

ABADZHI, K.I.; BOYTSOV, A.M.; VOLOSEVICH, F.P.; GOBERMAN, P.N.; ~~KLIPAY, A.K.~~  
NARINSKIY, F.I.; ODING, G.A.; RUB'NOV, A.D.; SHYURMER, G.A.;  
BRZHEZINSKIY, M.L., kandidat tekhnicheskikh nauk, retsenzent; PETROV,  
V.I., inzhener, retsenzent; KEMPINSKIY, M.M., inzhener, redaktor;  
LEYKINA, T.L., redaktor izdatel'stva; POL'SKAYA, R.G., tekhnicheskij  
redaktor

[Reference manual for production control in machine building] Spravochnik po proizvodstvennomu kontroliu v mashinostroenii. Pod obshchei red. A.K.Kutai. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry, 1956. 670 p, (MLRA 9:12)  
(Machinery industry)

KUTAY, A.K.

Study of precision in manufacture by using the laws of distribution  
of essentially positive values. Vest.Len.un. 11 no.1:101-103  
'56. (MLBA 9:5)  
(Distribution (Probability theory)) (Production control)

К-1114  
MYAGKOV, Vasilii Dmitriyevich; KITAY, A.K., kand.tekhn.nauk, retsenzent;  
BOYTSOV, A.N., kand.tekhn.nauk, red.; LEYKINA, T.L., red.izd-va;  
POL'SKAYA, R.G., tekhn.red.

[Tolerance and fit; a handbook] Dopuski i posadki; sprevochnik.  
Izd. 3-e, perer. i dop. Moskva, Gos.nauchno-tekhn.izd-vo mashino-  
stroit. lit-ry, 1957. 639 p. (MIRA 11:2)  
(Tolerance (Engineering))

28-3-28/33

AUTHOR: Kutay, A.K., Chairman of Organizatory Committee of Conference

TITLE: The Third Scientific-Technical Conference on Interchangeability, Precision and Inspection Methods in Machinebuilding (Tret'ya nauchno-tekhnicheskaya konferentsiya po vzaimozamenyayemosti, tochnosti i metodam kontrolya v mashinostroyenii)

PERIODICAL: Standartizatsiya, 1957, # 3, May-June, p 85-88 (USSR)

TRANSLATION: The Leningrad scientific-technical conferences are creative reviews of achieved successes in the theory and practice of interchangeability, precision and techniques of measurement. At the first conference (1936) such questions as surface finish were first brought up. Now this is a particular science, many problems of which are practically solved. The second conference (1950) dealt with new problems: influence of physical factors on interchangeability, tolerances, inspection of parts of complex shape, etc. By the time of the third conference, it was possible to organize thematic sections for everyone of the problems. The third conference, convened 18-22 March 1957, was the most extensive (90 reports in 8 sectional and 2 reports in plenary sessions were delivered) and the largest, at which

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752 delegates from 230 plants, 76 institutes of the Academies of Science of the USSR, the Ukraine and Uzbekistan Gostekhnika, the Committee of Standards, Measures and Measuring Devices, research institutes and educational institutions were present. Also, many were workers of enterprises, research institutes and VUZes from Kiyev, Omsk, Sverdlovsk, Tashkent, N.-Tagil, Baku, L'vov, Kazan', Zaporozh'ye and other industrial centers of the USSR.

At the plenary session reports by V.V. Tkachenko, Candidate of Technical Sciences and member of the Committee of Standards, Measures and Measuring Devices, and by the Organizational Committee of the conference on the position of interchangeability at the Leningrad plants (Engineer K.I. Abadzhi) were heard. Tkachenko dealt with the questions of precision and interchangeability in state standards.

The precision of machine tools, hammers and presses is very essential for the interchangeability of products. The Committee of Standards, Measures and Measuring Devices, collectively with the Ministry of Machine Tool and Tool Industry, have revised

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these standards for a series of machine tools increasing the precision norms 20-50 %. New standards for machine tools of higher precision were issued (coordinate-boring, gear grinding and others). Lately, similar kinds of standards for hammers and presses have been developed.

Delegates Tkachenko, Kotel'nikov, Shteyn, Slavin and many more in the sectional sessions made suggestions, the most part of which were considered in decisions taken by the conference. For instance, it was pointed out that more scientists, industrial engineers and scientific societies have to be attracted to standards development. It is not enough to collect responses to projects from plants and organizations, the projects must be published for extensive discussion, for they affect the interests of many industrial branches.

The delegates approved the planned abridgement of type-sizes for threads and suggested that the work be speeded up on projects for threads with guaranteed clearances, for tolerances for parts under corrosion-proof coatings, for tolerances for precision castings and non-ferrous castings and for plastic

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and ceramic parts. The urgent necessity to revise the design and tolerances of scales was recognised.

The conference participants stressed the necessity to work out unified series for tolerances and predominant deviations. Much attention was paid to the definition of "interchangeability in machinebuilding". It became evident that this term cannot be considered only from the point of view of fitting of parts and their geometric parameters. In some instances the weight tolerances are of no less importance (report by G.M. Shtanko). In time measurement, electronic, cinema-technical and similar-instruments the operational characteristics depend on geometrical, physical and even chemical elements and parameters. The new aspects of conditions of precision and interchangeability were particularly clearly outlined in reports by Professor E.A. Satel', Dotsent P.I. Bulovskiy, Professor A.P. Ivanov, Professor I.D. Faynerman, Candidate of Technical Sciences N.S. Brusnichkin and others in the section "Interchangeability in connection with physico-chemical parameters of machines and instruments".

A diagram (shown on p 86) was demonstrated which shows the

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essence of the interchangeability questions in the field of design as well as in the field of manufacturing (from the report by A.K. Kutay). The planned discussion of this problem was cancelled.

M.N. Izhevskiy, Candidate of Technical Sciences V.P. Puzanova and G.A. Model' treated in their reports the problems of calculation of complex chains of tolerances (of parallel dimensions); the tolerances of location of aperture axles and experience with drawings from the viewpoint of interchangeability.

The accepted term "free dimensions" is unsatisfactory, and standardization of tolerances for such dimensions for which tolerances are not being indicated is absolutely necessary (report by A.S. Smirnov). Classification of dimensions for

1. functional (directly connected with operation function) parts which include not only the combined and the chain dimensions, but also the dimensions of elastic elements and other parameters and
2. non-functional (reports by A.K. Kutay and I.G. Fridlender)

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Considerable attention was paid to the problem of "space



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tolerances" in the reports by A.K. Kutay (three kinds of position-tolerances) and by Engineer I.N. Tylevich. They treated the basic principles of tolerance selection for position of pipes in ship piping systems, providing for a higher precision level of pipe manufacturing independent of the mounting.

P.N. Goberman delivered a report on a worked-out system of tolerances for galvanized screw thread and posed the problem of its standardization. A.S. Smirnov recommended establishing permissible deviations for dissipating capacity of the bath: without this no reliable interchangeability of galvanized smooth and threaded parts is possible. It is essential to extend interchangeability to aggregate components (Translator's note: "Aggregate" means composed of normalized, or standardized, parts) of ships, aircraft, building machines and the like.

Component interchangeability - as Candidate of Technical Sciences A.S. Goryacheva said in her report - must be developed by analysis of the technological dimension chains which correlate the elements of indexing, machining and assembling, including devices (or machine tools) for machining and assembling

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on the fitting surfaces of aggregates. It is the dimension analysis that solves the problem of mounting pipes in ships (report by I.N. Tylevich).

In petroleum machinery and drill pipes, the conditions for threaded bevel lock connections are worsening because of the higher speed of turbine-drilling. P.N. Sultanov determined, by experiments and calculation, the optimal tensions in pipe locks and suggested a practical calibration for lock connections.

The conference noted the necessity of more extensive application of the fits and tolerances system for wood products by "ГОСТ 6449-53". S.A. Il'yinskiy reported on the introduction of the system.

It could be seen in a series of reports "Interchangeability in connection with physico-chemical parameters of machines and instruments" how far the new techniques of machines and instruments require extension of calculation methods and an assured interchangeability. Professor Ye.A. Satel' stated that new interchangeability tasks arise when mechanical con-

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nections in machines get replaced by electrical and radio-technical, hydro-pneumomechanical connections, or their combinations. He considered some ways of solving the problem of interchangeability in such cases.

D.A. Braslavskiy delivered a report on interchangeability of machine and instrument elements comprising back couplings. Developing the theory of precision of mechanisms created by Academician N.P. Bruyevich and Doctor of Technical Sciences M.L. Bykhovskiy (IMMASH AN SSSR), he demonstrated a suitable method of solving problems for any physical values in measuring and adjusting systems.

I.G. Fridlender, who treated the calculation problem for tolerances of dimensions which determine the physico-chemical characteristics of parts, also indicated ways for obtaining a minimum hystereses for flat membranes. Professor I.D. Faynerman explained the problems of calculation and transformation of errors with consideration of operating time of mechanisms, as the characteristic of motion gradually changes and there accumulates an inaccuracy fund (deformation, wear, change of physical properties etc.). Hence it is necessary to introduce

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a conception of temporary chain, for which the calculation of inaccuracies differs in principle from calculation for a conventional dimension chain.

