:2)  
(Steel, Heat-resistant) (Aluminum coating)

S/129/62/000/002/001/014  
E111/E435

AUTHOR: Kachanov, N.N., Candidate of Technical Sciences

TITLE: Hardenability of bearing steel

PERIODICAL: Metallovedeniye i termicheskaya obrabotka metallov,  
no.2, 1962, 7-11

TEXT: Parts of bearings made from type  $\text{UX15}$  (ShKh15) steel cannot always be hardened to  $R_C$  61, particularly steel melted at the "Dneprospetsstal'" and "Serp i molot" works which is likely to show unsatisfactory hardenability. Therefore, the author has studied the influence of process factors on the hardenability of annealed ShKh15 steel from 150 heats produced at various steelworks. The chemical composition, structure and hardness of all steel tested conformed to  $\text{ГОСТ}$  801-47 (GOST 801-47). Hardenability was determined by the standard end-quench method and also from ordinary oil-quenching data. The hardenability criterion was the distance from the cooled surface to the layer having a hardness of 61  $R_C$ . Statistical treatment of the results showed the following weighted mean values: 7.8 mm for the Chelyabinsk works; 7.7 mm for Izhevsk; 7.3 mm for "Dneprospetsstal'" and 6.5 mm for Card 1/3

Hardenability of bearing steel

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"Elektrostal". The weighted mean for all works was 7.5 mm. Some heats at the Zlatoust works also showed low hardenability. To find the reason for the greatly decreased hardenability of some heats the nature of carbide distribution in the structure of steel in its initial state was studied. The distribution curves were drawn from examination of structure at a magnification of 8500. It appears that the main effect on hardenability was produced by carbide particles under 0.6 microns in size: the effect rises with decreasing particle size and increase in their relative amount. Thus, annealing conditions can significantly affect hardenability which is itself correlated with hardness in the case of hyper-eutectoid steels. The author concludes that those steels should have the highest hardenability whose hardness in the annealed state is highest; this was experimentally confirmed. The grain-refining effect of aluminium might be expected to lead to a reduction in hardenability with rising aluminium usage for deoxidation but the author has shown that this does not occur over the range 0.22 to 1 kg/ton. This is probably due to the fact that under steel production conditions the grain size does not change

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Hardenability of bearing steel

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greatly over this aluminium-usage range; similar results were obtained when 1.5 to 2 kg aluminium/ton steel was introduced into the test steels. There are 6 figures and 2 tables.

ASSOCIATION: VNII Podshipnikovoy promyshlennosti  
(VNII of the Bearings Industry)

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8/129/62/000/012/004/013  
E073/E351

**AUTHOR:** Kachanov, N.N., Candidate of Technical Sciences

**TITLE:** Influence of some factors on the hardenability of the steel  $\sigma \times 15$  (ShKh15)

**PERIODICAL:** Metallovedeniya i termicheskaya obrabotka metallov, no. 12, 1962, 15 - 20.

**TEXT:** Investigations on the heat duration of 243 heats, of which 105 were teemed into ingots weighing 2 000 kg, the remainder into ingots weighing 3 050 - 3 080 kg, have shown that the hardenability of steel ShKh15 does not depend on the duration of the refining period. The hardenability increases with increasing refining time for 2 000-kg ingots and decreases with increase of refining time for 3 050-kg ingots. The reasons for this should be investigated further. A statistical analysis on rods of 42 mm diameter, made by rolling the ingots, has shown that the weight of the ingot and, consequently, the degree of reduction during rolling, have an important effect on the hardenability of the ball-bearing steel investigated. Electron-microscopic studies lead to the assumption that one of the causes of unfavourable distribution  
Card 1/2

S/148/62/000/007/002/005  
E071/E183

**AUTHORS:** Baranov, I.A., Oyks, G.N., Ansheles, I.I.,  
Zonomareva, Ye.P., and Kachanov, N.N.

**TITLE:** Vacuum treated silicon-free ball-bearing steel

**PERIODICAL:** Izvestiya vysshikh uchebnykh zavedeniy,  
Chernaya metallurgiya, no.7, 1962, 78-85

**TEXT:** In an attempt to improve the purity of ball-bearing steel, the possibility of modifying the usual deoxidising practice (vacuum treatment in the ladle and addition of 6 kg/t of ferro-silicon and 160 g/t of aluminium) was investigated. Four heats of silicon-free ball-bearing steel were made in a 16-t electric furnace and teemed into 4-t ingots. At the end of the vacuum treatment [Abstractor's note: no details given] undeoxidised metal was passed for teeming. In two heats 60-100 g/t of aluminium was added to the funnel. In the remaining two heats, aluminium was added to the ingot mould; of these two ingots one was deoxidised and the other - teemed through the same syphon - was not deoxidised. The remaining metal from these two heats (not deoxidised either with silicon or aluminium) was top  
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Vacuum treated silicon-free ...

S/148/62/000/007/002/005  
E071/E183

poured; one ingot under vacuum (3rd ingot) and one in air (4th ingot). From each ingot samples of rolled square (78 mm) were taken at a distance of 16, 30, 62 and 97.5% from the top; some specimens of the finished product (14-27 mm round) were also investigated. The results of the metallographic studies confirmed the data on the total amount of inclusions in steel, determined by the electrolytic dissolution of 3-5 specimens from each ingot. In steel produced by the usual method (deoxidation in the ladle and vacuum treatment) the amount of inclusions was 0.0026 wt.%; in silicon-free steel deoxidised on teeming in the funnel 0.0031 wt.%; deoxidised in the mould 0.0083 wt.%; and top poured under vacuum 0.0048 wt.%. The smallest amount of oxide inclusions was in steel teemed under vacuum without deoxidation. In all silicon-free heats the amount of globular inclusions was smaller than in the normal heats. Undeoxidised, bottom-poured steel had more impurities than top-poured steel. There are 5 figures and 2 tables.

ASSOCIATION: Moskovskiy institut stali i splavov  
(Moscow Institute of Steel and Alloys)

Card 2/2

KACHANOV, N.N., kand. tekhn. nauk

Effect of certain factors on the hardenability of ShKh15 steel.  
Metalloved. i term. obr. met. no.12:15-20 D '62. (MIRA 16:1)

1. Nauchno-issledovatel'skiy konstruktorskoye-tekhnologicheskoye  
institut podshipnikovoy promyshlennosti.  
(Steel--Hardening)

SOURCE: Ref. zh. Metallurgiya, Abs. 11720

AUTHOR: Meshchenov, N. I.

CITED SOURCE: Pr. vses. n.-i. konstrukt.-tekhrol. in-ta podshipnik. No. 1, 1961, 14, 1-4.

TOPIC TAGS: metallurgy, ferrous metals, metal testing

... effect of low-temperature tempering  
critical spalling for steel, determined from the curve of tempering  
... of semi-martensite zone. Low-temperature tempering may increase or reduce  
(or even leave unchanged) the hardness in the semi-martensite zone from one batch  
to another, despite previous statements that low-temperature tempering  
...  
... is not a satisfactory criterion for plotting curves of  
... of critical diameter

SUB CODE: MM, IE  
Corr. 1/1

ENCL: 10

L 6669-65

EWT(m)/EWP(q)/EWP(b) IJP(c) MJW/JD

ACCESSION NR: AR4036013

8/0276/64/000/003/0009/0009

SOURCE: Ref. zh. Tekhnol. mashinostr. Sv. t., Abs. 3044

AUTHOR: Kachanov, M. M.; Sakho'ko, I. M.; Pchelkina, V. M.; Laposhko, A. D.;  
Oykb, G. N.; Barenov, I. A.; Ansheles, I. I.

