

Anipko O.B., Khaikov V.L.

THE METHOD OF X-RAY COMPUTED TOMOGRAPHIC DENSITOMETRY EXPLOSIVES ORDNANCE

A description of the method of X-ray computed tomographic densitometry explosive ordnance is given.

Khavin G.

MODELLING OF FIBRE REINFORCED MATERIALS CUTTING MECHANISM

The problem of defined of the cutting force components for reinforce composite materials turning is considered. The possibility to use correlation for cutting force of back surface with take account of orientation angle is researched. The resume about correct correlations and theirs coincides with experimental data and using for wearing tool is problematical.

Tolstolutsky V.A., Srimovskyy S.V.

RATIONAL FEATURES SELECTION OF THE CONTROL ALGORITHM, THAT WAS REALIZED AT COMPLEX MOVEMENT CONTROL SYSTEM OF THE TANK "Oplot"

Mathematical model of the carriage, electronic and hydromechanic control system of tank "Oplot" was designed. It made it possible to analyse the features to mobility and maneuverability of given vehicle. Rational features determination method for the algorithms of control system was offered. It allowed to produce preliminary tuning of initial parameters of KSUD system installed on tank "Oplot", that provide the best features of mobility and maneuverability to given vehicle. Improvement actions were offered for KSUD equipment, that will allow to raise accuracy of the manoeuvre with not significant changes of the electronic equipment.

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Tovazhnyanskyy L., Demirskyy A., Khavin G.

THE FOILING VALUE DEFINED FOR PLATE EXCHANGERS OF SUGAR INDUSTRY

The problem of plate heat exchanger design with fouling of heat surface is considered.

The linear correlation for deposit growing in the time is proposed. The reliability of correlations is demonstrated for sugar thing juice plate heaters calculate. The comparison of received results with engineering methodology calculations is presented. The resume of correctness of presented calculation correlation using for prediction of operate plate heat exchanger is made.

Shevelev A.A., Tarasenko A.N.

DINAMICS OF PLATE HEAT EXCHANGE WITH UNIFLOW MOTION HEAT CARRYING AGENTS

The numeral method of running account is decide coupled system of differential equations dynamics of uniflow plate heat exchange. calculated response of input flow temperatures for the exponential law of increasing the inlet temperature of heating fluid. shows the effect of the ratio of water equivalents heat carrying agents during the transition for a wide range variation the rate of increase inlet temperature of the heating medium.

Strimovskiy S.V.

MICROPROCESSOR AUTOMATIC CONTROL SYSTEMS THE HYDRODYNAMICAL TRANSMISSION ON THE ARMOUR LIGHT WHEELED MILITARY VEHICLES

On basis of research microprocessor automatic control systems hydrodynamical transmissions, which apply on armour light wheeled military vehicles, to be determine criteria of the choice execution sequence conditions blocking-unblocking combined hydrodynamical drive and gear shift in mechanical stepped planetary gear-box. To be adduce general questions building microprocessor control systems hydrodynamical transmissions on wheeled vehicles.

Smolyakov V.A., Mushshinskiy Yu.M., Nefyodov A.V., Gulevskiy Yu.V., Karpov D.A.

DEVELOPMENT AND INPEMENTATION OF SIMULATOR MOTION SYSTEMS IN SOE KMDB

In this paper, some features of development structure and its implementation in the unified motion system designed at SOE KMDB as well as distinctive features for selection and implementation of control system by motion electric drives have been considered.

Sljusarenko J.A.

MATHEMATICAL MODEL OF ROTATION THE BENT SHAFT DIESEL ENGINE FOR MODELLING DYNAMIC PROCESSES OF CURVILINEAR DRIVING THE MILITARY CATERPILLAR MACHINE

The mathematical model of rotation the bent shaft piston diesel engine of the military caterpillar machine maintained on all modes of behavior is synthesized. The model is presented in the form of system differential and algebraic equations and adapted for practical evaluations at mathematical modeling dynamic processes driving of the military caterpillar machine on district.

Gryn G.I., Ponomarev V.O., Sozontov V.G., Kazakov V.V.

RECOVERY KINETICS OF NITROGEN OXIDE (IV) IN SYSTEMS DISPOSITION TECHNOLOGY BASED ON CONCENTRATED HNO₃

This article describes the recovery of nitrogen oxide (IV) obtained by the hydrogen fluoride stripping performed in the rocket fuel oxidizer disposition technology. The effect of various parameters, namely, time, temperature, type of reducer (urea, ammonium carbonates) on the degree of NO₂(N₂O₄) recovery is given. The empirical equations for calculation of the mentioned degree for the three types of reducing agents are provided.

