

CONTENTS

METALURGIA INTERNATIONAL VOL XIV, NO.7 SPECIAL ISSUE

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MATERIALS SCIENCE RESEARCH AND DEVELOPMENT

GABRIELA JICMON, RAMI SABAN, NICOLAE GHIBAN RESEARCHES CONCERNING ELECTRICAL PROPERTIES OF NITINOL WIRES PRESENTING SHAPE MEMORY EFFECT5	RADU PAHONIE, IONICĂ CÎRCIU, MIRCEA BOȘCOIANU AN ANALYSIS OF DIFFERENT ROTARY WING MICRO AIR VEHICLES SOLUTIONS43
VALENTIN SILIVESTRU, CRISTIAN PUSCASU, MIHAELA GRIGORESCU, NICOLAE CONSTANTIN, CRISTIAN DOBRESCU, NICOLETA GHEORGHE TO INCREASE ENERGETIC EFFICIENCY OF CENTRIFUGAL COMPRESSORS THROUGH INTEGRATION OF NEW TECHNOLOGIES AND MATERIALS IN THE FIELDS OF SURFACE COVERING IN ORDER TO SHORT THE ROTOR - STATOR GAP9	MARIUS GABRIEL PETRESCU, RODICA BUCUROIU STUDIES ON THE ASSESSMENT OF RESIDUAL STRESSES IN WELDED JOINTS OF CYLINDRICAL SHELLS49
CRISTIAN PUSCASU, GEORGETA CARLANESCU, MIHAELA GRIGORESCU, NICOLAE CONSTANTIN, CRISTIAN DOBRESCU, NICOLETA GHEORGHE RESEARCHES REGARDING THE CARRYING OUT OF CERAMIC CRUST USED FOR PRECISION INVESTMENT CASTING OF HIGH PERFORMANCES CENTRIFUGAL ROTORS12	ION NAE, MARIUS GABRIEL PETRESCU, RODICA BUCUROIU MODELING OF THE DIE-TUBULAR MATERIAL CONTACT WITH APPLICATIONS IN DRILLING-EXTRACTION WORKS52
SORIN DIMITRIU, MIRCEA DOBRESCU, MARIUS VASILESCU TITANIUM AND TITANIUM-BASED ALLOYS FOR AEROSPACE14	DORIN BĂDOIU, MARIUS GABRIEL PETRESCU ON THE ANALYSIS AND SYNTHESIS OF A MANIPULATOR ROBOT SYSTEM58
PETRU MOLDOVAN, SORIN DIMITRIU, WIM SILLEKENS, GABRIELA POPESCU, DAN M. CONSTANTINESCU MAGNESIUM ALLOYS FOR STRUCTURAL AUTOMOTIVE APPLICATIONS19	ALINA ADRIANA MINEA ACTIVE TECHNIQUES FOR IMPROVING HEAT TRANSFER62
MARIANA POP, ADRIANA NEAG DIMENSIONAL PRECISION IN NON-CONVENTIONAL PROCESSES OF PLASTIC DEFORMATION24	PETRICA VIZUREANU EXPERT SYSTEM DESIGNED FOR HEAT TREATMENT FURNACES66
ANA JOSAN, TEODOR HEPUȚ, ANA SOCALICI, ERIKA ARDELEAN, SORIN RAȚIU THE SIMULATION OF HOT ROLLING PROCESS, IN ORDER TO DETERMINE THE THERMAL FIELD DISTRIBUTION IN THE MILL ROLLS27	IOZSEF JUHASZ, VASILE HOTEA, ELENA POP, IRINA SMICAL EXPERIMENTAL RESEARCHES CONCERNING NICKEL PRECIPITATION ON THE COPPER ELECTROLYTE PURIFICATION72
TUDOR PRISECARU, AUGUSTIN SEMENESCU, CONSTANTIN DANIEL COMEAGA, CRISTIAN GABRIEL ALIONTE EXPERIMENTAL INTEGRATED SYSTEM USED FOR COMBUSTION PROCESS AND RESULTED FLUE GAS ANALYSIS36	AUGUSTIN SEMENESCU, TUDOR PRISECARU, MALINA PRISECARU, CRISTINA CIOBANU LOW COST NO _x REDUCTION POSSIBILITIES FOR COAL FIRED BIG STEAM BOILERS77
	VASILE COJOCARU-FILIPCIUC NEW ASPECTS OF NODULAR GRAPHITE-LIQUID METALLIC MATRIX INTERFACE82
	GELU BARBU, VASILE COJOCARU-FILIPCIUC, SERGIU STANCIU VIBRATING EFFECTS OF A CAST IRON WITH REFERENCE TO THE INCREASE OF THE MECHANICAL PROPERTIES AND THE METALLOGRAPHIC MICROSTRUCTURE87
	ION MITELEA, ILARE BORDEAȘU, BRANDUSA GHIBAN THE ANTICAVITATIONAL CHARACTERISTICS OF DEPOSITED LAYERS OF AUSTENITIC MANGANESE STEEL91