TITLE: The quality and properties of silicon-free bearing steel

CITED SOURCE: Tr. Vses. n.-i. konstrukt.-tehnol. in-ta podshipnik. proca-sti,  
no. 1(33), 1963, 54-68

TOPIC TAGS: ShKh15 steel, silicon free steel, high purity steel, bearing steel,  
instrument bearing steel, stainless steel

TRANSLATION: An industrial method has been developed for making ShKh15 bearing steel, which does not contain silicon, making it possible to obtain metal with a smaller content of nonmetallic inclusions than is possible with ordinary steel-making methods. Silicon-free ShKh15 steel can be used for making instrument bearings and is recommended as an initial material for electroslag remelting. The hardenability and annealability of silicon-free steel from the heats that

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L 6669-65

ACCESSION NR: AR4036013

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were tested were lower than in the case of ShKh15 steel produced by conventional methods. The contact resistance and strength properties, except for torsional strength, of silicon-free steel matched those of ShKh15 steel produced by conventional methods. The corrosion resistance in a 3% solution of NaCl of silicon-free ShKh15 steel was somewhat higher than that of ShKh15 steel produced by conventional methods. A drawback of the new industrial process is the instability of purity of the ShKh15 steel with respect to nonmetallic inclusions.

SUB CODE: MM

EXCL: 00

Card 2/2

L 22148-65 3PR/EWT(m)/T/EWP(b)/EWA(d)/EWP(w)/EWP(t) Ps-4 JD

SOURCE: Ref. zh. Mashinostr. mat., konstr. i raschet detal. mash. Otd. vy\*p., Abs. 5.48.260

AUTHOR: Kachanov, N. N. B

TITLE: Causes and characteristics of the failure of working surfaces in bearing elements 17

CITED SOURCE: Tr. Vses. n.-i. konstrukt. -tehnol. in-ta podshpnik. prom-sti, no. 3(35), 1963, 45-59

TOPIC TAGS: bearing surface failure, bearing surface pitting, dislocational plastic flow, structural continuity, residual austenite, incipient failure

TRANSLATION: The environments and points of possible inception of initial fatigue cracks, as well as the causes leading to their development, are discussed. Re-<sup>2</sup>sults of studies have shown that incipient fatigue cracks in defect free surfaces

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L 22149-65

ACCESSION NR: AR4045076

of bearing roll seats and rings start underneath the surface of contacted parts. The formation of incipient fatigue cracks can occur only within those stress range limits in which the acting stresses produce plastic dislocations. Formation of fatigue cracks is caused by a dislocational process of plastic flow in microvolumes of metal of the contacted elements. Accumulation of such dislocations in metal microvolumes causes a sharp increase in stresses. These, in turn, produce local disturbances in structural continuity, i.e. result in the formation of cracks and, consequently, in pitting. It can be assumed that incipient fatigue cracks will develop first, other conditions being equal, in volumes of residual austenite which is always present in the cool-tempered bearing steel.

SUB CODE: IE

ENCL: 00

Cord 2/2

VASIL'YEV, N.Ye.; VERKHOVTSEV, E.V.; PROKHORENKO, K.K.; SVISTUNOV, A.M.  
[deceased]; KACHANOV, N.N.

Improving the quality of ball bearing steel. Izv. vys. ucheb. zav.;  
chern. met: 6 no.11:88-92 '63. (MIRA 17:3)

1. Izhevskiy mekhanicheskiy institut.



L 25811-66 EWT(m)/EWP(w)/EWA(d)/T/ENP(t) WJ(c) JD/DJ

ACC NR: AR5019274

SOURCE CODE: UR/0277/65/000/007/0009/0009

AUTHOR: Kachanov, N. N.; Pchelkina, V. M.; Luzinov, A. A.

ORG: none

TITLE: New brands of superhardenable steel for large-size bearings. <sup>112</sup>

SOURCE: Ref. zh. Mashinostroitel'nyye materialy, konstruksii i raschet detaley mashin. Gidroprivod. Otdel'nyy vypusk, Abs. 7.48.56

REF SOURCE: Tr. Vses. n.-i. konstrukt.-tekhrol. in-ta podshipnik. prom-sti, no. 2(38) 1964, 3-18

TOPIC TAGS: roller bearing, hardness, *metal hardening, ball bearing steel, bearing steel, steel*/ShKh20SG15F steel, ShKh20SG15MF steel, ShKh15SG steel

TRANSLATION: Two new brands of superhardenable steel have been developed for bearings. The ShKh20SG15F brand may be recommended for making rings for large bearings with wall thicknesses of 80 to 100 mm and for rollers 90 to 120 mm in diameter; brand ShKh20SG15MF is good for rings with 90-120 mm walls and for rollers 100-140 in diameter. The steel can be recommended for use in shipbuilding, transportation machine-building, machine tools, etc., as well as for manufacturing large parts requiring very hard surfaces. It was established that the hardenability, determined by the calculation method, is approximately 36.0 mm for brand ShKh20SG15F, and 51.0 for brand ShKh20SG15MF. In steels which were experimentally smelted at a hardening of 340°, 2

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UDO: 669.14.018.24

L 25801-66

ACC NR: AR5019274

18 18 2  
the amount of residue austenite was the same as in ShKh158G steel, but at a hardening of 880° the content was slightly larger than in ShKh158G.

SUB CODE: 11/3/ SUBM DATE: none

Card 2/2 (41)

KACHANOV, Nikolay Nikolayevich

[Hardenability of steel] Prokalivaemost' stali. Moskva,  
Izd-vo "Metallurgii," 1964. 250 p. (MIRA 17:7)

L 40200-66 EWT(m)/EWP(w)/T/EWP(t)/ETI/EWP(k) IJI(c) JD/WW/HW/DJ/JXI(cz)  
ACC NR: AT6021889 (A) SOURCE CODE: UR/3218/63/000/003/0045/0059

AUTHOR: Kachanov, N. N. (Candidate of technical sciences)

ORG: None\*

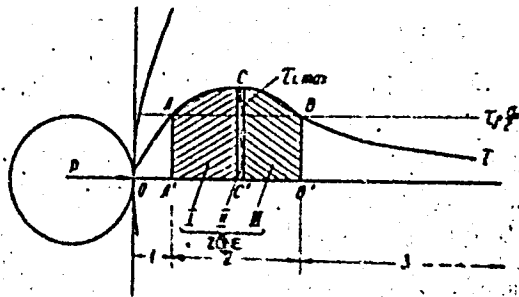
55  
51  
B+1

TITLE: Fatigue of bearing part working surfaces

SOURCE: Moscow. Vsesoyuznyy nauchno-issledovatel'skiy konstruktorsko-tehnologicheskiy institut podshipnikovoy promyshlennosti. Trudy. no. 3(35). 1963, 45-59

TOPIC TAGS: high temperature fatigue, bearing material, plastic deformation, crack propagation, austenite, durability

ABSTRACT: The author studies conditions and places of origin of primary fatigue cracks. The study is based on the widely accepted theory of maximum tangential stresses and is mainly concerned with bearing part surfaces. The results of the study show that for cases where defects do not exist on the fixed surfaces of roller bearings and rings, primary fatigue cracks originate under the contacting surfaces. Primary fatigue cracks can form



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L 40200-66

ACC NR: AT6021889

only within the zone where operational stresses produce plastic deformation. The probability of forming primary microcracks in zone I (see figure) is greater than for zone II and still greater for zone III. The main reason for fatigue crack formation is plastic deformation in the microspaces of the metal in contacting bodies. Stress increases sharply as a result of dislocation buildup in the microspaces of the metal, resulting in crack formation and pitting. It can be assumed that primary fatigue cracks will appear first in spaces of residual austenite which is always present in low-tempered bearing steel, all other conditions being equal. Thus residual austenite is a factor which contributes to the formation of fatigue cracks and consequently reduces bearing durability. Orig. art. has: 9 figures.