Professor A.P. Ivanov devoted his report to problems of dynamic accuracy. P.I. Bulovskiy demonstrated convincingly the effect of tolerances of geometric parameters of some parts on interchangeability of mechanisms in magnetolectric instruments. N.S. Brusnichkin made a similar investigation and determined the connection between the accuracy of projection of an image on a screen and the tolerances of the maltese mechanism of a cinema projector, and established - by experiments and calculation - the tolerances for the parts of this complex mechanism.

Despite the novelty of subjects of this section, which became necessary due to development of automation in industry, there is a characteristic tendency to employ the known methods of calculation of tolerances for dimensional and kinematic series by modifying the methods for the new tasks.

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G.M. Shtanko treated in his aforementioned report a new

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problem which has an independent importance. It turned out that the weight of parts is distributed in the same way as the linear dimensions - after Gauss law. Their weight-accuracy is low: the amplitude of deviations from the mean arithmetic value makes 9 % for parts made on automatic machines, and 20 % for stamped and cast parts.

In the section "Analysis of accuracy of technologic processes and the statistical inspection", Professor N.A. Borodachev analysed the application of statistical sciences in problems of precision in machinebuilding.

A.V. Derbisher and A.S. Shevelev reported on the application of the calculation method for determining the possible accuracy of processes. This method, with the extensive experiments performed by the authors, enabled a substantial improvement of finishing processes for parts.

A.K. Kutay, A.A. Syroyegin and L.P. Vladimirov spoke on the methods of accuracy-analysis of technologic processes in operation. Though the investigations were made under different industrial conditions, much in common was revealed in the se-

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quence, methods and in the obtained results.

Member-correspondent of the Academy of Sciences USSR Yu.V. Linnik reported on work done by him and by A.P. Khasu, in which they used the method of differences and obtained evaluation of roughness as a casual stationary process and of waviness of a ground profile as a slowly changing function.

Reports by I.I. Balonkina, A.B. Rumyantsev were devoted to investigation of accuracy of complex shape parts by way of statistical analysis of technologic processes. It must be pointed out that in almost all investigations, the statistical methods are being coupled with experimental and calculative-analytical methods developed by Professor A.P. Sokolovskiy.

The methodologic basis of the statistical inspection was treated in reports by Kh.B. Kordonskiy, V.V. Golovinskiy and M.I. Eydel'nant. The latter also reported on the basic aspects of the "FOCT" project under development at the Institute for Mathematics and Mechanics imeni Romanovskiy of the Uzbek Academy of Sciences. A method of "undisplaced evaluation" developed by Academician A.N. Kolmogorov is to be considered.

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In the section "Automation and mechanization of inspection and setting", reports devoted to the problem of the accuracy of measuring and sorting automatics were delivered by Professor M.L. Bykhovskiy, Kh.B. Kordonskiy (collectively with S.N. Sokolov and G.A. Ivnova), V.I. Smilyanskiy and I.A. Klusov.

Much interest was shown to two reports by Professor B.A. Tayts on new tolerance-standards for gear transmission (The basic aspects were published in the article by B.A. Tayts in "Standartizatsiya" # 1, 1957) and various methods of inspection of these tolerances. An important feature of the new standards developed by TsNII TMASH is the structure of accuracy norms corresponding to various operational requirements: accuracy of angular turn, smoothness of drive and tooth contact. Apart from this, there are separate norms and a system of tolerances and fits for such complex parts as gears.

In three separate sections the problems of technical measurements as well as tolerances and measurements of curved surfaces and of multi-dimensional parts, of tolerances and inspection of large dimensions were discussed. More than 100 delegates parti-

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and Inspection Methods in Machinebuilding

Over 100 of those attending the conference participated in the  
discussions.

There is one chart.

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KUTAY, A.K., kand. tekhn. nauk, dots.; GOBERMAN, P.N., kand. tekhn. nauk,  
dots.

Conference in Leningrad on the interchangeability, precision, and  
methods of automatic control in the machinery industry. Vest. mash.  
37 no.8:88-90 Ag '57. (MLBA 10:9)  
(Leningrad--Automatic control) (Leningrad--Machinery industry)

RUBINOV, Aleksandr Davidovich, KUTAY, A.K., kand.tekhn.nauk, dots., retsenzent,  
KHUDARKOVSKIY, M.P., inzh.retsenzent., ABADZHI, K.I., inzh.red.;  
BORODULINA, I.A., red.; POL'SKAYA, R.G. tekhn.red.

[Organizing and carrying out laboratory work in the subject "Tolerances,  
fits, and engineering measurements."] Organizatsia i provedenia  
laboratornykh robot po predmetu "Dopuski, vosadki i tekhnicheskie  
izmereniia." Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit.  
lit-ry, 1958. 150 p. (MIRA 11:9)

(Tolerance (Engineering))  
(Measurement)  
(Engineering)

KUTAY, A.K

25(6) (y 3)

PHASE I BOOK EXPLOITATION

SOV/1328

Nauchno-tekhnicheskoye obshchestvo mashinostroitel'noy promyshlennosti.  
Leningradskoye oblastnoye pravleniye

Vzaimozamenyayemost', tochnost' i metody izmereniya v mashinostroyeni  
(Interchangeability, Accuracy and Measuring Methods in Machine  
Building) Moscow, Mashgiz, 1958. 251 p. (Series: Its: Sbornik,  
kn. 47) 6,000 copies printed.

Eds.: Kutay, A.K., Candidate of Technical Sciences, Docent; Puzanova,  
V.P., Candidate of Technical Sciences; Kempinskiy, M.M., Engineer;  
Rubinov, A.D., Candidate of Technical Sciences; Turetskiy, I. Yu.,  
Candidate of Technical Sciences; and Abadzhi, K.I., Engineer; Ed.  
of Publishing House: Simonovskiy, N.Z.; Tech. Ed.: Sokolova, L.V.;  
Managing Ed. for Literature on Machine Building Technology (Leningrad  
Division, Mashgiz); Naumov, Ye. P., Engineer.

PURPOSE: This book is intended for plant engineering, scientific and  
technical personnel and production innovators. It may also be

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Interchangeability, Accuracy and Measuring Methods (Cont.) SOV/1328

useful to students of higher technical institutes.

COVERAGE: This collection of articles deals with the topics discussed at the Third Leningrad Scientific and Engineering Conference on Interchangeability, Accuracy, and Inspection Methods in Machine-building and Instrument-making, held March 18-22, 1957. The book consists of three parts: 1) interchangeability in machine-building and instrument-making 2) manufacturing accuracy and quality control 3) engineering measurements. The first part deals with basic principles of interchangeability, establishment of the system and calculation of tolerances. The second part deals with calculation and analysis of the accuracy of manufacturing processes, machine subassemblies and quality control. The third part consists of articles dealing with improvements in measuring instruments and methods. Special emphasis is placed on the measurement of large parts. A new method of calculating accuracies of measuring instruments is discussed in the article by M.M. Kempin'skiy. There is no bibliography.

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PHASE I BOOK EXPLOITATION

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Kutay, Anton Konstantinovich, and Khaim Borisovich Kordonskiy

Analiz tochnosti i kontrol' kachestva v mashinostroyeni s primeneniym metodov matematicheskoy statistiki (Precision Analysis and Quality Control in Mechanical Engineering With the Application of Mathematical Statistics) Moscow, Mashgiz, 1958. 362 p. Errata slip inserted. 10,000 copies printed.

Reviewer: E. A. Satel', Honored Worker in Science and Technology, Doctor of Technical Sciences, Professor; Ed.: A. K. Mitropol'skiy, Professor; Ed. of Publishing House: T. L. Leykina and M. A. Chfas; Tech. Ed. : R. G. Pol'skaya; Managing Ed. for Literature on Machine-building Technology (Leningrad Division, Mashgiz): Ye. P. Naumov, Engineer.

PURPOSE: This book is intended for engineering, technical, and scientific workers and may be useful to students at engineering institutes.

COVERAGE: This book presents the theoretical foundations of the  
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Precision Analysis (Cont.)

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analysis of the accuracy and stability of processes in machine construction and the making of instruments and describes the practical applications of this theory. Methods for statistical preventive and acceptance control are outlined. Experience in applying these methods in individual, serial, and mass production industries are generalized. The means of applying these methods to continuous production on automated lines are discussed. Basic information from probability theory and mathematical statistics, handbook data in the form of tables, computational formulas and systems, and a large number of examples and technical documents are included in the book. No personalities are mentioned. There are 146 references; 123 Soviet, 17 English, 3 French, 1 Polish, 1 Swedish and 1 German.

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Appendix II. Probability Paper

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LK/mmh  
1-14-60

SOV/123-59-15-58894

Translation from: Referativnyy zhurnal.. Mashinostroyeniye, 1959, Nr 15, p 11 (USSR)

AUTHOR: Kutay, A.K.