CARMEN NEJNERU, NICANOR CIMPOEȘU, SERGIU STANCIU, PETRICĂ VIZUREANU, ANDREI VICTOR SANDU SEA WATER CORROSION OF A SHAPE MEMORY ALLOY TYPE CUZNAL	95	MOISA ALTAR, JUDITA SAMUEL, ADAM – NELU ALTAR-SAMUEL A MACROECONOMIC GROWTH MODEL FOR ROMANIA, INCLUDING HUMAN CAPITAL	145
IORDACHEȘCU MIHAELA, IORDACHEȘCU DANUT, BLASCO MANUEL, SCUTELNICU ELENA COMPARATIVE ANALYSIS OF THE FRICTION STIR PROCESSING EFFECTS ON AS CAST AND ROLLED PLATES OF ALUMINIUM ALLOYS	99	EUGENIU ȚURLEA, AURELIA ȘTEFĂNESCU ASSERTIONS ON THE INCIDENCE OF INTERNAL AUDIT UPON THE CORPORATE GOVERNANCE PROCESS OF THE PUBLIC SECTOR ENTITIES IN ROMANIA	153
MULTIDISCIPLINARY RESEARCHES IN NEW FIELDS			
NICU MARCU, DANIELA GIURESCU ASPECTS REGARDING THE EVALUATION PROCESS IN THE ROMANIAN LEGISLATIVE CONTEXT	105	CRISTIAN SILVIU BANACU, CLAUDIU CICEA THE MANAGEMENT OF PRODUCTS AND TECHNOLOGIES IMPACT LIFE	156
DOREL BERCEANU, MARIAN SIMINICĂ, NICU MARCU, CRISTIAN NICOLAE STOINA INDEBTEDNESS OF THE FIRMS BY LEASING	107	CRISTIAN SILVIU BANACU, CRISTINA ALPOPI RISK AND UNCERTAINTY ANALYSE FOR INVESTEMENT PROJECTS IN METALLURGICAL INDUSTRY	166
MARIAN SIMINICĂ, NICU MARCU, ANCA BĂNDOI THE DEVELOPMENT OF A BANKRUPTCY PROGNOSIS MODEL REGARDING ROMANIAN COMPANIES BETWEEN THEORY AND PRACTICE	114	CRISTIAN SILVIU BANACU, CLAUDIU CICEA LIFE CYCLE COSTING FOR TECHNOLOGIES AND PRODUCTS OF THE METALLURGICAL INDUSTRY	171
SIMONA-MAYA TEODOROIU PREVENTING AND COMBATING CLIMATE CHANGE. AN APPROACH FROM THE PERSPECTIVE OF THE EUROPEAN PUBLIC POLICIES AND LEGISLATION, AND OF THE NEW VALENCES OF THE FUNDAMENTAL PRINCIPLES OF ENVIRONMENTAL PROTECTION -PART I-	117	BURJA CAMELIA, BURJA VASILE A COMPANY PERFORMANCE ANALYSIS BASED ON VALUE CREATION	180
MIHAELA TABARCA THE PRINCIPLE OF THE ACTIVE ROLE OF THE JUDGE IN THE LIGHT OF THE NEW CODE OF CIVIL PROCEDURE	124	CAMELIA BURJA, VASILE BURJA ECONOMIC PERFORMANCE AND ITS INFLUENCE ON FINANCIAL EQUILIBRIUM	186
CONSTANȚA-AURELIA CHIȚIBA, OCTAVIAN-LIVIU OLARU WHERE IS GOING THE WORLD ECONOMY?	130	CAMELIA BURJA, VASILE BURJA EVALUATION OF INDUSTRIAL INVESTMENTS FROM THE PERSPECTIVE OF SUSTAINABLE ECONOMIC GROWTH	190
ANGELA ROGOJANU, DIANA POCIOVĂLIȘTEANU, LIANA BADEA THE ROMANIAN METALLURGICAL INDUSTRY NOWADAYS	135	GEORGETA VINTILĂ, DAN ARMEANU USING THE MODELS OF DATA ANALYSIS IN FINANCIAL EVALUATION OF COMPANIES PERFORMANCES	195
MARIN ANDREICA, BOGDAN NITU, COSTEL VISAN OVERVIEW OF MODELLING THE RISK ASSESSMENT PROCESS IN APPLIED PROJECT MANAGEMENT	139	ANCA OPRE LEGAL STATUS OF THE PROPERTY RESTITUTION IN ROMANIA	202
		GEORGESCU NICOLAE, MULER ONOFREI RISK ANALYSIS TECHNIQUES IN THE CONTEXT OF REAL ESTATE PORTFOLIOS- FACTS AND FICTION	208
		NICOLAE GEORGESCU, COSMIN SERBANESCU V.A.T. A NEW FISCAL APPROACH	211
		EMILIA GOGU SHAPING THE GROSS DOMESTIC PRODUCT, THE PRICES AND THE INTEREST RATE	213