SUB CODE: 11/ SUBM DATE: none/ ORIG REF: 023/ OTH REF: 015

Card 2/2 *Jo*

ORESHIN, M., inzh.; KACHANOV, P., inzh.

Rural buildings made of reinforced concrete elements.  
Sel'. stroi. no.10:7-9 0 '62. (MIRA 15:11)  
(Farm buildings)  
(Precast concrete construction)

SKOBLINSKIY, A., insh.; KACIANOV, P., insh.

Mobile plant for large-panel apartment-house construction.

Zhil. stroi. no.1:31 '64.

(MIRA 18:11)

KACHANOV, P.D.

Selection of the principles of measurement of amplitude-phase  
measuring apparatus. (cofiz. prib. no.17:99-105 '62.

(MIRA 17:12)

1. Leningradskiy ordena Lenina i ordena Trudovogo Krasnogo Znameni  
gornyy institut imeni G.V. Plekhanova.



ORESHIN, M.A., inzh.; KACHANOV, P.V., inzh.

Methods of improving the use of cranes in agricultural  
construction. Mekh. stroi. 20 no.8:5-8 Ag '63.  
(MIRA 16:11)

L 24114-66 EWF(11)/EWA(d)/T-2 LJP(c) AT

ACC NR: AP6011523

SOURCE CODE: UR/0382/66/000/001/0142/0145

AUTHOR: Kachanov, P. V.

ORG: none

TITLE: Unsaturated O-shaped magnetic system with two excitation windings for magnetohydrodynamic generators </p>

SOURCE: Magnitnaya gidrodinamika, no. 1, 1966, 142-145

TOPIC TAGS: magnetic structure, magnetohydrodynamics, magnetic field, magnetic core, MHD generator, magnetic system

ABSTRACT: This paper deals with an O-shaped magnetic system with an unsaturated core for strong and uniform magnetic fields. It is shown that the strong magnetic field in square grooves can be obtained if the distribution of the current layer along the perimeter is homogeneous and the core is unsaturated. Orig. art has: 6 figures and 16 formulas. [Based on author's abstract] [NT]

SUB CODE: 20/ SUBM DATE: 21Sep65/ ORIG REF: 002/ OTH REF: 001/

Card 1/1 *lll*

UDC: 621.3.044.5:538.4

KACHANOV, V.A.; KRILLOVA, Ye.P.

Dust from grinding as a secondary raw material. Kauch. i rez. 16  
no.7:35-37 JI '57. (MIRA 10:10)

1.Yaroslavskiy zavod asbotekhnicheskikh izdeliy i Tsentral'naya  
nauchno-issledovatel'skaya laboratoriya asbotekhnicheskikh izdeliy.  
(Asbestos) (Brakes)

KACHANOV, V.A.

Cell for measuring the activity of beta emitters in volatile  
media. Zav. lab. 30 no.9:1147-1148 '64. (MIRA 18:3)

1. Severodonetskiy filial Gosudarstvennogo instituta azotnoy  
promyshlennosti.

KACHANOV, V.A.

Radiometric study of chlorine distribution between liquid and gaseous phases in concentrated nitric acid. Zhur. anal. khim. 20 no.6:751-752 '65. (MIRA 18:7)

1. Severodonetskiy filial Gosudarstvennogo nauchno-issledovatel'skogo proyektinogo instituta azotnoy promyshlennosti i organicheskogo sinteza.

I 00751-60 EMT(a)/EMP(c)/ETT TJP(c) IN/00

ACC NRI: AP6015292

(N)

SOURCE CODE: UR/0365/66/002/003/0358/0360

AUTHOR: Kuzub, V. S.; Kachanov, V. A.

46  
45B

ORG: North Donets Branch, State Institute of the Nitrogen Industry (Severodonetskiy filial, Gosudarstvennyy institut azotnoy promyshlennosti)

TITLE: Study of the feasibility of anodic protection of stainless steels in dilute nitric acid

SOURCE: Zashchita metallov, v. 2, no. 3, 1966, 358-360

TOPIC TAGS: stainless steel, corrosion protection, nitric acid, chloride/1Kh18N9T stainless steel, Kh17 stainless steel, Kh27 stainless steel

ABSTRACT: An attempt was made to determine whether anodic protection could be employed for 1Kh18N9T, Kh17, and Kh27 stainless steels in 1.5 N HNO<sub>3</sub> containing from 0.1 to 3 moles NaCl per liter. Potentiostatic anodic polarisation curves were plotted from the spontaneous dissolution potential to more positive values at 50 mV intervals. It was found that the introduction of chloride ions up to 0.1 mole/l has little effect on the polarization curve; when the Cl<sup>-</sup> content increases to 0.3 mole/l, the steady-state potential of the steel shifts from the region of the passive state to the region of active dissolution, and as the Cl<sup>-</sup> content rises further, pitting corrosion appears. The activation of the steel is facilitated as the acid concentration decreases. In the potential range from +0.5 to +0.9 V at all the studied concentrations of Cl<sup>-</sup> and HNO<sub>3</sub>, the steel is passive. The high-chromium steel Kh27 is not

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UDC: 620.197.5

I. 39954-66

ACC NR: AP6015292

activated by  $Cl^-$  ions up to a concentration of 3 moles of  $Cl^-$  per liter. Anodic protection, achieved by keeping 1Kh18N9T steel at potentials of +700 mV and +800 mV for 48 hr, was found to decrease the corrosion rate by a factor of more than 2000, and its use is therefore recommended. Orig. art. has: 3 figures and 1 table.

SUB CODE: 11,07/ SUBM DATE: 31Jul65/ ORIG REF: 004/ OTH REF: 001

Card 2/2 *4* S

KACHANOV, V. P.

F

M

192. RUSSIAN 100,000 K.W. HIGH PRESSURE STEAM TURBINE. Gavrilov, S. M. and Kachanov, V. P. (Vestnik Mashinostroenia, Russia, 1947, No. 2, 20-21; Engrs' Dig., Sept. 1947, 8, (9), 318). A Leningrad works has just completed the work test on a 100,000 KW, 3,000 r.p.m. turbine designed for a steam pressure of 1,275 lb./sq. in. and a temperature of 480-500 deg. C. This is claimed to be the only single-shaft turbine in the world of this power, speed and pressure. As a single-unit design it offers considerable reduction in production man-hours and power station space, and 15-17 per cent decrease in estimated costs per KW. A feature in the design has been the blading of the last low pressure stage. The high-pressure side consists of a Curtis wheel, which is also the regulating stage, and 11 further high pressure stages. The low-pressure side is designed with dual flow and 5 stages. Other features of the design are the use of welding, speed and acceleration governing (instead of governing based on speed alone), an over-speed emergency

ASB-55A METALLURGICAL LITERATURE CLASSIFICATION

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
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governor, and an adjustable load limiting device which also acts as an underspeed shut-down device. The maximum speed rise is only 4 1/2 per cent. The regulating oil pressure has been raised to 170 lb./sq. in. as against the usual 110 lb./sq. in. Both this and the bearing oil are provided from a gear-driven pump, and a steam-driven pump is provided for starting up. This turbine is designed on the "sub-unit" principle so that various portions of it can be employed in other machines. The complete unit weighs 263 tons, the high pressure rotor 8.5 tons and the low pressure rotor 18.8 tons.