Saliev E.I., Kalenik I.N.

CURRENT STATE OF SYSTEM OF WATER SUPPLY AND THE WATER DRAIN, QUALITY OF POTABLE WATER IN UKRAINE, PROBLEMS AND WAYS OF THEIR DECISION

The article concerns the modern Ukrainian state of water and sewer utilities. The problems which do not allow utility enterprises, providing water supply and sewerage services to work efficiently, taking into account resource-saving are presented. The main aspects of increasing working efficiency of water supply and sewerage and methods of problem-solving of improvement of water quality are considered.

Ilunin O.O., Perevertaylenko O.Yu., Shamraev A.A., Selyakov O.M.

THE INTELLECTUAL CONTROL OF SELECTIVE PICKLING PROCESS OF METAL STRIP

The logical and analytical problem of irregular surface defects detection for pickled metal strip is considered. The method of uncertain estimation for irregular surface defects thickness on metal strip is proposed. The logical control rule (LCR) for selective pickling of metal strip is formulated.

Ogurtsov A.N., Bliznjuk O.N.

**KINETIC MODELING OF NITROUS OXIDE DECOMPOSITION
IN TECHNOLOGIES OF TAIL GAS CLEANING AND STIMULATED
DISSOCIATION OF DNA BIOPOLYMERS**

Kinetics of nitrous oxide decomposition in cleaning technologies of tail gases from nitric acid production and kinetics of DNA biopolymer dissociation, stimulated by reactive nitrogen species produced by N_2O decomposition in samples, were studied using nonsteady kinetic method. The values of low energy electrons dissociation enhancement factors were obtained which are in good agreement with experimental data.

Morgunov V.V.

NUMERICAL SIMULATION OF FLUE GAS TREATMENT UNDER ELECTRON-BEAM PURIFICATION. $N_2 - O_2 - NO$ SYSTEM

On the base of the software developed by authors the efficiency of NO removal from $N_2 - O_2 - NO$ system was simulated in the dose range 0 – 50 kGy. The dependencies of formation and sink of following species: NO, NO_2 , N, O, NO_3 , N_2O by various reactions were received.

Mikhailov V.V.

EFFORTS OF AIR CLEANING SYSTEM IN ARMORED VEHICLE OBJECTS FOR VARIOUS COMPOSITION DUSTS

In the article, basic theoretical grounds, which calculations of cyclone are based on that is or represents background for design of air cleaners in armored vehicles have been given. Taking in view calculation problems, test data of the air cleaning system for tank T-80UD has been presented.

Malyarenko V.A., Shubenko A.L., Senetskiy A.V., Temnokhud I.A.

THE INTEGRATION POTENTIAL OF THE CO-GENERATIONAL SYSTEMS IN THE FRAMEWORK OF THE LIGHT POWER INDUSTRY OF UKRAINE

The issues of the expediency realization of the combined production of heat and power supply – the co-generation. It is shown, that the application of co-generation allows to use the heat and power resources more effectively. The carried out analysis showed, that the specific waste of fuel per production of power energy on condition of realization of heat and power main (HPM) on the basis of steam boiler-houses at the average compose 180 grams of specific fuel per k/V per hour. It has been analyzed, what number of turbines 0,75–1,5 MVt is possible to sell in Ukraine by the year of 2030, namely to economize per year ~ 1,2 million of tons of specific fuel.

Kovaliv V.I., Malakhov V.A.

ANALYSIS OF THE DYNAMICS OF DEVELOPMENT OF THE WORLD'S ARMS MARKET

The article provides an analysis of the situation in the world's arms market in its development, determines the leading exporters and importers in this market, analyses the changes among the exporters, determines the changes in the capacity of the regional arms markets, and gives an overview of the trends in the demand for some particular types of weapons.

Golub N.B., Voeyvoda D.V.

THE USAGE OF ALGAE FOR PRODUCTION FUELS (UTILIZATION OF CO₂)

It is shown the opportunity of usage untreated gas emissions from manufacturing for cultivation microalgae *Chlorella vulgaris* for the future biodiesel production. It was found that the periodic aeration of culture medium with the concentration of CO₂ in air flow of about 10–15 % increased not only the biomass productivity, but also lipid content with the predominance of higher fatty acids C:16, C:18 that affects the quality of biodiesel.