TITLE: On Some Basic Aspects of the Theory of Interchangeability in Machine Construction

PERIODICAL: V sb. Vzaimozamenyayemost', tochnost' i metody izmereniya v mashinostr. M.-L., Mashgiz, 1958, pp 11 - 19

ABSTRACT: The problems of extending the conception of interchangeability are investigated, in connection with the fact that in the general system of motion transmission in machines and devices, particularly with an automatic operation cycle, not only mechanical but also electric, pneumatic, hydraulic and other couplings are included. It is realized that at present an indispensable condition of interchangeability is the quality of operation of the machines, i.e. the condition of obtaining their performance within the given reasonable limits (tolerance) and of

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SOV/123-59-15-58894

On Some Basic Aspects of the Theory of Interchangeability in Machine Construction

preserving the quality of the machines in time, as well as their stability and coordination, not only concerning the mechanical but also the physical relation between the mechanisms. An extended definition of the term "interchangeability" is formulated, and problems of specifying the conceptions of dimensions, tolerances and errors are analyzed. 4 drawings, 7 references.

P.Ye.A.

Card 2/2

KUTAY, A.K., kand. tekhn. nauk.

Interchangeability and measuring techniques used in the machinery  
industry. Mashinostroitel' no.1:28-29 Ja '58. (MIRA 11:1)  
(Mensuration) (Machinery industry)  
(Interchangeable mechanisms)

KUTAY, A.K., dotsent; BALONKIHA, I.I., assistant; GALNYKIN, A.Ya.

Precision measurements of dimensions in motion-picture engineering.  
Izv. vys. ucheb. zav.; prib. no.273-82 '58. (MIRA 11:7)

1. Leningradskiy institut kinoinzhenerov.  
(Measuring instruments) (Motion-picture projection)

YAKUSHEV, Aleksandr Ivanovich, prof., doktor tekhn.nauk; KUTAY, A.K.,  
kand.tekhn.nauk, retsenzent; VOLODIN, Ye.I., dotsent, kand.  
tekhn.nauk, red.; MOROZOVA, M.N., red.izd-va; GORDEYEVA,  
L.P., tekhn.red.

[Fundamentals of the interchangeability and technical measurements]  
Osnovy vsaimozamenisemosti i tekhnicheskie izmereniia. Moskva,  
Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1959. 375 p.  
(MIRA 13:2)

(Interchangeable mechanisms) (Mensuration)



KUTAY, A.K., dotsent, kand.tekhn.nauk

Statistical methods used in the technology and quality control of automatic production processes. Izv.vys.ucheb.zav.; prib. 2 no.5:121-131 '59. (MIRA 13:5)

1. Leningradskiy institut kinoinzhenerov. Rekomendovana kafedroy tekhnologii tochnogo mashinostroyeniya. (Instrument industry)

KUTAY, A.K.; GALNYKIN, A.Ya.; STEPANOV, V.S.

Development and study of the contact method for film gauging.  
Trudy LIKI no. 5:116-123 '59. (MIRA 13:12)

1. Kafedra tekhnologii tochnogo mashinostroyeniya Leningradskogo  
instituta kinoinzhenerov.  
(Motion-picture photography--Films)  
(Measuring instruments)

EL'STER, Petr Borisovich; CHESNOKOV, Anatoliy Mikhaylovich; KUTAY, A.K.,  
kand.tekhn.nauk, red.; LEYKINA, T.L., red.izd-va; SPERANSKAYA,  
O.V., tekhn.red.

[Technology of the manufacture of articles from vinyl plastic]  
Tekhnologiya izgotovleniya izdelii iz viniplasta. Moskva, Gos.  
nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1960. 84 p.

(MIRA 13:6)

(Plastics)

(Vinyl compounds)

*KLUTZKY, H.K.*

Современные по теории вероятностей и математической статистике, Ташкент, 1973

Труды Всесоюзного симпозиума по теории вероятностей и математической статистике, Ташкент, 1973. Сборник 4. All-Union Conference on the Theory of Probability and Mathematical Statistics. Vol. 4. Tashkent, 1973. 274 p.

Спонсорский Агентств: Алжамалыя махк Аппараты 521.  
Материал Staff: O.A. Akbarov, S.Y. Genduz, T.G. Dzhalil, Yu.V. Linnik and S. D. Ponomarev; Ed. of Publishing House: A.G. Akhmedov; Tech. Ed.: M.A. Eshmatov.

FOREWORD: The book is intended for mathematicians.  
CONTENTS: The book contains 31 articles submitted to the Conference and dealing with the theory of probability and mathematical statistics. Some of the articles are the papers read at the Conference and edited for publication, while others outline the papers which appeared or are scheduled to appear, wholly or in part, in other publications; in some cases, such publications are typed. A list of the papers whose contents were published elsewhere is included and the places of publication are indicated. Individual articles examine theories of mass service, spectral integrals, numbers, games, and various functions. There are also theorems of Shannon, Markov's chains, and certain properties of Markov's and partitions. Such items as the method of Jacobi theta functions, Bernoulli experiments, Markov-type chains, and certain products are examined in the same volume, capacity of radio channels, and defects products are considered. In parentheses are mentioned. References accompany some of the articles.

Application of Mathematical Statistics to Problems in Acoustics of Nonlinear-Construction Plants	210
Spokis, Ye. B. Markov's Processes and their Subprocesses	225
Yevstafiy, A.B. On Local Behavior of Trajectories of Diffusion Processes	256
Yambertich, A.A. Some Properties of Markov's Processes with an Enumerable Set of States	279
Olshansk, I.I. On the Problem of the Number of Intersections of a Random Partition with the Boundary of a Given Domain	287
Yedrubek, M.I. Isotropic Markov-Type Random Fields in Euclidean and Hilbert Spaces	285
Chentsev, S. I. Limit Theorems for some Classes of Random Functions	290
Derjagin, I. A. Some limit theorems for Strictly Stationary Processes. (Theses)	286
SAFARIDZ, Library of Congress	
Dzhalil, Ya.I. Some Properties of Stochastic Pulse Processes	72
Shakhmurov, A.V. Random Measures and their Applications in the Theory of Stochastic Processes and Statistics. (Theses)	79
Chentsev, S.I. Topologic Measures and the Theory of Random Functions	85
Shakhmurov, A.V. On Evaluation of a Distribution Function Based on the Realization of a [Stationary Process	96
Yalilov, R.I. On One Problem of a Random Walk. (Theses)	96

MITROPANOV, S.P., kand.tekhn.nauk, laureat Leninskoy premii, red.;  
AZAROV, A.S., kand.tekhn.nauk, red.; GUTNER, N.O., inzh., red.;  
KAMNEV, P.V., kand.tekhn.nauk, red.; KUTAY, A.K., kand.tekhn.  
nauk, red.; RYZHIKOV, R.A., inzh., red.; SHALGIN, G.N., kand.  
ekon.nauk, red.; SIMONOVSKIY, N.Z., red.izd-va; SPERANSKAYA,  
O.V., tekhn.red.

[Group techniques in the manufacture of machinery and instruments]  
Grupповая технология в машиностроении и приборостроении. Москва,  
Gos.nauchno-tekhn.isd-vo mashinostroit.lit-ry, 1960. 378 p.  
(MIRA 13:9)

(Machinery industry)

(Instrument manufacture)

PHASE I BOOK REPRODUCTION 809/1438

Важнейшие задачи метрологии в машиностроении; Методы измерения, no. 2 (Interchangeability and Engineering Measurements in Machinery Metrology); University Collection, No. 2) Moscow, Mashgiz, 1960. 362 p. Errors ally corrected. 5,000 copies printed.

Ed.: A.I. Yanush, Doctor of Technical Sciences, Professor; Editorial Council: A.I. Yanush (Chairman); S.A. Tyris, Doctor of Technical Sciences, Professor; Ye. I. Volakis, Doctor; S.J. Gusev, Doctor; P.J. Guberma, Doctor; and O. Ya. Zagayev (Scientific Secretary); Engineer; Borisov, M. Ye. Yegorov, Doctor of Technical Sciences, Professor; Ed.: S.A. Tyris; V.F. Korobov, Candidate of Technical Sciences, Doctor; S.J. Gusev, Candidate of Technical Sciences; S.M. Gerasimov, Candidate of Technical Sciences; S.M. Gerasimov, Engineer; Ed. of Publishing House: G.F. Zhdankov; Rev. Ed.: S.P. Baburova.

NOTE: This collection of articles is intended for scientific and technical personnel dealing with problems of interchangeability and engineering measurements in the machine and instrument industries.

Авторы: С.А. Тирис [Candidate of Technical Sciences], and S.P. Baburova [Engineer]. Optical Metrology Measuring Method for Large Parts 359

Турецкая, С.А. New Methods for Checking the Micrometers 351

Проблемы, М.А. [Candidate of Technical Sciences]. Use of Tally Instruments in Precision Measurements of Graduated Scales and of Length Gages 366

Авторы: О. Я. Загяев. See Optical-Mechanical Instrument for Measuring Large Parts 375

Доклады, М.А. [Candidate of Technical Sciences]. Synthesis of Accuracy According to Accuracy Specifications 382

Авторы: В.В. Температурные Errors in Instruments With Automatic Adjustment 389

Авторы: С.А. Тирис [Candidate of Technical Sciences, Doctor]. Analysis of Accuracy of Surface Roughness Measurements 397

Авторы: М.А. [Candidate of Technical Sciences, Doctor]. Accuracy of Accuracy in Finishing of Parts on Machine Tools With Grinding Wheels 404

Авторы: М.А. [Candidate of Technical Sciences, Doctor], and P.А. [Candidate of Technical Sciences]. Methods of Engineering Quality Control in Machine Construction 411

Авторы: В.В. Температурные. Methods for Measuring the Dimensions of Large Parts 418

SECTION III. AUTOMATIC CONTROL

Авторы: А.А. [Candidate of Technical Sciences, Doctor]. Methods for Automatic Control of Machine Tools 425

Авторы: А.А. [Candidate of Technical Sciences, Doctor], and P.А. [Candidate of Technical Sciences, Doctor]. Polycentric Control in the Automation of Grinding Operations 432

Авторы: М.А. [Candidate of Technical Sciences, Doctor]. Methods for Automatic Control of Setup Adjustment of Machine Tools 439

Авторы: В.В. Температурные. Methods of Technical Sciences, Doctor]. Automatic Control of Sprung Load in Pumps 446

Авторы: А.А. [Candidate of Technical Sciences, Doctor]. Use of Optical Interference of [New?] 453

Авторы: В.В. Температурные, and А.А. [Candidate of Technical Sciences, Doctor]. Methods of Automatic Control of Machine Tools 460

KUTRY, H.K.