GAVRILOV, S.M., inzhener; KACHANOV, V.F., inzhener.

Newly designed blast furnace equipment. Vest.mash.27 no.7:30-32  
Jl '47. (Blast furnaces) (MLRA 9:4)

KACHANOV, V. F.

USSR/Engineering  
Turbines, Steam

Aug 48

"New 50,000-kilowatt High-Pressure Steam Turbines Constructed by the Leningrad Metal Factory Imeni Stalin," S. M. Gavrilov, V. F. Kachanov, Engineers, 1 p

"Vest Hashinostroy" No 8

Describes trubines designed and constructed by Leningrad Metal Factory. Tabulates characteristics. Sketch showing exterior of turbine appears on cover of journal.

PA 14/49T30

GORSHKOV, I.B., inzh.; KACHANOV, V.F., inzh.

Scientific technical conference on the manufacture of hoisting  
and conveying machinery. Vest.mashinostr. 42 no.7:83-85 J1  
'62. (MIRA 15:8)  
(Hoisting machinery) . (Conveying machinery)

KONOVALOV, V.S., kand.tekhn.nauk; KACHANOV, V.F., inzh.

Prospective constructions of hoisting and transporting machines  
for industrial buildings of the machine industry. Prom.stroi. 41  
no.9:46-52 S '63. (MIRA 16:11)

S/133/60/000/011/020/023  
A054/A029

AUTHORS: Kovalevskaya, Z.V., Candidate of Technical Science, Karandashov,  
P.I., Kachanov, V.P., Engineers

TITLE: Cooling Rate of Thick-Walled Cylindrical Billets

PERIODICAL: Stal', 1960,<sup>20</sup> No. 11, pp. 1038-1041

TEXT: The billets for large-sized thick-walled cylindrical products can have sufficiently uniform properties crosswise and lengthwise only if they are hardened thoroughly which depends primarily on the composition of the metal and on its cooling rate. In order to determine the cooling rate of billets made of 38XН4МФ(38 KhN4MF) type steel, the test products were first heated up to 850-860°C in a vertical oil furnace and kept there until the temperature was uniform in the whole cross section of the wall. Cooling was effected by water, oil and air. Six thermocouples were arranged at 20, 110, 30 and 125 mm from the external surface and two at 20 and 30 mm from the inner channel. By reference to the test results the cooling rates for billets with 250 mm inside diameter and 170 mm and 200 mm wall-thickness, respectively, in the temperature ranges (in °C) 400-375, 375-350, 350-325, 325-300, 300-275 and 275-250 were determined for cooling in water, oil and air. The cooling rate  
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S/133/60/000/011/020/023  
A054/A029

## Cooling Rate of Thick-Walled Cylindrical Billets

is, of course, highest in water. In the 325-300°C range for 170 mm wall-thickness, for instance, the cooling rate in water is 0.21°C/sec, in oil 0.066°C/sec and in air 0.0095°C/sec. By comparing the cooling curves plotted for the thick-walled billets in various cooling media with the results of dilatometric and magnetometric analyses it was possible to determine the temperature, at which the austenite transformation in the middle of the wall started. The results for 170 mm and 200 mm thick walls were as follows: (in °C)

	Air	Oil	Water
170 mm wall-thickness	380	320	285
200 mm wall-thickness	390	340	325

With the aid of the corrected version of K.K.Klaptsov's nomogram (Ref.1) it is possible to define the time required for cooling in water to a given temperature the middle part of the wall (170-200 mm thick) of cylindrical billets made of 38 KhN3MF and 38KhN4MF type steels. For a wall-thickness of 200 mm it takes 37 minutes, for 170 mm 27.5 minutes to cool down to 300°C, according to the Klaptsov nomogram. The cooling time in oil and air can be defined only

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Cooling Rate of Thick-Walled Cylindrical Billets S/133/60/000/011/020/023  
A054/A029

experimentally. The great difference in temperature between the external surface and the middle part of the wall at tempering indicates that in order to obtain a temperature of about 300°C in the middle part of the wall required for the decomposition of austenite in the 38KhN4MF type steels, a very thorough re-cooling of the surface zone to about 200°C is necessary. In addition to the above-mentioned factors allowance should be made for the weight of the charge in calculating the duration of heat treatment. The Klapsov nomogram is discussed in Metallurg , 1932, No. 10-11. There are 8 figures, 1 table and 1 Soviet reference.

Card 3/3



**KACHANOV, V.R.; YAROVY, A.A.**

New method of using photosensitive emulsions. Arkh. anat. gist. i  
embr. 31 no.4:63-65 O-D '54. (MIRA 8:2)

1. In Novosibirskogo nauchno-issledovatel'skogo instituta vosstano-  
vitel'noy khirurgii i ortopedii (dir. dotsent D.P.Metelkin)

(PHOTOGRAPHY,

photosensitive emulsions in histol.)

(HISTOLOGY,

photosensitive emulsions in)

USSR / Human and Animal Morphology (Normal and Path- S-2  
ological). Methods and Apparatus.

Abs Jour: Ref Zhur-Biol., No 17, 1958, 78993.

Author : Kachanov, V. R., Yarovoy, A. A.

Inst : Not given.

Title : On the Problem of the Possibility of the Study  
of Oxidation-Reduction Potentials on Light-Sen-  
sitive Emulsions.

Orig Pub: V. sb.: Vopr. travmatol., ortopedii i vosstanovit.  
khirurgii., 2, Novosibirsk, 1957, 253-255.

Abstract: An explanation is given of the processes which  
occur with the contact method of photographing  
organs and tissues (exposure in tests 30 min-  
utes). Good photographs can be obtained from  
sections of the liver, the kidney, adrenal gland,  
from the surface of the stomach and spleen.  
Some tissues, for example the skin, do not react

Card 1/2

SOV/129-58-11-2/13

AUTHORS: Geller, Yu. A., Doctor of Technical Sciences, Professor, and  
Kachanov, V. S., Engineer

TITLE: Structure, Properties and Heat Treatment of New High Speed  
Steels (Struktura, svoystva i termicheskaya obrabotka  
novykh bystrorozhushchikh staley)

PERIODICAL: Metallovedeniye i Obrabotka Metallov, 1958, Nr 11,  
pp 6-19 (USSR)

ABSTRACT: A considerable improvement in the cutting properties of  
high speed steels can be achieved by adding cobalt or up  
to 4-5% vanadium. During recent years numerous such high  
speed steels have been developed and in Table 1 the analyses  
are given of the main grades of such steels in the U.S.S.R.  
and the U.S.A. Numerous such new steels have passed  
laboratory and industrial tests but so far are not being  
used on a large enough scale; the best and optimum  
conditions have so far not been determined and it has not  
been established for which tools the individual steels are  
most suitable. To some extent this is explained by the  
fact that the new high speed steels are more difficult to  
grind and machine than ordinary high speed steels. High  
vanadium content steels contain a greater quantity of VC  
which have a hardness of about 1900 H<sub>v</sub> as compared to about  
Card 1/7 1400 H<sub>v</sub> for complex carbides of tungsten. This increases