Tovazhnyanskyy L., Persev L., Danylov Y., Morozov A.

INVESTIGATION WORK NOVELTY CONTACT STEAM GENERATOR UTILIZATION HIGH-TEMPERATURE VOLATILE GAS

New technological environment-protective high-temperature volatile gas contact steam generator scheme and design are proposed for thermal reactors, industrial aggregates and heat furnaces. They allow to separate the water vapour of required parameters from the high-temperature concentrated NO_x volatile gas with the admissible «thermal pollution». The efficiency of the pilot installation is 240 kg of high-temperature volatile gas, as the stand tests have shown.

Grigorov A.B.

IDENTIFICATION OF THE CLASS OF MOTOR OILS VISCOSITY ON A BASE OF FRACTIONAL STRUCTURE

In article results of definition of fractional structure of motor oils of different classes of viscosity SAE 15W-40, SAE 10W-40 and SAE 5W-40 are resulted. Using fractional structure of motor oils, in particular value of points t_{30} and t_{90} , with the subsequent calculations of tg a corner of an inclination of the straight line which has been carried out through these points, it is offered to identify a class of motor oils viscosity on SAE

Volchenko Yu.I., Kovaliv V.I., Malakhov V.A.

ANALYSIS OF THE MAIN TRENDS IN THE MARKET OF ARMoured VEHICLES IN ACCORDANCE WITH THE RESULTS OF EXAMINATION OF EXHIBITS AT THE EUROSATORY'2012 EXHIBITION

The article provides an analysis of the main developments in the area of up-to-date armoured vehicles that were exhibited at the Eurosatory'2012 international exhibition held in Paris. Based on this analysis, the main trends in the market of armoured vehicles have been determined, viz. increase of interest in tracked armoured vehicles, shift of priority among the main characteristics of armoured vehicles towards the crew protection, and further development of international cooperation and specialization.

Vozgrin Y.V., Gerasimenko V.I., Zolotuha V.N., Kuzminskiy V.A., Krot S.G.

POWER DESCRIPTION AND QUALITATIVE INDEXES OF ARMoured VEHICLE POWER PACK, DESIGNED BY SOE KhMMBDB

The article shows comparative estimate of power pack of armoured vehicle, designed by SOE KhMMBDB, according to power and qualitative indexes. Estimate methods of perfection of power pack are showed in this article too.

Veretennicov A.I.

DEVELOPMENT OF UKRAINIAN ARMORED VEHICLE FOR THE PERIOD OF THE LAST 20 YEARS (1992-2011)

This article includes review of the technical level change and state of armored vehicle production in Ukraine for the last decade under the influence of political, economic, market and other forces to forecast promising lines of its development and the main factors making effect on this process at present situation.

Bykanova V.V., Kozub P.A., Bulavin V.I., Kozub S.N.

TECHNOLOGICAL ASPECTS OF THE APPLICATION OF PHOTOCATALYSTS IN THE INDUSTRY (THE OVERVIEW)

The main problems of the application of photocatalysts for decision of the different problems of chemical technologies are considered. The supposed mechanisms of photocatalytic reactions behavior on a titanium (IV) dioxide are analyzed. The classification of photocatalysts on the type of solid-state materials is offered. The basic areas of industrial applications of photocatalysts are installed and analyzed.

Borisuk M.

MAIN STAGES OF ARMORED VEHICLES IN UKRAINE (1990–2011 YEARS)

This report shows the development of the Ukrainian tank-building industry and the role of KMDB in making the modern models of tanks and lightly armored vehicles.

Bondar A.I., Vakulenko V.V., Zarjanov V.A., Kovalev M.S., Chuchmar I.D.

EQUIPPING THE MAIN BATTLE TANKS BY AUXILIARY POWER UNIT

In the article, theoretical and experimental studies for equipping the main battle tank (MBT) "Oplot" by the auxiliary power unit of 10 kW for electric energy provision of power users with main engine stopped have been described.

Bibik D.V.

ADJUSTED MATHEMATICAL MODEL OF LOSSES IN A RADIAL HYDROVOLUMETRIC TRANSMISSION WITH BALL PISTONS

Some factors of mechanical and volumetric losses are considered in the paper. They are mechanical losses on acceleration and deceleration of operation fluid, and actually defined gap between block of trunnion distributors and rotor. It is concluded that these factors should be considered in adjusted mathematical model.