INFLUENCE OF THE CHEMICAL COMPOUND ON PROPERTIES STAMPS OF ALLOYS OF HIGH TEMPERATURE CONSTANCY

V.B. BUTYGIN, A.S. DEMIDOV

Ways die steels alloying elements in an amount effective to increase their heat resistance. Developed alloy, which increases the resistance - inst tool for operations in 2 - 3 times. This alloy can be hot for stamps deformation at tempera-rounds to 800 - 900 °C

Keywords: heat treatment, alloying, heat, stamps, Tver, joy, phase composition, intermetallic compounds, quenching, tempering.

SPECIAL FEATURES OF THE PROCESS OF THE FORMATION OF ADHESIVE SHELL ON THE SURFACE OF GRAINS OF THE MOLDING SANDS

A.S. GRIGOR, V.A. MARKOV, A.A. SHNEIDER

Processions of desegregation and mechanoactivation used sand under dry mix in drum mixer and sand muller are described in the article. Change of grains fineness and activity loam sand has been determined.

Keywords: desegregation, mechanoactivation, molding sand

INFLUENCE OF THE MECHANOACTIVATED COMPOUND ON THE HYDRAULIC PROPERTIES OF THE MOLDING SAND

A.S. GRIGOR, V.A. MARKOV, S.Y. KOVYLIN

In the article the analysis of the influence of the additions of the mechanoactivated compositions on the gas-generating of molding sand is presented.

Keywords: gas-generating, mechanoactivation, molding sand, compound

ACTUAL PROBLEMS OF WATER PURIFICATION BY REVERSE OSMOSIS

S.L. ZAHAROV; A.H. VOLODIN

In this paper the most important problems of water purification by reverse osmosis are described by the example of the development of membranes technology in Russia. It is noted that current progress of water purification is connected with improving characteristics of polymeric membrane such as permeability and work stability during the long period of time. This review will be useful for the companies dealing with modern environmental regulations of water purification.

Keywords: reverse osmosis; nanofiltration; nanoporous membrane; porous structure; capillary-porous membranes.

DESCRIPTION AND USE OF THE EXPERIMENTAL SETUP FOR THE STUDY OF REGULARITIES OF ELASTIC-PLASTIC CONTACT INTERACTION

N.V. KOTENEVA, A.D. BORISOVA

Presents the methodology of experimental research of contact interaction of solids beyond the limit of elasticity in the direction normal to the plane of the external load of contacting. Research has been conducted on the original laser installation in hesitation contact fixation. Comparison of results of theoretical calculation of contact variations for different types of dynamic loading with empirical data obtained on a pilot installation showed the minimum distance between them.

Keywords: contact interaction, uprugoplasticeskij contact, dynamic loading.

POROUS CERAMICS OBTAINED OXIDE AND ALUMINUM HYDROXIDE

R.V. LEVKOV, I.A. ZHUKOV, S.P. BUYAKOVA, S.N. KULKOV

Investigation of porous alumina ceramics obtained from the oxide, and aluminum hydroxide. Influence of metal powders, starting at its structure and properties. Determination of pore space in dependence on the temperature of sintering samples. Identification of the strength characteristics of the samples.

Keywords: ceramic, aluminum oxide, aluminum hydroxide

INDUCTION ELECTROMAGNETIC HEATER LIQUIDS

G.E. LEVSHIN, A.G. LEVSHIN

The advantages, disadvantages and the theoretical foundations of transformer and electromagnetic induction heaters liquids are considered, proposed a very simple construction of a new electromag-netic heater.

Keywords: induction heater, construction, magnetic circuit, electromagnet

STUDY OF ELECTROMAGNETIG INDUCTION MELTING FURNAGE

G.E. LEVSHIN

The results of theoretical and experimental studies of electrical and thermal parameters of electro-magnetic induction melting crucible furnace with a curved U- C-shaped circuit and a frequency of 50 Hz. The possibility of rapid melting silumin and brass in a laboratory furnace.

Keywords: induction electromagnetic furnace, curved magnetic circuit.