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Structure, Properties and Heat Treatment of New High Speed Steels

the resistance to wear but reduces grindability. Furthermore, an increase in the V content is effective only in the case of simultaneously increasing the carbon content and, therefore, steels containing 4 to 5% vanadium should contain 1.3 to 1.5% carbon which brings about a lowering in the malleability and the mechanical properties. Introduction of cobalt improves the heat resistance proportionately with the increase in the cobalt content up to 18-20%. However, it also lowers the mechanical properties the more the higher the Co content of the steel. For these reasons these new steels have to be thoroughly investigated and heat treatment regimes have to be worked out which ensure a better combination of the heat resistance and of the mechanical properties. It is of great importance to verify the properties of industrial heats and not of laboratory heats. Therefore, the authors selected for investigation four steels from melts produced by Elektrostal' which were supplied in the form of rolled strips of 15 x 35 mm; the chemical compositions of these steels are:

R18 - 0.72% C, 18.30% W, 4.12% Cr, 1.27% V;

Card 2/7 RK10 - 0.81% C, 18.68% W, 4.19% Cr, 1.28% V, 9.71% Co, 0.19% Mo;

SOV/129-58-11-2/13  
Structure, Properties and Heat Treatment of New High Speed Steels  
RK15 - 0.77% C, 18.44% W, 4.09% Cr, 1.30% V, 14.65% Co, 0.60% Mo;  
R10F5K5 (EI931) - 1.45% C, 10.82% W, 4.01% Cr, 4.46% V, 5.05% Co.

One of these was the stainless steel R18 which was investigated for the purpose of comparison. The steel RK15 was investigated for the purpose of determining whether it is advisable to improve the heat resistance by increasing the cobalt content above the limits which are usually applicable to cobalt steels. The hardness and the strength of the investigated steels in the as-delivered state are entered in Table 3. The subject matter is dealt with under the following paragraph headings: influence of hardening conditions on the properties of the steel; residual austenite; influence of tempering conditions on the properties of the steel. The obtained results are described and discussed in some detail and are also entered in graphs. In the conclusions the author summarises his results thus:

Card 3/7 1. The fundamental properties were investigated of the following main types of characteristic new high performance

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Structure, Properties and Heat Treatment of New High Speed Steels

high speed steels: RK10, RK15 and R10F5K5; furthermore, the heat treatment regimes were determined which permit obtaining a better combination of properties.

2. Cobalt and high vanadium high speed steels have a considerably higher (1.5 to 2 times) heat resistance than the standard Soviet high speed steels R18 and R9. However, their mechanical properties are less favourable than those of the standard steels. Therefore, cobalt and high vanadium steels (over 3% V) are unsuitable for cutting processes involving dynamic regimes and for shaped tools with a thin cutting edge. Steels of this type can be used for machining materials which are difficult to machine (including austenitic alloys); however, the cutting tools must be of relatively simple shape.

3. An increase in the Co content, particularly above 10%, reduces appreciably the strength and increases brittleness due to separating out of inter-metallic compounds during the tempering. In spite of the fact that the heat resistance is higher than for other steels, steel with 15% Co is not recommended for practical use or for

Card 4/7 extensive workshop tests due to the very low mechanical

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Structure, Properties and Heat Treatment of New High Speed Steels

properties of such steels.

4. Alloying of high speed steels with Co does not change the conditions of dissolution of carbides in the case of high temperature heating, since the cobalt is present mainly in the solid solution and not in the carbides. The cobalt increases the quantity of the residual austenite in the hardened steel but does not increase its stability against tempering. For cobalt steels it is advisable to apply the same number of tempering operations as for similar cobalt-free steels.

5. It was shown in earlier work of the author (Refs 4 and 5) that the steels with a high vanadium content differ as regards the conditions of dissolution of carbides during heating from other high speed steels. For adequate saturation of the solid solution of high vanadium steels it is necessary to ensure during heating dissolution not only of a part of the complex tungsten carbides (which is the case for other steels) but to also dissolve a part of the vanadium carbides. Passing into solution of these more stable carbides is not completed during the heating time usually applied for hardening high speed steels and proceeds

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Structure, Properties and Heat Treatment of New High Speed Steels

for a longer time. Increase of the heating time to double (to 20 secs per 1 mm dia.) for steels containing 4 to 5% V ensures a higher heat resistance, see Fig.11.

6. In contrast to cobalt and standard high speed steels, high vanadium steels have a more stable residual austenite due to a larger concentration in it of carbon. This involves an additional tempering operation, a fourth, at 560 to 570°C.

7. If the conditions enumerated in 5 and 6 are fulfilled, high vanadium steels with 5% Co will have a heat resistance equal to the higher alloyed steel with 18% W and 10% Co and will have somewhat better mechanical properties than the latter. Furthermore, high vanadium steels are superior to steels containing 10 and 15% Co as regards hardness and machineability in the annealed state.

8. Use of the hardening temperature 1285-1295°C is recommended with a heating time of 6 to 7 sec/mm for the steel RK10 and 1260°C with a heating time of 20 sec/mm for the steel R10F5K5.

9. Tempering of cobalt and high vanadium steels at 560 to 570°C brings about an increase in the hardness to 67-68 R<sub>C</sub>;



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Structure, Properties and Heat Treatment of New High Speed Steels

the hardness will be only 63-64 R<sub>C</sub> is the tempering temperature is 600°C. However, an increase of the tempering temperature to 600°C does not improve the strength although it intensifies the separating out of finely dispersed particles. For the steel R10F5K5 it is more advisable to apply tempering four times at 570-580°C for maintaining an increased hardness.

The final selection of the tempering regime and of the most favourable hardness should be made on the basis of extensive industrial scale tests. There are 14 figures, 3 tables and 11 references, 7 of which are Soviet, 2 English, 2 German.

1. Tool steel--Properties
2. Tool steel--Heat treatment
3. Tool steel--Structural analysis

Card 7/7

GRITSENKO, Nikolay Nikolayevich; KACHANOV, Viktor Semenovich;  
KAPLUNOV, A.S., red.; SAVCHENKO, Ye.V., tekhn.red.

[Communist Youth League in the struggle for technological progress] Komsomol v bor'be za tekhnicheskii progress. Moskva, Isd-vo "Znanie," 1961. 43 p. (Vsesoiuznoe obshchestvo po rasprostraneniuiu politicheskikh i nauchnykh znani. Ser.10, Molodshnaia, no.3). (MIRA 14:2)

(Communist Youth League)  
(Efficiency, Industrial)

KACHANOV, Ya.M., inzh.--ekonomist.

Lowering of production expenditures as a result of converting to  
the production of high-yield pulp; data from the "Kekhra" Woodpulp  
Plant. *Eng. prom.* 33 no.3:21-22 Mar '58. (NIRA 11:4)  
(Woodpulp industry)

*К.А.А.А.А.А.А.А.А.А.*

KASPAROV, G.B.; KACHANOV, Ya.M., inzh.-ekonomist.