KUTAY, A. K., dotsent, kand. tekhn. nauk

Precision analysis of automatic machine tools and production  
lines. Vzaim. i tekhn. izm v mashinostr.; mezhvuz. sbor. no. 2: 463-479

'60. (MIRA 13:8)

(Automatic control) (Machine tools)

S/028/60/000/06/02/028  
B012/B005

AUTHOR:

Kutay, A. K.

TITLE:

Propagation of Ranges of Application of the Principal  
Tolerance Fields on the Basis of Functional Inter-  
changeability

PERIODICAL: Standartizatsiya, 1960, No. 6, pp. 6 - 11

TEXT: In a number of Socialist countries, criteria have been worked out on the interchangeability of tolerance fields of the NCA (ISA) system with those of the OCT (OST) system. The principal factors determining an interchangeability are these: 1) The minimum permissible change in geometric parameters on which the working characteristics of the junction depend. 2) The permissible change in deformation under working conditions. 3) The permissible change in friction. 4) The fulfillment of the demands made on the junction during operation. 5) Fulfillment of the specific working requirements (moment of torsion, ad-justability). According to the factors enumerated, the junctions must be examined separately and by types. Table 1 shows a list of tolerance

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Propagation of Ranges of Application of the Principal Tolerance Fields on the Basis of Functional Interchangeability S/028/60/000/06/02/028  
R012/B005

fields for shafts according to OST and ISA and their preferable application. By the example of probable interchangeability, the author explains the calculation possibilities (Formula (1), Fig. 1, Fig. 2). Table 2 indicates the values obtained by the Gaussian law for the fraction of dimensions ( $q\%$ ) which exceed the limits of the tolerance field. For the change of deformation in junctions with pressed inserts, the author indicates - as a criterion for interchangeability - the coefficient  $K_q$  for bending with  $K_q \geq 0.95$ , for plastic deformation with  $0.66 \leq K_q < 0.95$ , <sup>B</sup> and for completely plastic deformation with  $K_q < 0.66$ . Professor M. A. Saverin and others arrived at similar values. Table 3 shows the character of deformation in inserts exchanged and to be exchanged of the 3rd precision class according to OST. The author concludes therefrom that the deformation does not change at all, or not very much. For an insert of 2nd class, Table 4 shows the values  $Q$  which characterize the variation of the distance of the individual part. Table 5 shows a list of recommended combinations of preferable tolerance fields for the 2nd, 3rd, and 4th precision class. The Pol'skiy komitet normalizatsii (Polish

Card 2/3

Propagation of Ranges of Application of the  
Principal Tolerance Fields on the Basis of  
Functional Interchangeability

S/028/60/000/06/C2/028  
B012/BC05

Committee on Standardization; abbreviated: PKN), the Byuro  
vzaimozamenyayemosti v metalloobrabatyvayushchey promyshlennosti  
(Bureau of Interchangeable Manufacturing in the Metalworking Industry;  
abbreviated: BV), and the Leningradskiy institut kinoinzhenerov  
(Leningrad Institute of Cinema Engineers) are mentioned in the paper.  
There are 2 figures, 5 tables, and 2 Soviet references.

Card 3/3

S/028/60/000/007/004/005/11  
B013/P058

AUTHOR: Kutay, A. K.  
TITLE: Determination of Surface Imperfections in Connection With  
the Specification of Tolerances  
PERIODICAL: Standartizatsiya, 1960. No 7, pp 7-11

TEXT: This paper deals with proposals concerning the determination of deviations in the shape of workpieces. Imperfections are quite generally defined as a deviation of the real (technical) surface from the one laid down in the drawing. Such a definition requires a more exact formulation if the defect is to be determined with respect to the tolerance laid down. The two principal groups of proposals are discussed first of all. The range of admissible deviations in shape is determined in the first group with the aid of tangents and tangent planes (Fig. 1a). The main characteristic of the first group is the tolerance zone which is limited by two parallel or equidistant lines or planes. The second group is characterized by the fact that imperfections are determined as a difference (in the case of tolerance, the maximum permissible difference) between the cross-  
Card 1/3

Determination of Surface Imperfections in Connection With the Specification of Tolerances S/028/60/000/007/004/005/006  
BO13/BO59

sections of the workpiece, the dimensions being usually taken with respect to the normal onto the real surface (Fig. 1b). The first group corresponds to the limits of the tolerance zone for dimensions. The difficult metrological control is a particular disadvantage of this group. The second principle of determination is less exact concerning geometric description, but offers some advantages to practical measuring technique. For the third principle, the distance of points of the real surface from a geometric limit point, line, or surface, touching the surface of the workpiece or adhering to it, ranges as a deviation from the form. As an example for the application of the third principle, the determination of the boundary (Fig. 1c) may be mentioned, which is contained in the tentative standard elaborated by the Byuro vzaimozamenyemosti (Bureau of Exchangeability) in 1959. The third principle is a compromise between the two first-mentioned principles, retaining the advantages of the first principle and widening its metrological basis. A compromise must be searched for, since there is no uniform principle that would meet the requirements of exchangeability regarding dimension, form, and position of the workpiece surface on the one hand, and efficient, practical, and convenient measuring methods on the other. The demand for exchangeability.

Card 2/3

Determination of Surface Imperfections in Connection With the Specification of Tolerances *S/020/10/000/007/004/005/XX*  
B011/P059

control, and measurement of deviations in the position of surfaces must form the basis. As an example (Ref. 4), the author proposes to use the method of least squares for determining the radius  $r_m$  of the mean or smoothed circumference from the measured radii  $r_k$  of the real surface, that is, from the formula:

$$\sum_{k=1}^n (r_k - r_m)^2 = \min.$$

$n$  being the number of the equidistant values of the angles  $\varphi$ , from which the radii  $r_k$  in the range of the circumference  $2\pi r_k$  were determined. The evaluation of measurements is illustrated (Fig. 2, Tables 1 and 2) There are 2 figures, 2 tables, and 5 references: 4 Soviet and 1 Czech



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S/115/60/000/012/001/018  
B021/B059

AUTHOR: Kutay, A. K.

TITLE: Method of Estimating the Errors of Linear Measurements

PERIODICAL: Izmeritel'naya tekhnika, 1960, No. 12, pp. 5-9

TEXT: This is an abridged reproduction of a report read before the All-Union Conference at the VNIIM (Vsesoyuznyy nauchno-issledovatel'skiy institut mashinostroyeniya - All-Union Scientific Institute of Machine Construction) in 1960. The guiding principles of the report comprise the results of discussions by members of the Committee on Interchangeability of the Leningrad Branch of the NTO Mashprom - Nauchno-tekhnicheskoye obshchestvo mashinostroitel'noy promyshlennosti (Scientific and Technical Society of the Machine Construction Industry) with the participation of a number of factories. The estimate of errors is categorized as follows: errors of the measuring method, reference being made to a paper by B. A. Tayts and N. N. Markov; estimate of random errors and detection of the total error. Errors due to temperature and contact must be considered part of the most important control errors. They depend on the power consumption while measuring, as well as the shape and number of contact faces.

Card 1/2

Method of Estimating the Errors of  
Linear Measurements

S/115/60/000/012/001/018  
B021/B058

The running errors also depend on specific errors, which comprise the elastic deformation of the parts of the measuring instruments, the effect of the fluctuation of the allowance in the machining of the products, the effect of control and self-adjustment of the measuring instruments, and the switching-off speed of the machine tool. The author finally emphasizes the necessity of discussing the trend and coordinating the elaboration of methods of estimating measurement errors. There are 1 figure and 6 references: 5 Soviet and 1 German. ✓

Card 2/2

KUTAY, A.K.

Determination of errors in the shape of surfaces in connection with the establishment of tolerances. Standartizatsia. 24 no.7:7-11 J<sup>1</sup> '60. (MIRA 13:7)  
(Tolerance (Engineering))  
(Surface (Technology))



KUTAY, A.K., kand.tekhn.nauk, dotsent; BALONKINA, I.I., inzh.

Automatic collimation devices for measuring angles of recess  
for toothed cylinders and other parts. Vzaim.i tekhn.  
izm.v mashinostr.; mezhvuz.sbor. no.3:227-239 '61.