EVALUATION OF THERMO-MECHANICAL LOADING OF PARTS OF THE CYLINDER GROUP OF THE ENGINE 4Ч8,2/7,56 WHEN THE DEGREE OF PRESSURE INCREASE IN THE COMPRESSOR 1,8

N. M. LOMAKINA, M. A. MATULEWICZ, G. V. LOMAKIN

Evaluated the thermo-mechanical loading of piston 4Ч8,2/7,56 when boosted by average value of effective pressure using a universal methodology for evaluation of boundary conditions to take into account all components of the heat balance and gas-dynamic characteristics of the load during a working cycle.

Keywords: piston, boundary conditions, aerodynamic loading, quasistationary heat transfer

AMPLITUDE-FREQUENCY RESPONSE AND CONTACTUAL ADMITTANCE OF CONJUGACY OF PRECISION FLUSH COUPLERS

A.A. MAKSIMENKO, N.V. PERFILEVA, V.A. FEROPONTOV, A. D. BORISOVA

The paper presents the results of theoretical research of mechanical contact of conjugacy of precision flush coupler, more specifically amplitude-frequency response of oscillatory processes under conditions of dynamic loading, and also contact admittance of flush couplers under different physical- mechanical and geometrical parameters of conjugated surfaces.

Keywords: contact interaction, mechanical contact, flush couplers, contact rigidity and admittance.

SHOCK COMPRESSION MOLDS

E.S. ILYINIH, V.G. MOSKALIEV, I.V. MARSHIROV

The influence of the main factors on the degree of compaction and hardness Do-Thane form.
Ke words: quality of form, degree of compaction, the rate of ventilation.

USE OF ZEOLITE - NATURAL CLINOPTILOLITE IN OBTAINING POROUS PERMEABLE CATALYTIC MATERIALS HIGH-TEMPERATURE SYNTHESIS

T.V. NOVOSELOVA, G.V. MEDVEDEV, N.N. GORLOVA, A.A. SITNIKOV, N.P. TUBALOV

The paper considers the possibility of using zeolite catalyst porous permeable materials. Zeolite contained in the silicon compounds, molybdenum and some others, which can act as catalysts. Studied and studied composition, physical, physico-mechanical and functional properties of the developed catalytic materials obtained using zeolite.

Keywords: zeolite catalyst materials, cleaning exhaust gas purification efficiency, the catalytic properties, charge.

PROGRAM OF ARCHITECTURE SOCIOLOGICAL RESEARCH OF TOURIST POTENTIAL CROSS BORDER ALTAI

S.B. POMOROV, F.S. POMOROV, G.I. PUSTOVETOV, A.A. UDODENKO

The article discusses the program, put the goal and objectives, define the boundaries of architectural technique of sociological research, recreation and tourism and architectural environment in the Altai Mountains (transboundary Great Altai).

Keywords: Altai, architectural and sociological research, tourism, cross-border area.

DEVELOPMENT of MATHEMATICAL MODELS OF MECHANICAL SYSTEMS WITH APPLICATION PACKAGE RecurDyn

V. I. PODDUBNY, M. L. PODDUBNAYA

The ideology of the development of mechanical and mathematical models of mechanical systems with application package RecurDyn, the description of the mechanical-mathematical model tracks machine in RecurDyn and the results of mathematical modeling to assess the impact of a tension of caterpillars on the resistance to movement presented.

Keywords: mechanical-mathematical model of application software package RecurDyn, mathematical modeling, caterpillar machine, a tension of caterpillars.

EFFECT ON THE RESULTINITIAL STRUKTURE SPHEROIDIZING ANNEALING OF STRUCTURAL STEELS

V.V. SVISHCHENKO, A.A. IVANAYSKY

Izuchenovliyanie different starting structures for the formation of granular perlite with spheroidizing annealing steel 30XH3A. It is shown that the most favorable initial structure for the structure of granular pearlite spheroid-ziruyuschim annealing is granular bainite.

Keywords. Granular perlite, spheroidizing annealing, the initial structure, granular bainite.