Economics training for key personnel of the woodpulp and paper  
industry. Dan. prom. 33 no.3:28-30 Nr '58. (NIRA 11:4)  
(Paper industry) (Woodpulp industry)

KACHANOV, Ya. M., inzh.-ekonomist

Increasing manufacture of paper containers. Bum. prom. 33 no.9:24-25  
S '58. (MIRA 11:10)

1. TSellyulozno-bumashnyy kombinat "Kekhra."  
(Paper bags)

KACHANOV, Ya.M., inzh.-ekonomist

Methods of internal analysis of production costs. *Bum.*  
prom. 35 no.5:23-26 *My* '60. (MIRA 13:7)

1. Kartonnaya fabrika "Suoyarvi."  
(Paper industry--Costs)

KACHANOV, Ya.M.

Calculation based on average products. Bum. prom. 36 no.10:  
23-24 0 '61. (MIRA 15:1)

1. Nachal'nik planovo-ekonomicheskogo otdela Suoyarskogo  
kombinata.

(Paper industry)

KACHANOV, Ya.M.

Determining the amount of labor input in paperboard  
manufacture. Bum.prom. 37 no.11:27-28 N '62. (MIRA 15:12)

1. Nachal'nik planovogo otdela kartonnoy fabriki  
"Soyarvi".

(Paper industry)



VAYNSHTEYN, L.; LUK'YANOV, V.; KACHANOV, Ya.

Discussion of the White Russian experiment. Sots. trud 8 no.6:28-34  
Je '63. (MIRA 16:9)

1. Zaveduyushchiy laboratoriyey ekonomicheskikh issledovaniy Ukrainskogo nauchno-issledovatel'skogo instituta pishchevoy promyshlennosti Khar'kovskogo soveta narodnogo Khozyaystva (for Vaynshteyn).
2. Nachal'nik planovogo otdela Minskogo kirpichnogo zavoda No.4 (for Luk'yanov).
3. Nachal'nik planovogo otdela Suoyarvskoy kartonnoy fabriki Karel'skoy ASSR (for Kachanov).  
(Time study)

KACHANOV, Ya.M., inzh.-ekonomist

Book on the problems of combining the production of the wood-  
pulp and paper industry. Bum. prom. 38 no.5:30-31 My '63.  
(MIRA 16:8)

(Woodpulp industry) (Paper industry)

KACHANOV, Ya.M., inzh.-ekonomist

Determining the value of utilized wastes. Bum.prom. [38] no.7:  
25-26 JI '63. (MIRA 16:8)

1. Kartonnaya fabrika "Suoyarvi."  
(Wood pulp industry--By-products) (Industrial costs)

BACHAROV VA. X

KACHANOV, Ye.B.

101-4-13/13

SUBJECT: GERMANY/Clinkers  
AUTHOR: Kachanov, Ye.B., Engineer

TITLE: "Influence of the Cooling Method and the Mineralogical Composition of Clinkers on their Crushability". (Vliyaniye rezhima okhlazhdeniya i mineralogicheskogo sostava klinkera na yego razmolo sposobnost')

PERIODICAL: "Tsement", 1957, # 4, p 31 (USSR)

ABSTRACT: The article contains the results of laboratory examinations of clinkers with different mineralogical composition and their sudden cooling by water. For clinkers with high contents of C<sub>3</sub>S in the liquid phase, gradual cooling from burning temperatures to temperatures of 1200 - 1250° with subsequent rapid cooling by water is recommended. Slow cooling to 1200-1250° is necessary for crystallization by which the crushability of the clinkers is increased by 15-20 %. For clinkers with high contents of C<sub>2</sub>S and low contents of the liquid phase, sudden cooling by water immediately after removal from the kiln is recommended. [Reported in Tonindustrie-Zeitung, 1957, No. 1/2, S.1-5]

Card 1/2

TITLE: "Influence of the Cooling Method and the Mineralogical Composition of Clinkers on their Crushability" (Vliyaniye rezhima okhlazhdeniya i mineralogicheskogo sostava klinkera na yego razmolo sposobnost')

INSTITUTION:

PRESENTED BY:

SUBMITTED:

AVAILABLE: At the Library of Congress

Card 2/2

I 63534-65 07(12)/07(12)/07(12)/07(12) IJR(c) JN/00  
APPROXON W...

A...  
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I...

SOURCE: Syul'teratel' izobrazheniya i tsvetnykh analizov, p. 11, 1957.

1. FURTHER... alloy melting, synthetic slag treatment,...  
...  
...

ABSTRACT: This article describes a method...  
in which the oxidation of metal with rare-earth elements is performed...  
with a treatment...  
...

Author: A. A. ...  
...

...  
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NO REF SOV: 000 OTHER: 000 ATT PRESS: 4050

Card ...

KACHANOV, Ye.G., inzh.; STANISHEVSKIY, A.I., inzh.; KALUTSKAYA, N.P.

Synthetic preparations for the degreasing of metals. Masl.-  
zhir. prom. 29 no.8:24-25 Ag '63. (MIRA 16:10)

1. Ukrainskiy nauchno-issledovatel'skiy institut maslozhirovoy  
promyshlennosti (for Kachanov). 2. Khar'kovskiy zavod "Serp i  
molot" (for Stanishevskiy, Kalutskaya).

KACHANOV, Ye.I.

New Visean corals of the eastern slope of the Southern Ural Mountains. Paleont. zhur. no. 1:26-30 '64. (MIRA 17:7)

1. Ural'skoye geologicheskoye upravleniye.



VLASTOV, B.V.; KACHANOVA, A.A.

Sex diagnosis in living *Dreissena polymorpha* Pallas and some  
data on the sexual cycle of this mollusk. Zool.zhur. 38 no.7:  
991-1005 J1 '59. (MIRA 12:10)

1. Chair of Invertebrate Zoology, Moscow State University.  
(Lamellibranchiata) (Sex (Biology))

KACHANOVA, A.A.

Some data on the reproduction of *Dreissena polymorpha* Pallas in  
Ucha Reservoir. Trudy Gidrobiol. ob-va 11:117-121 '61.  
(MIRA 15:1)

1. Kafedra zoologii bespozvonochnykh Moskovskogo gosudarstvennogo  
universiteta, Moskva.  
(Ucha Reservoir--Lamellibranchiata)

KACHANOVA, A.A.

Ecology of Dreissena polymorpha Pallas in Ucha Reservoir. Vop. ekol.  
5:94-95 '62. (MIRA 16:6)

1. Moskovskiy gosudarstvennyy universitet.  
(Ucha Reservoir--Dreissenidae)

KACHANOVA, E. R.  
KACHANOVA, E. R. , KAZANOV, A. M.

~~XXXXXXXXXXXXXXXXXXXX~~

KACHANOVA, E. R. "Dangerous Virus Disease of Alfalfa in Kazakhstan,"  
Sovetskaia Agronomiia, vol. 10, no. 6, 1952, pp. 60-67. 20 So84

So: Sira Si - 1953, 15 December 1953

USSR/Cultivated Plants - Fruits, Berries.

M-6

Abs Jour : Ref Zhur - Biol., No 20, 1958, 91812

Author : Kachanova, G.

Inst : Moscow Agricultural Academy im K.A. Timiryazev

Title : Regulating the Fruit Bearing of the Apple Trees by  
Chemical Means.

Orig Pub : Sb. stud. nauchno-issled. rabot. Mosk. s.-kh. akad. im.  
K.A. Timiryazeva, 1957 (1958) vyp. 7, 288-293.

Abstract : Good results in thinning were obtained by spraying during flowering with a 0.06% concentration of "hadolite" preparation containing 48% of the active ingredients dinitro orthocresol or dinitrophenol. Simultaneous side-dressing with a 3% solution of urea improved both growth and fruiting.