(MIRA 14:8)

(Collimators)

TAYTS, B.A.; MARKOV, N.N.; KOLCHIN, N.I., zasl. deyatel' nauki i tekhniki  
RSFSR, doktor tekhn. nauk, prof., red.; KUTAY, A.K., kand. tekhn.  
nauk, retsenzent; FIRUN, N.B., kand. tekhn. nauk, red.;  
ONISHCHENKO, R.N., red. izd-va; BARDINA, A.A., tekhn. red.

[Precision standards and control of gear wheels] Normy tochnosti i  
kontrol' zubchatykh koles. Pod obshchei red. N.I. Kolchina. Mo-  
skva, Mashgiz, 1962. 103 p. (Bibliotekha zuboreza, no.6)  
(Gearing—Standards) (MIRA 16:2)

SELYUTIN, Abram Moiseyevich; BESPAL'CHIKOVA, Tat'yana Aleksandrovna;  
KUTAY, A.K., kand. tekhn. nauk, retsenzent; NAUMOV, Ye.P.,  
inzh., red.; LEYKINA, T.L., red. izd-va; SHECHETININA, L.V.,  
tekhn. red.

[Handbook on tolerances and fits] Spravochnik po dopuskam i po-  
sadbkam. Moskva, Mashgiz, 1962. 143 p. (MIRA 15:8)  
(Tolerance (Engineering))

BALAKSHIN, O.B., kand. tekhn. nauk; BYKHOVSKIY, M.L., prof., doktor tekhn. nauk; VOLODIN, Ye.I., kand. tekhn. nauk; GRIGOR'YEV, I.A., kand. tekhn.nauk; DRAUDIN-KRYLENKO, A.T., inzh.; IVANOV, A.G., kand. tekhn.nauk; KOZLOV, M.P., kand. tekhn. nauk; KOROTKOV, V.P., prof.; KOCHENOV, M.I., kand. tekhn.nauk; KUTAY, A.K., kand. tekhn. nauk; MARKOV N.N.,kand. tekhn. nauk; PALEY, M.A., inzh.; RAYEMAN, N.S., kand. tekhn.nauk; ROSTOVYKH, A.Ya., kand. tekn. nauk; RUMYANTSEV, A.V., kand. tekhn.nauk; SARKIN, I.G., prof.; SMIRNOV, A.S., inzh.; TAYTS, B.A., prof., doktor tekhn. nauk; YAKUSHEV, A.I., prof., doktor tekhn. nauk; NESTEROV, V.D., inzh., nauchnyy red.; CHUDOV, V.A., inzh., nauchnyy red.; GAVRILOV, A.N., doktor tekhn.nauk, prof., red.; BLAGCSKLONOVA, N.Yu., inzh., red. izd-va; SOKOLOVA, T.F., tekhn. red.

[Manufacture of instruments and means of automatic control: a manual in five volumes] Pritorostroeniya i sredstva avtomatiki; spravochnik v piati tomakh. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit. lit-ry. Vol.1.[Interchangeability and engineering measurements] Vzaimozameniaemost' i tekhnicheskie izmereniia. 1963. 568 p. (MIRA 16:8)  
(Electronic measurements) (Automatic control)

ABADZHI, K.I.; BOYTSOV, A.N.; VOLOSEVICH, F.P.; GOBERMAN, P.N.;  
KEMPINSKIY, M.M.; KUTAY, A.K.; MARINSKIY, F.I.; OLING,  
G.A.; TAYTS, B.A.; RUBINOV, A.D.; SHTYURMER, G.A.;  
ERZHEZINSKIY, M.L., kand. tekhn. nauk, retsenzent;  
SHALAYEVSKIY, O.V., red.; LEYKINA, T.L., red.izd-va;  
SPERANSKAYA, O.V., tekhn. red.

[Handbook on production control in the machinery industry]  
Spravochnik po proizvodstvennomu kontroliu v mashinostro-  
eni. Izd.2., perer. i dop. Moskva, Mashgiz, 1964. 748 p.  
(MIRA 17:3)

KUTAY, A.K.; PEKKER, F.P.

Visual active control of circular grinding machines. Mashino-  
stroitel' no.11:10-11 N '63. (MIRA 16:11)

EL'STER, P.B.; CHESNOKOV, A.M.; KUTAY, A.K., kand. tekhn. nauk,  
retsenzent

[Technology of the manufacture of vinyl plastic articles]  
Tekhnologiya izgotovleniia izdelii iz viniplasta. Izd.2.,  
perer. i dop. Moskva, Mashinostroenie, 1964. 170 p.  
(BIRA 17:11)

KUTAY, A.K.; BALONKINA, I.I.

Precision of die and investment castings. Lit. proizv. no.8:37-39  
Ag '64. (MIRA 18:10)



KUTAY, A.A., kand. tekhn. nauk

Unification of quality indices for manufacturing processes.  
Standartizatsiia 28 no.6:32-38 Je '64. (MIRA 17:9)

1. Leningradskiy institut kinoinzhenerov.

1957, 1958.

History of military and political movements in the  
Czechoslovak Republic. V. 1. 1945-1954. (Prague: 1954)  
Lith. ser. no. 15 (1-15) (1954) (1954)

KUTUY, A.K.; GILNYKIN, A.Y.; STEBANOV, V.S.

Contact method for measuring the geometric parameters of 35 mm motion-picture films. Trudy LKI no. 11:25-32 '64.

(MIRA 18:10)

1. Kafedra tekhnologii i obzorgo mashinostroyeniya Leningradskogo Instituta kinoinzhenerov.

KUTAY, A.K., prof.

Some things should be specified and changed. Standartizatsiia  
29 no.9:36-37 S '65. (MIRA 18:12)

ACC NR: AP6023051 (N) SOURCE CODE: UR/0416/66/000/004/0045/0049

AUTHOR: Kutay, D. (Vice-admiral, Deputy commander for logistics of the Northern fleet)

ORG: None

TITLE: Providing supplies for naval vessels

SOURCE: Tyl i snabsheniye sovetskikh vooruzhennykh sil, no. 4, 1966, 45-49

TOPIC TAGS: ordnance, quartermaster equipment

ABSTRACT: The author presents a general review of supply activities demonstrated by various commanders and officers belonging to the naval ships and supply bases operating in northern and arctic areas. The activities covers ordnance and quartermaster supplies to be provided for various types of naval vessels including atomic powered submarines. The activity of supplying ships under severe arctic conditions is a great responsibility of officers in charge of command and supply. In this connection, the activities of the ship-commanding officer, V. Grinchuk, are described and highly praised. His assistant for political education advises him on supplies pertaining to the educational and party-political programs (books, movies, etc.). The deputy commander, acting as an executive officer, is responsible for seeing that the supply operations are efficiently carried out. Commander Boyko, acting as supply officer, deals mostly with supplying food, clothing and various materials. The activities of a supply base are also cited and praised especially

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ACC NR: AP6023051

with regard to the preparations of supplies for submarines. The supply plan is prepared and carried out in close cooperation with submarine representatives. In general, the ships are used as supply bases for submarines only during the execution of maneuvers and training exercises. It is recommended that such a method of supply be used more in every day practice. A more careful selection and control of food is recommended and more consideration be given to climatic conditions. The arrangement of naval bases is also reviewed and an example of a well equipped base is presented. The development of home farming and the cultivation of vegetables on the naval bases is praised. The storage and preservation of food on submarines is discussed and the establishment of new regulations is recommended. The organization of medical aid, hospitals and rest houses in arctic areas is also mentioned. Orig. art. has: 3 photos.

SUB CODE: 15/ SUEM DATE: None

Card 2/2

MITROFANOV, Sergey Petrovich, kand.tekhn.nauk; KUTAY, K.A., dots.kand.tekhn.  
nauk, red.; YRNOER, D.P., tekhn.red.

[Group milling parts as a scientific method fo technology] Gruppovaya  
obrabotka detalei kak metod nauchnykh osnov tekhnologii. Pod red.  
K.A.Kutai. Leningrad, Leningr. dom nauchno-tekhn.propagandy, 1957.  
115 p. (MIRA 11:2)

(Milling machines)

USSR/General and Specialized Zoology - Insects.

P.

Abs Jour : Ref Zhur - Biol., No 8, 1958, 35332

Author : Kutayev, F.S.

Inst :

Title : The Populating of Oak Timber and Stumps with Trunk Pests.

Orig Pub : Nauchn-tekhn. sb. tr. po lesn. kh-vu Sev. Kavkaza. 1956, vyp. 2, 141-145.

Abstract : Winter, spring and summer cuttings of oak timber were studied in six forest kolkhozes on wood clearings and samples from select sanitation cuttings. The population of each pest on 1 dm<sup>2</sup> of the trunk's surface was determined on circular sheets 50 cm. by 1-2 m. The rootless timber attracted many trunk pests, of which the most dangerous were: *Agrilus biguttatus*, *A. angustulus*, *A. hastulifer*, *Chrysobothris affinis*, *Xyleborus monographus*, *Plangionotus arcatus*, *Clytus arictis* and *Ilyanobes testaceus*.