EFFECT OF THE STEEL TO ITS PROCESS IN PRECISION FINISHING FELLING

V.V. SVISHCHENKO, A.A. IVANAYSKY

The influence of the content of silicon, manganese, nickel and chromium in the hardness of the granular perlite obtained leave granular bainite. It is shown that silicon and manganese most strongly increase the hardness and minimal chrome.

Keywords: Granular perlite, hardness, granular bainite, vacation.

THE SELECTION OF THE SOLVENTS FROM THE MOTHER LIQUOR IN THE PRODUCTION OF RIBOFLAVIN

I. V. SESELKIN

Options separation of a mixture of solvents, resulting in the production of Riboflavin at the stage of condensation of 3,4-xylyl-6-phenylazo-1-D-ribamine with barbituric acid considered. The analysis of the five-component system water - n-butyl alcohol - acetic acid - n-butyl acetate - aniline with the use of thermodynamic topological analysis types of singular points charts have been investigated. Process flow diagram of the separation proposed. The static parameters of the distillation columns of the selected separation schemes were experimentally determined.

Keywords: riboflavin, the mother liquor, thermodynamic and topological analysis of the concentration simplex, azeotrope, delamination, separator, distillation column.

DEVELOPMENT ENERGY STORAGE DEVICES BASED ON HIGH-TEMPERATURE SUPERCONDUCTIVITY (HTSC) AND PROSPECTS OF ITS APPLICATION IN LOCAL ELECTRICAL

N. I. SMOLENTSEV, L. M. CHETOSHNIKOVA, J. L. BONDAREV

The results of the development of conceptual design documentation experimental prototype superconducting electrokinetic energy storage (SPENE-1). Energy storage unit is designed to work in the local electric networks, electric, and other fields. Work performed under the grant agreement № 14.577.21.0069 from 06.05.2014, the (RFMEFI57714X0069), customer - Ministry of Education and Science.

Keywords: local power grid, energy storage, alternative energy sources, intelligent control sys-tem.

THE USE OF AMINE CURING AGENTS OF THE TYPE POLIAM IN EPOXY BINDER FOR FIBERGLASS STRUCTURAL PURPOSESA.

A.G. TUISOV, A. K. KICHKIN, A. A. KICHKIN

The research results of influence of amine hardeners of the type Polyam - ED-10 and Polyam - ED-30 on the technological properties of epoxy resins is presented in the article. Strength characteristics of fiberglass rods with a diameter of 5.4 mm based on epoxy resins with hardeners, Polyam - ED-10 and Polyam - ED-30 were obtained and studied.

Keywords: amine curing agent, epoxy resin, fiberglass plastic.

INVESTIGATION OF CONTACT DISPLACED BY CONE CONNECTIONS EXAMPLE CONNECTION OF PIPELINES AND FITTINGS HIGH PRESSURE FUEL PUMP

V.A. FEROPONTOV, N.V.PERFILEVA, N.V.KOTENEVA

In this paper we have compared the engineering calculation of the conical connection and calculating compliance with the contact. A comparison of the estimation of the influence of contact de-formations in conjunction conical connection. Using this method was evaluated and conical connection pipe and fitting high pressure fuel pump. As a result, make recommendations for changes.

Keywords: Tapered connection, axial preload, contact deformation.

XY LASER CABLE DIAMETER METER ON OPTICAL DIFFRACTION METHODS BASED

E. M. FEDOROV, A. E. GOL'DSHTEYN

The paper focuses on the diffraction method to measure the outer diameter of the round extended objects in a divergent laser beam. This method improves resolution of optical transducers in devices used for technological control of extended cylindrical objects such as cables, wires, cords, etc. up to units of micrometers. Some issues of the object technical design and soft hardware of the device to measure the diameter «LDM-20» based on the observed diffraction method are considered. There are shown technical and metrological characteristics of designed measuring device which was tested on real manufacturing department. The obtained results can be used to develop and manufacture high-precision non-contact optical devices for technological control of the outer diameter of cables, pipes, etc., both independently and as a part of the automatic process control.

Keywords: in-process diameter measurement; diffraction; divergent beam.