Card 1/1

KACHANOVA, G.F., aspirant

Plant uptake of strontium-90 from soil in field experiments.  
Izv. TSKHA no. 4:105-110 '62. (MIRA 15:12)  
(Plants, Effect of strontium on)

MALYSHIN, Ye.I., kand. sel'skokhozyaystvennykh nauk; KACHANOVA, N., red.;  
KAPITSA, V., tekhn. red.

[Principles of vegetable breeding and seed production] Osnovy  
selektzii i semenovodstva ovoshchnykh kul'tur dlia uslovii  
Moldavii. Kishinev, Gos. izd-vo Moldavii, 1957. 142 p.  
(Vegetable gardening) (MIRA 11:10)

SHKUN, G.M.; KACHANOVA, N., red.; POLONSKIY, S., tekhn.red.

[Growing sorghum for forage] Kul'tura sorgo na korm. Kishinev,  
Gos.izd-vo "Kartia Moldoveniaska," 1960. 130 p.

(Sorghum)

(MIRA 13:12)



KRAVCHIK, N.R.; KACHANOVA, N., red.; GORYACHENKO, F., tekhn. red.

[Increasing yield and butterfat content of milk; from the work practices of the dairy section on the "Pogranichnik" Collective Farm, Lipkany District] Povyshenie nadoev i zhirnosti moloka; iz opyta raboty MTF kolkhoza "Pogranichnik" Lipkansakogo raiona. Kishinev, Izd-vo sel'khoz.lit-ry MSKh MSSR, 1962. 69 p.

(MIRA 15:7)

(Moldavia—Milk)

ZALTUR, G.K.; KACHANOVA, N., red.; POLEVAYA, Ye., tekhn. red.

[Soil erosion in vineyards and its control] Eroziia pochv na  
vinogradnikakh i bor'ba s nei. Kishinev, Gos. izd-vo  
"Kartia moldoveniaske," 1961. 35 p. (MIRA 15:3)  
(Moldavia--Grapes)

TIMOSHENKO, A.G.; KACHANOVA, N., red.; SHPANER, V., tekhn. red.

[Fertilizers for corn] Udobrenie kukuruzy. Kishinev, Izd-vo  
Sel'khoz.lit-ry MPZSKhP Moldavakoi SSR, 1962. 51 p.  
(MIRA 15:6)  
(Moldavia—Corn (Maise))—Fertilizers and manures

KHANGAN, A.S.; KACHANOVA, N., red.

[Seed production of sugar beets in Moldavia; from practices of seed growing state farms of the Republic]  
Semenovodstvo sakharnoi svekly v Moldavii; iz opyta semenovodcheskikh sovkhozov respubliki. Kishinev, Kartia moldoveniaske, 1965. 32 p. (MIRA 19:1)

KACHANOVA, N.A.

Soviet priority in working out the problem of artificial stability  
of power systems. Sbor.trud.Inst.elektrotekh.AN URSS no.8:74-78 '52.  
(Electric power distribution) (MLBA 10:2)

KACHANOVA, N. A.

"Investigation of the Steadiness of Distant Electrotransmissions in the Presence of Various Methods of Raising the Effectiveness of the Intermediate Synchronous Compensators." Acad Sci Ukrainian SSR, Inst of Electrical Engineering, Kiev, 1952 (Dissertation for the Degree of Candidate of Technical Sciences)

SO: Knizhnaya Letopis', No, 32, 6 Aug 55

KACHANOVA, N. A.

AID P - 638

Subject : USSR/Electricity

Card 1/1 Pub. 27 - 7/34

Authors : Kachanova, N. A., Kand. of Tech. Sci., and  
~~Isukernik, D. V.~~, Kand. of Tech. Sci.

Title : Increase of efficiency of intermediate synchronous  
condensers

Periodical : Elektrichestvo, 9, 30-34, S 1954

Abstract : Research was conducted on a laboratory model representing  
the 400-kv double-circuit transmission line Kuybyshev -  
Moscow. The task consisted in finding methods of increas-  
ing the efficiency of the synchronous condenser to be used  
to improve the stability of super-power transmission lines.  
3 diagrams, 4 references (1940-1953).

Institution : Institute of Electrical Engineering of the Ukrainian  
Academy of Sciences

Submitted : F 20, 1954

*KACHANOVA, NINA, ANDREYEVNA.*

~~KACHANOVA, Nina Andreyevna~~; KRUTIKOVA, Valentina Yevgen'yevna; LEBEDEV, S.A.,  
akademik, redaktor; ZIL'BAN, M.S., redaktor; RAKHLINA, N.I., tekhnre-  
daktor.

[Study of the means of improving the stability of long-distance alter-  
nating-current power transmission] Issledovanie sposobov povysheniia  
ustoichivosti dal'nikh elektroperedach peremennogo toka. Kiev, Izd-vo  
Akademii nauk Ukrainskoi SSR, 1955. 83 p. (MIRA 8:4)  
(Electric power distribution--Alternating current)



**KACHANOVA, N.A.; SHUKAYLO, Ye.M.**

**First coordination conference on automatic control. Avtomatyka no.3:100-  
104 '56. (MLBA 9:11)  
(Automatism)**

KACHANOVA, N.A.

Scientific seminar on the theory of automatic control in Kiev.  
Avtomatyka no.4:96-98 '56.

(MLRA 10:2)

(Kiev--Automatic control)

KACHANOVA, N.A.; CHIMAYEV, P.I.

First Coordinating Conference on Automation in the Ukraine. Avtom.  
i telem. 17 no.12:1127-1129 D '56. (MIRA 10:1)  
(Ukraine--Automation)

KACHANOVA, N.A.

Brief news. Scientific seminar on the theory of automatic control  
held in Kiev. Avtomatyka no.3:101 '57. (MIRA 10:10)  
(Kiev--Automatic control--Congresses)

КАЧАНОВА, Н.А.  
TSUKERNIK, L.V., kandidat tekhnicheskikh nauk, dotsent; KACHANOVA, N.A.,  
kandidat tekhnicheskikh nauk.

analyzing the steady-state stability of complex power systems  
using electronic computers. Elektrichestvo no.7:39-45 J1 '57.

(MLRA 10:8)

(Electric power plants)

In January 1956 V.I.Ivanenko held a lecture on "The investigation of the Systems of the Automatic Control of the Velocity

Card 1/2

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PA - 2567

Scientific Seminary on Automatic Control in Kiyev.

of Pit Elevator Machines." In March 1956 A.Yu.Ishlinskiy spoke about a new device for measuring the angular velocity of an object in motion. The device is called girotron and consists of an oscillating diapason.

In May 1956 L.V.Tsukernik lectured upon "New Systems of Automatic Control of the Excitation of Synchron Machines." In June 1956 Dr.techn.A.N.Milyakh spoke about "Inductive-Capacitive Transformers as an Element of Automation."

ASSOCIATION: Not given  
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AVAILABLE: Library of Congress.

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KACHANOVA, N.A.

8(6); 28(1)

p. 4, 5

PHASE I BOOK EXPLOITATION

SOV/2) 97

Akademiya nauk Ukrainskoy SSR. Institut elektrotehniki.

Voprosy ustoychivosti i avtomatiki energeticheskikh sistem (Problems in Stability and Automation of Power Systems) Kiyev, Izd-vo AN UkrSSR, 1959. 186 p. (Series: Its: Sbornik trudov, vyp. 16) Errata slip inserted. 4,000 copies printed.