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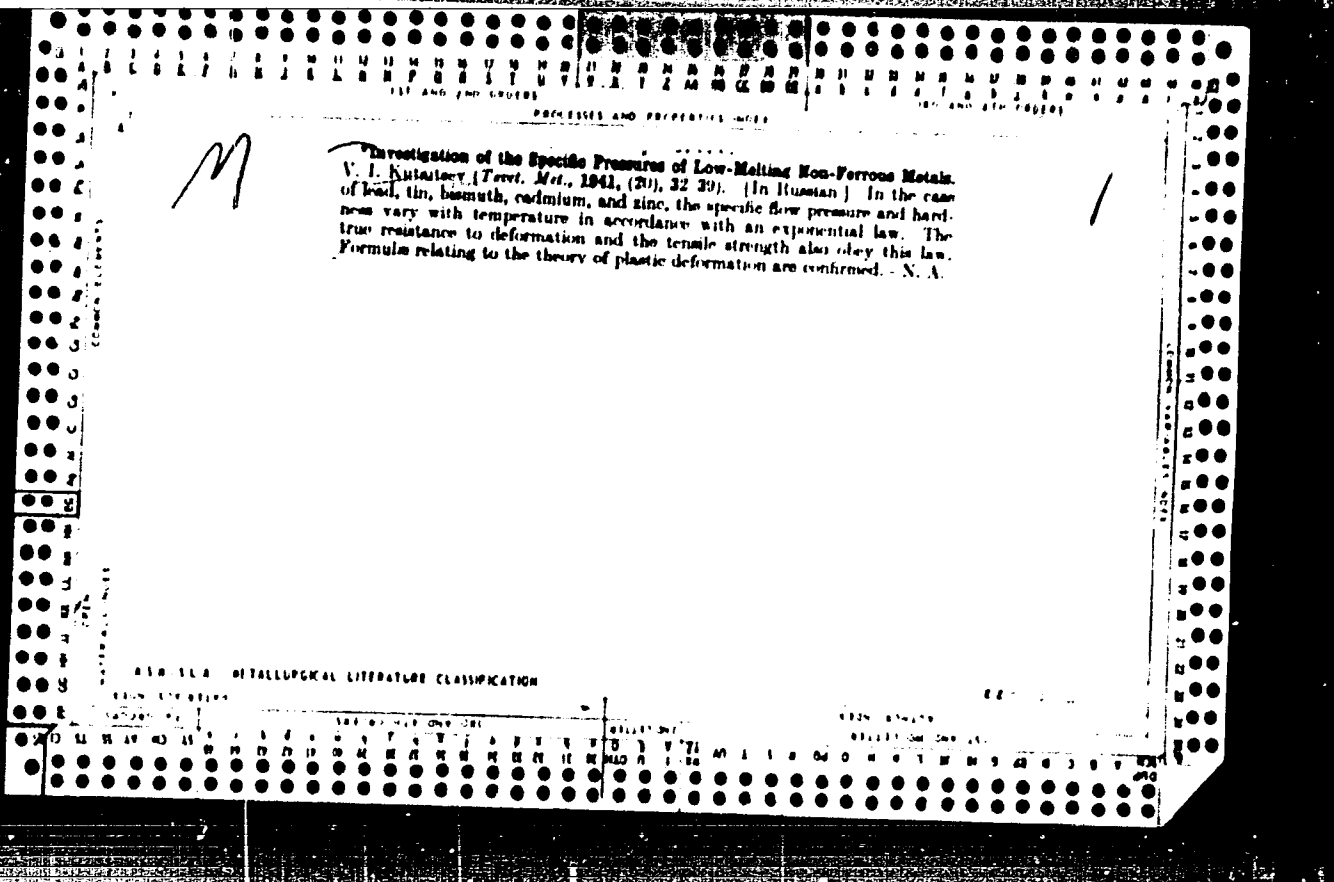
KUFAYTSEV, V.I.

CA

PROCEEDINGS AND PROPERTIES OF METALS

**Theory of relaxation of metals** S. I. Golovin and V. I. Kutaytsev. *Ann. scienc. anal. phys.-chim. (Sov. Union)* 13, 237-72 (1941) (in Russian). *Met. Abstracts (in J. Inst. Metals)* 6, 260 W (1941). — The relaxation theory of Maxwell provides an explanation of the phenomenon of the increase in resistance to deformation of the metals with increase in the rate of deformation and the tendency to brittleness associated with rapid deformation. The theory does not, however, take into account the thermal effect associated with deformation, which at still higher rates of deformation results in a recovery of the metal being deformed, and consequently, as has been shown experimentally, in a falling off of the resistance of the metal to deformation. If a metal is being deformed at temps. at which recrystn. is possible, the resistance to deformation is dependent on the relative rates of the recrystallization and deformation processes. Work-hardening may occur if the rate of deformation is more rapid than the rate of recrystn. Thus x-rays showed work-hardening to have occurred in Y alloy deformed at a rate of 1550 mm./second at 500°. If the rate of deformation was increased still further to 3200 mm./second the thermal effect produced raised the temp. sufficiently for recrystn. to take place and the deformed specimen had a recrystallized structure. C. I. B.

ASB-51A METALLURGICAL LITERATURE CLASSIFICATION



KONOBAYEVSKIY, S.T.; PRAVDYUK, N.F.; KUTAYTSEV, V.I.

[Effect of radiation on the structure and properties of fissionable materials] Vliianie oblucheniia na strukturu i svoistva delia-shchikhhsia materialov. Moskva, 1955. 14 p.

(Radioactive substances)

(Radiation)

(MIRA 14:6)

Kutaytsev, V. I.

KUTAYTSEV, V. I., FARVDYUK, N. F.

... of neutron irradiation ...  
( $1.4 \times 10^{20}$  neutron/cm<sup>2</sup>) at 250 - 300°. It was found that as a  
... of bombardment the microhardness and the tensile strength increase.  
... comparison of construction of ...

BOCHVAR, A. A., KONOEYEVSKIY, S.T., KUTAYTSEV, V. I. and CHEBOTAREV, N. T.

"Interaction Between Plutonium and Other Metals in Connection with their Arrangement in Mendeleev's Periodic Table."

paper to be presented at 2nd Un Intl. Conf. on the peaceful uses of Atomic Energy, Geneva, 1 - 13 Sept 58.

KUTAYTSOV, V. I.

AUTHORS: Bochvar, A. A., Konobeyevskiy, S. T., SOV/69-5-1-1/28  
Zaymovskiy, A. S., Sergeev, G. Ya.,  
Kutaytsov, V. I., Pravdyuk, N. P., Levitskiy, B. M.

TITLE: Investigations Carried out in the Field of the Metallography of  
of Plutonium, Uranium, and Their Alloys (Issledovaniya v oblasti  
metallovedeniya plutoniya, urana i ikh splavov)

PERIODICAL: Atomnaya energiya, 1958, Vol. 5, Nr 1, pp. 5-23 (USSR)

ABSTRACTS:

The purpose of this survey is to study the metallography of nuclear fuels; plutonium, uranium, and their alloys. The work concerned was carried out in connection with the development of atomic power engineering in the USSR. Three principal chapters contain data concerning the following subjects:

- 1.) Plutonium and its alloys:
  - a) Metallic plutonium
  - b) Alloys with the metals of group I (PuCu<sub>2</sub>, PuCu<sub>4</sub>, PuCu<sub>6</sub>)
  - c) Alloys with the metals of group II (PuBe<sub>13</sub>)
  - d) Alloys with the elements of group III (Pu<sub>3</sub>Al, PuAl<sub>2</sub>, PuAl<sub>3</sub>, PuAl<sub>4</sub>)

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Investigations Carried out in the Field of the Metallurgy of Plutonium, Uranium, and Their Alloys SOV/89-5-1-1/23

- e) Alloys with the elements of group IV ( $\text{Pu}_6\text{Zr}$ )
- f) Alloys with the elements of group V-VIII ( $\text{PuV}_2$ ,  $\text{PuOs}_2$ ,  $\text{PuFe}_2$ )
- g) Alloys with the metals of actinides ( $\text{PuU}$ )
- 2.) Uranium and its alloys:
  - a) Structure and physical properties of uranium
  - b) Mechanic properties of coarse-grained uranium
  - c) Deformation of uranium when subjected to irradiation or cyclic thermal treatment
  - d) Change of the structure and properties of uranium as a result of thermal treatment (annealing)
  - e) Change of the structure and properties of uranium as a result of plastic deformation followed by annealing at temperatures of the  $\alpha$ -range
  - f) Structure and properties of uranium alloys
  - g) Treatment of uranium by means of pressure.
- 3.) The influence exercised by neutron radiation upon the structure and the properties of reactor building materials and fuels. There are 17 figures, 6 tables, and 6 references, which are Soviet.

Card 2/3



Investigations Carried out in the Field of the Metallurgy  
of Plutonium, Uranium, and Their Alloys

SOV/89-5-1-1/28

SUBMITTED: March 18, 1958

1. Plutonium--Analysis
2. Plutonium alloys--Analysis
3. Uranium--Analysis
3. Uranium-alloys--Analysis
4. Reactors
- Materials
5. Materials--Effects of radiation

Card 3/3

15

**AUTHORS:** Kuznetsov, L. A., Konebnyevskiy, G. T., Kuznetsov, V. A.,  
Mentshikova, T. M., Chebotarev, N. T.

**TITLE:** The Reactions of Plutonium with Other Metals with Respect to  
Their Position in the Periodic Table of P. I. Mentshikova  
(Vzaimodeystviye plutoniya s drugimi metallami v zavisimosti  
raspolozheniyem v periodicheskoj sisteme P. I. Mentshikova)

**PERIODICAL:** Atomnaya energiya, 1958, Vol. 4, Nr 1, pp. 564-570, 1958

**ABSTRACT:** On the basis of phase diagrams the character of the interaction  
of plutonium with a number of other elements of the periodic  
table is described. Only characteristic examples are mentioned.  
Phase diagrams are given for the following alloys: Pu - Sn,  
Pu - Be, Pu - Al, Pu - Pb, Pu - Bi, Pu - Zn, Pu - Cd, Pu - Ag,  
Pu - Mo, Pu - Os, Pu - Tl, Pu - U. A detailed literature refer-  
ence concerning the crystal structure of some plutonium compounds is  
added, in which plutonium is combined with the following ele-  
ments: Cu, Ag, Be, Mg, Hg, Al, In, Ta, C, Si, Ge, Sn, Bi, Pb,  
Fe, As, Bi, Te, Mn, Fe, Co, Ni, Os, Th, and Ue (the last  
foreign data). For the compilation of the phase diagrams, espe-  
cially the papers by the authors mentioned above.

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COVER - Page 15  
The Reactions of Plutonium With Other Metals With Respect to Temperature  
in the Periodic Table of D. I. Mendeleev

with lead. The collaborators V. I. Bogdanov, G. I. Ivanov, D. I. Smotrinskiy, and Ye. I. Smotrinskaya are mentioned in the text. There are 12 figures and 7 references. (S) (U) (C) (S) (U) (C)

(S) (U) (C) (S) (U) (C)

Ku Tay Tsau, U.S.

21(4) PHASE I BOOK REFLECTIONS 807/2713

International Conference on the Peaceful Use of Atomic Energy. 2nd, Geneva, 1958

Detailed scientific abstracts. Numerous graphs and photographs included. (Reports of Soviet Scientists, Nuclear Fuel and Reactor Plants) Moscow, Atomizdat, 1959. 670 p. (Series: IIA: Tech, vol. 3, 0,000 copies printed.

Ms. (Title page): A.A. Rezhnev, Academics, A.P. Vinogradov, Academics, V.A. Tsel'nykov, Corresponding Member, USSR Academy of Sciences, and A.P. Lezhnev, Doctor of Technical Sciences; Ed. (Title book): V.V. Pavlov and O.M. Pecherikov; Tech. Ed.: E.I. Masal.

NOTE: This volume is intended for scientists, engineers, technicians, and managers working in the promotion and peaceful application of atomic energy; the postwar and where the subject is taught; and for people interested in atomic science and technology.

CONTENTS: This is volume 3 of a 3-volume set of reports on atomic energy presented by Soviet scientists at the Second International Conference on the Peaceful Uses of Atomic Energy, held in Geneva from September 1 to 13, 1958. Volume 3 consists of two parts. The first part, edited by A.I. Zubov, is devoted to geology, prospecting, construction, and processing of nuclear source material. The second part, edited by G.L. Zverev, includes 27 reports on metallurgy, metallography, processing technology of nuclear fuels and reactor metals, and neutron irradiation effects on metals. The titles of the individual papers in each case correspond word for word with those in the English edition of the conference proceedings. See 807/264 for the titles of the other volumes of the set.

807/264: Rezhnev, A.A., V.D. Emel'nikov, and V.A. Rejzner: Self-Irradiation of Uranium in the Gamma-phase (Report No. 236) 70

Rezhnev, A.A., S.P. Koshcherevskiy, A.I. Emel'nikov, V.A. Rejzner, and V.D. Chibrikov: Partial Irradiation of Uranium Metal in Connection with Their Arrangement in Mendeleev's Periodic Table (Report No. 219) 76

Koshcherevskiy, S.P., A.G. Semakovich, B.M. Levitskiy, P.M. Sazonov, V.D. Chibrikov, V.A. Rejzner, V.D. Emel'nikov, and V.I. Kuznetsov: Properties of Uranium and Plutonium and Their Alloys (Report No. 229) 96

Querry, A.J., V.L. Frenkel, E.O. Abney, R.B. Shrimpton, and J.B. Birkin: Plastic 113

Airplane Production by the Electrolysis of Fused Salts (Report No. 204) 117

KUTAYISEV, Viktor Ivencvich; VOIRONOVA, A. I., red.; VLASOVA, N. A.,  
tekh. red.

[Thorium, uranium, and plutonium alloys; collection of materials  
on constitutional diagrams and crystal structures] Splavy toriia,  
urana i plutoniia; sbornik materialov po diagrammam sostoiiania i  
kristallicheskim strukturam. Moskva, Gosatomizdat, 1962. 223 p.  
(MIRA 15:7)

(Thorium alloys--Metallography)  
(Uranium alloys--Metallography)  
(Plutonium alloys--Metallography)

KUTAYTSBV, V. I.

90

PHASE I BOOK EXPLOITATION

SOV/6176

Konobeyevskiy, S. T., Corresponding Member, Academy of Sciences  
USSR, Resp. Ed.

Deystviye vadernykh izlucheniya na materialy (The Effect of  
Nuclear Radiation on Materials). Moscow, Izd-vo AN SSSR,  
1962. 383 p. Errata slip inserted. 4000 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Otdeleniye tekhnicheskikh nauk; Otdeleniye fiziko-matematicheskikh nauk.

Resp. Ed.: S. T. Konobeyevskiy; Deputy Resp. Ed.: S. A. Adasinskiy; Editorial Board: P. L. Gruzin, G. V. Kurdyumov, B. M. Levitskiy, V. S. Lyashenko (Deceased), Yu. A. Martynyuk, Yu. I. Pokrovskiy, and N. F. Pravdyuk; Ed. of Publishing House: M. G. Makarenko; Tech. Eds: T. V. Polyakova and I. N. Dorokhina.

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The Effect of Nuclear Radiation (Cont.)

SOV/6176

PURPOSE: This book is intended for personnel concerned with nuclear materials.

COVERAGE: This is a collection of papers presented at the Moscow Conference on the Effect of Nuclear Radiation on Materials, held December 6-10, 1960. The material reflects certain trends in the work being conducted in the Soviet scientific research organization. Some of the papers are devoted to the experimental study of the effect of neutron irradiation on reactor materials (steel, ferrous alloys, molybdenum, avial, graphite, and nichromes). Others deal with the theory of neutron irradiation effects (physico-chemical transformations, relaxation of internal stresses, internal friction) and changes in the structure and properties of various crystals. Special attention is given to the effect of intense  $\gamma$ -radiation on the electrical, magnetic, and optical properties of metals, dielectrics, and semiconductors.

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The Effects of Nuclear Radiation (Cont.)

8  
SOV/6176

Pravdyuk, N. P., V. A. Nikolayenko, and V. I. Korpukhin.  
Change in Lattice Parameters of Diamond and Silicon Carbide  
During Irradiation 184

Abdullayev, G. B., and M. A. Talibi. On One Method of Using  
Cadmium Sulfide Photoresistors in Recording X- and Y-ray  
Dosimeter 189

Konobeyevskiy, S. T., B. M. Levitskiy, L. D. Panteleyev, K. P.  
Dubnovin, V. I. Kutaytsav, and V. N. Koney. X-Ray Examina-  
tion of Transformations in Copper-Tin Alloy Under Neutron  
Irradiation

Levitskiy, B. M., and L. D. Panteleyev. X-Ray Examination of  
the Relaxation of Internal Microstresses in Cold-Worked  
Metals Under Neutron Irradiation 209

Konobeyevskiy, S. T., N. P. Pravdyuk, Yu. I. Pokroyevskiy, and  
V. I. Vikhrov. Effect of Neutron Irradiation on Internal  
Friction in Metals 219

Card 9/14



KONOBEYEVSKIY, S.T.; KUTAYTSEV, V.I.

Plutonium alloys. Issl. splav. tavet. met. no.4:17-24 '63.  
(MIRA 16:8)

(Plutonium alloys)

KUTAYTSEV, V. I.; CHEBOTAREV, N. T.; et al

"Further Developments on Phase Diagrams of Plutonium Alloys."

report submitted for 2nd Intl Conf, Peaceful Uses of Atomic Energy, Geneva,  
31 Aug-9 Sep 64.

L 9236-66 EWT(m)/EPF(n)-2/T/EPF(t)/EWP(b)/EWA(h)/EWA(c) JD/JG/GP/GS  
ACC NR: AT5023799 SOURCE CODE: UR/0000/62/000/000/0194/0208

AUTHOR: Konobeyevskiy, S. T. (Corresponding member AN SSSR); Levitskiy, B. M.; Panteleyev, L. D.; Dubrovin, K. P.; Kutaytsev, V. I.; Konev, V. H.