Ed. of Publishing House: T. K. Remennik; Tech. Ed.: N. P. Rakhlina;  
Editorial Board: A. D. Nesterenko, Corresponding Member, Ukrainian SSR Academy of Sciences (Resp. ed.), S. A. Lebedev, Academician, S. I. Tetel'baum, Corresponding Member, Ukrainian SSR Academy of Sciences, A. N. Milyakh, Doctor of Technical Sciences, Ye. V. Khrushcheva, Candidate of Technical Sciences, and L. V. Tsukernik.

PURPOSE: This collection of articles was published in line with a directive of the scientific council of the Electrical Engineering Institute, Academy of Sciences, UkrSSR. It is intended for scientific engineering and technical personnel concerned with problems of stability and automatic control of power systems.

Card 1/6

SOV/2497

Problems in Stability and Automation (Cont.)

COVERAGE: The authors analyze static stability of a complex power system, taking into account automatic control and load characteristics. They discuss transients in a compensated network during short-circuiting to ground and describe methods of calculating transients in current transformers. They also consider basic features of calculating current transformers with magnetizing and discuss linear theory of magnetic amplifiers as well as new types of frequency relays and frequency measuring devices. No personalities are mentioned. References appear at the end of each article.

TABLE OF CONTENTS:

Foreword 3

Tsukernik, L.V. Characteristics of Lyapunov's Theory of Stability and Problems of Stability of Power Systems 5  
The author presents a brief review of studies on the theory of stability of power systems and shows the importance of Lyapunov's work on the general theory of stability. There are 35 references, all Soviet (including 2 translations).

Tsukernik, L.V. Analysis of a Matrix of Equation Coefficients for a Disturbed Motion of a Complex Power System and Determination of the Order of a Characteristic Equation 21

Card 2/6

SOV/2497

Problems in Stability and Automation (Cont.)

The author obtains equations of disturbed motion of a complex power system, taking into account complex-load characteristics. He analyzes the matrix of equation coefficients and obtains operational expressions showing the effect of all branches of a power system on each individual branch. He also derives a formula for determining the order of a characteristic equation of a system. There are 4 references, all Soviet.

Sirata, I.M. Transients in a Compensated Network During Short-circuiting to Ground. 55

The author analyzes equivalent circuits of a complex compensated network and shows that transients during short-circuiting to ground may be calculated with the aid of an approximate simple equivalent circuit containing  $L$ ,  $c$  and  $R$ . He also discusses the effect of transient currents on the behavior of various types of relays and protection systems against short-circuiting to ground. He shows that the use of a polarized or permanent-magnet moving-coil relays operating on capacitance-current surges is possible only when relay speed is increased. There are 8 references: 7 Soviet and 1 English.

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SOV/2497

Problems in Stability and Automation (Cont.)

Kachanova, N.A., and V.N. Shestopalov. Short-time Unloading of a Receiving Power System as a Means of Increasing Stability 77

The authors discuss short-time unloading of a receiving power system with automatic reclosing for increasing system stability. They briefly describe the construction and results of testing of a combined frequency relay which may serve as a starting mechanism for short-time unloading. There are 3 references: 2 Soviet and 1 English.

Sirota, I.M. Methods of Calculating Transients in Current Transformers 87

The author presents a general analysis of a transient process and discusses a new and sufficiently accurate method of calculating transients. The method takes into account nonlinearity of magnetic characteristics of current-transformer core and inductance of a secondary-circuit load for any initial conditions. The author uses a method of so-called specific quantities as an auxiliary method of procedure and calculates transients with the aid of magnetization curves for iron for successive intervals of 0.25-0.50 periods. There are 13 references: 9 Soviet, 3 English and 1 German

Kubyshev, B.Ye. Problems of a Linear Theory of Magnetic Amplifiers 113

The author shows that a magnetic amplifier should be considered as a current or voltage generator controlled with d-c, a-c or pulse currents or voltages with a frequency lower than that of the magnetizing current.

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Problems in Stability and Automation (Cont.)

He discusses equivalent circuits of magnetic amplifiers and derives expressions for amplifier parameters. There are 7 references, all Soviet (including 1 translation).

Kostyuk, O.M. Current transformers with D-C Magnetization and Basic Aspects of Calculating Transformers Used in Circuits for Automatic Field Regulation of Synchronous Generators

135

The author discusses a graphic-analytical d-c magnetization used in circuits for automatic field regulation of synchronous machines. There are 8 references: 6 Soviet, 1 English and 1 German.

CIRCUITS, DEVICES AND EXAMPLES OF CALCULATIONS

153

Kachanova, N.A. and L.V., Tsukernik. Analysis of Static Stability of a Long-distance Transmission Line, Taking Into Account Complex Load Characteristics

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The authors study the effect of voltage and frequency static characteristics of a complex load as well as the effect of dynamic characteristics of an equivalent induction motor on the stability of a long-distance power transmission line. They conclude that the dependence of load

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Problems in Stability and Automation (Cont.)

conductance on voltage is the major factor affecting... 6 references, all Soviet.

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Shestopalov, V.N. Device for Measuring Frequency  
The author discusses an electronic device for frequency measurement by measuring the duration of a certain number of periods. The number of periods is counted by means of a trigger circuit similar to that used in computers. The duration is determined with the aid of a vacuum-tube generator stabilized by means of a tuning-fork electromechanical frequency transducer. Measurements obtained with the aid of the device are sufficiently accurate in the wide range of radio frequencies. There is 1 Soviet reference.

Kubyshin, B.Ye. Method of Calculating Magnetic Amplifiers on the Linear Theory.

174

The author considers methods of selecting operating conditions for amplifiers and determining coefficients required in calculations. He presents a numerical example of calculating a magnetic amplifier for contactless power commutation. There is 1 Soviet reference.

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11-23-59

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KULEBAKIN, V.S., akademik, otv.red.; BODNER, V.A., doktor tekhn.nauk, red.;  
IVAKHNEKO, A.G., doktor tekhn.nauk; red.; ISHLINSKIY, A.Yu., aka-  
demik, red.; KACHANOVA, N.A., kand.tekhn.nauk, red.; KUZNETSOV, P.I.,  
doktor fis.-matem.nauk, red.; KUKHTENKO, A.I., doktor tekhn.nauk, red.;  
PETROV, B.N., red.; POPOV, Ye.P., doktor tekhn.nauk, red.; ULANOV,  
G.M., doktor tekhn.nauk, red.; KHRENOV, K.K., akademik, red.; CHI-  
MAYEV, P.I., kand.tekhn.nauk, red.; CHUMAKOV, N.M., kand.tekhn.nauk,  
red.; KHUGLOV, G.V., tekhn.red.

[Invariancy theory and its application to automatic devices] Teoriia  
invariantnosti i ee primeneniye v avtomaticheskikh ustroystvakh;  
trudy soveshchaniya. Moskva, Akad.nauk USSR, Otd-nie tekhn.nauk,  
1959. 381 p. (MIRA 13:?)

1. Soveshchaniye po teorii invariantnosti i eye primeneniyu v avto-  
maticheskikh ustroystvakh, Kiyev, 1958. 2. AN USSR (for Ishlinskiy,  
Khrenov). 3. Chlen-korresp.AN SSSR (for Petrov). (Automatic control)

KACHANOVA, N.A.

Calculation of the steady-state conditions of complex electric power systems using digital computers. Trudy Inst. elektrotekh. AN URSR no.19:26-43 '62. (MIRA 16:5)

(Electric power distribution)  
(Electronic computers)