ORG: none

TITLE: X-ray diffraction analysis of transformations in a copper-tin alloy subjected to neutron irradiation

SOURCE: Soveshchaniye po probleme Deystviye yadernykh izlucheniya na materialy. Moscow, 1960. Deystviye yadernykh izlucheniya na materialy (The effect of nuclear radiation on materials); doklady soveshchaniya. Moscow, Izd-vo AN SSSR, 1962, 194-208

TOPIC TAGS: neutron irradiation, copper alloy, tin containing alloy, alloy irradiation, plutonium containing alloy, phase transformation, irradiation induced transformation

ABSTRACT: To determine the mechanism of homogenization which takes place in uranium-molybdenum and uranium-niobium alloys under the effect of neutron irradiation, specimens of two copper-base alloys, one containing 9 at% tin and the other 9 at% tin and 1 at% plutonium, were irradiated with an integrated flux of up to  $6 \times 10^{19}$  n/cm<sup>2</sup>. Prior to irradiation, specimens of both alloys were homogenized and strain-hardened by cold rolling with a total reduction of 85-95%; half of the specimens were then aged (annealed at 220 ± 5C for 500 hr) to induce a decomposition  
Card 1/2

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ACC NR: AT5023799

of the solid solution and thus obtain a heterogeneous structure. Subsequent neutron irradiation had no effect on the structure of either the strain-hardened or annealed copper-tin alloy specimen. In the annealed specimens (heterogeneous structure) of the copper-tin-plutonium alloy, irradiation brought about a partial homogenization, i.e., a dissolution of secondary phases precipitated under the effect of aging. In the strain-hardened (homogeneous) specimens of the copper-tin-plutonium alloy, a partial decomposition of the solid solution under the effect of irradiation was observed. These results confirm the assumption that the phenomenon of homogenization in uranium-molybdenum and uranium-niobium alloys is a result of a rapid deceleration of fission fragments and not a result of a similar deceleration of primary atoms knocked out by fast neutrons (as suggested by some researchers), since in this case the copper-tin alloy would have been affected to the same degree as the copper-tin-plutonium alloy. Orig. art. has: 9 figures, 3 tables, and 4 formulas. [DV]

SUB CODE: 11,20/ SUBM DATE: 18Aug62/ ORIG REF: 006/ OTH REF: 004

Card 2/2

GUBANOV, A.; KISTAUBAYEV, K.; GROMADCHENKO, A. (stantsiya Shaktnaya);  
VOLOSOVICH, A., brigadir; MASLOV, T.; TEL'TSOVA, A. (g.Ivanovo);  
SVISTUNOV, V.; KOVALEV, V.; KISELOV, V. (g.Priozersk, Leningradskoy  
oblasti); ANISIMOV, P.; KUTAYTSEV, Ye.

Editor's mail. Sov.profsoiuzu 16 no.17:44-50 S '60.

(MIRA 13:8)

1. Predsedatel' mestnogo komiteta upravleniya sovkhoza imeni  
Stalina, Krasnodarskogo kraya (for Gubanov).
  2. Zaveduyushchiy  
avtoklubom Yuzhno-Kazakhstanskogo obkoma profsoyuza rabochikh  
i sluzhashchikh sel'skogo khozyaystva i zagotovok, g.Nal'chik  
(for Kistaubayev).
  3. Chlen komiteta profsoyuza gil'zenabivnogo  
tsekha fabriki "Dukat," Moskva (for Volosovich).
  4. Predsedatel'  
mestkoma passazhirskego avtotransportnogo transporta, g. Nal'chik  
(for Maslov).
  5. Instruktor kul'turno-massovogo otdela  
Leningradskogo oblsovprofa (for Svistunov).
  6. Redaktor gazety  
"Azovstal'stroyevets," g. Zhdanov (for Kovalev).
  7. Nachal'nik  
otdela kadrov Ulyanovskogo sel'skokhozyaystvennogo instituta  
(for Kutaytsev).
  8. Starshiy instruktor Tyumenskogo oblastnogo  
soveta profsoyuzov (for Anisimov).
- (Trade unions)

KUTAYTSEV, Ye. (Ul'yanovsk).

The labor book is an important document. Sov. profsoiuzy 6 no.3:  
76 Nr '58. (MIRA 11:3)

(Labor passports)

*Kutaytseva, A.I.*

18.1245

18.1200

81881

S/129/60/000/08/008/009

E073/E135

AUTHORS:

Kutaytseva, A.I. (Engineer), and  
Timonova, M.A. (Candidate of Technical Sciences)

TITLE:

Stability Against Corrosion of Magnesium Alloy Sheet<sup>1</sup>  
Material

PERIODICAL: Metallovedeniye i termicheskaya obrabotka metallov,  
1960, No 8, pp 48-53

TEXT: The behaviour of magnesium alloy sheets (3, 1, 1.2 mm thick), containing 3.37% Al, 0.68% Zn and 0.30% Mn (MA2); 6.05% Al, 1.03% Zn, 0.35% Mn (MA2-1, batch I); and 4.1% Al, 1% Zn, 0.6% Mn (MA2-1, batch II), was investigated. Details on heat treatment and on their mechanical strength are given in Table 3. The experiments were carried out under conditions pertaining in a normal industrial atmosphere and also in combination with alternate submersion in a 0.001% NaCl solution. The tests were carried out on bent strips as well as on strips which were in the shape of loops (Figs 2 and 3). They were subjected to oxidation in standard baths in the following states: no-load; during plastic deformation; during plastic and elastic

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E073/E135

Stability Against Corrosion of Magnesium Alloy Sheet Material

deformation. The tendency to corrosion cracking was evaluated on the basis of appearance of the first crack visible with a magnification of 7X. The results obtained on the influence of stresses on corrosion cracking of MA2 and MA2-1 sheets are entered in Table 4. The influence of the annealing temperature on the resistance to stress corrosion for the same alloys is given in Tables 4 and 5. The results of corrosion tests under various conditions are entered in Table 6. The following conclusions are arrived at: 1) MA2 sheets in the annealed state have a high resistance to corrosion under stress in a natural atmosphere. 2) With increasing aluminium content the resistance to stress corrosion of the MA2-1 alloy decreases. 3) The resistance to corrosion of MA2 and MA2-1 sheets decreases with increasing stress; the critical stress is not reached for 3 mm thick sheets of the MA2-1 alloy for stresses between 90 and 50% of the yield point. For 1.2 mm thick sheets of the MA2-1 alloy a stress of 50% of the yield point stress is critical but below this stress the alloy is not prone to corrosion cracking. 4) Annealing of MA2 and MA1 sheets increases their resistance to stress corrosion. With increasing annealing temperature (150-350 °C) the tendency to

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S/129/60/000/08/008/009

E073/E135

Stability Against Corrosion of Magnesium Alloy Sheet Material  
corrosion cracking decreases appreciably. 5) It was found that  
chromate films produced in the baths which were used in the  
experiments bring about an increase in the stress corrosion  
resistance for MA2 sheets. Breaking up of the continuity of  
the film during manufacture of the specimens reduces the  
resistance to corrosion of this alloy but it will still be  
higher than for specimens which are not covered by an oxide film.  
There are 4 figures and 6 tables.

Card 3/3

X

FRIDL'YANDER, Iosif Naumovich, kand. tekhn. nauk; KUTAYTSEVA,  
Yekaterina Ivanovna, kand. tekhn.nauk; UDAL'TSOV, A.N.,  
glav. red.; AL'TMAN, M.B., kand. tekhn. nauk, red.

[High strength V95 aluminum alloy; system aluminum -  
magnesium - zinc - copper]Vysokoprochnyi aliuminevyi splav  
V95; sistemy aliuminii - magni - tsink- med'. Moskva, In-t  
tekhniko-ekon. informatsii, 1956. 61 p. (Informatsiia o  
nauchno-issledovatel'skikh rabotakh. Tema 6. No.I-56-34)  
(MIRA 16:3)

(Aluminum-magnesium-zinc alloys)

S/137/62/GCC/CO5/104/150  
ACC6/R101

18.1210 (2008)

AUTHORS: Nikitayeva, O. G., Kutaytseva, Ye. I., Romanova, O. A., Karpovich, Yu. M., Kondrat'yeva, N. B.

TITLE: The effect of aluminum purity on the mechanical properties and heat-resistance of aluminum alloys

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 5, 1962, 71, abstract 51432 (V sb. "Deformiruyemye alyumin. splavy", Moscow, Oborongiz, 1961, 30 - 43)

TEXT: The authors studied the effect of Fe and Si admixtures upon the properties of deformed Al-alloys at room and higher temperatures. For the preparation of grade 16, 19, AK4 -1 (AKCh-1), Д 20 (D20), Д 21 (D21), B 95 (V95) and AMr 6 (AMg6) alloys, three Al grades were used, namely: Al A00, and ABOO (AVCOO); Mg- and Zn-metal, and addition-alloys Al-Cu, Al-Mn, Al-Ti, Al-Ni, Al-Fe. The strength of pressed rods made of D16 and D19 alloys increases somewhat at room temperature with a higher purity of the initial Al. The mechanical properties of forgings in short-lasting tension of D20 and D21 alloys, do. practically

Card 1/2

The effect of aluminum purity on...

S/137/62/000/005/104/150  
A006/A101

not depend on the initial aluminum grade. The strength of AKCh-1 alloy forgings decreases with higher Al purity. The endurance strength of semi-products of all alloys decreases with a higher purity of the initial Al. A decrease in contamination of V95 and V96 alloys reduces somewhat the number of cycles until the breakdown in repeated static-loading tests. It is not expedient to use high-purity Al (AV000) to raise the heat-resistance of sheets and forgings made of Al alloys at 200°C.

T. Rummyantseva

[Abstracter's note: Complete translation]

Card 2/2