ABSTRACT

Metalurgia International vol XIV, no.7 special issue

MATERIALS SCIENCE RESEARCH AND DEVELOPMENT

GABRIELA JICMON, RAMI SABAN, NICOLAE GHIBAN
RESEARCHES CONCERNING ELECTRICAL PROPERTIES OF NITINOL WIRES
PRESENTING SHAPE MEMORY EFFECT

Keywords: Shape memory alloys (SMA), TiNi (nitinol), DSC (Differential Scanning Calorimetry), electrical resistivity measured using the four contacts method

Abstract: Present paper presents results of the some experiments performed in order to reveal proper properties of shape memory TiNi alloy wires that are expected to have further electrotechnical applications. About the 16 samples of different thickness wires that were treated in order to have shape memory effect and then their resistivity that was measured using the four contacts method can be mentioned that also a thermal analysis through differential scanning calorimetry (DSC) method was performed. Those last mentioned investigation were made while samples were heated and cooled. Also the samples were structural analysed so that eventually new application on electrotechnical field to be later revealed in connection with those type shape memory behavior as well with electrotechnical properties.

Metalurgia International vol XIV, no.7 special issue pg.5

VALENTIN SILIVESTRU, CRISTIAN PUSCASU,
MIHAELA GRIGORESCU, NICOLAE CONSTANTIN,
CRISTIAN DOBRESCU, NICOLETA GHEORGHE
TO INCREASE ENERGETIC EFFICIENCY OF CENTRIFUGAL COMPRESSORS
THROUGH INTEGRATION OF NEW TECHNOLOGIES AND MATERIALS IN THE
FIELDS OF SURFACE COVERING IN ORDER TO SHORT
THE ROTOR - STATOR GAP

Keywords: centrifugal compressors, efficiency, rotor-stator gap

Abstract: Paper's aim is to carry out an energetic efficiency of centrifugal compressors by decreasing gas dynamic losses own to the gap between rotor and stator. The carrying out of the project is common to many producers able to invest more material resources.

Metalurgia International vol XIV, no.7 special issue pg.9

CRISTIAN PUSCASU, GEORGETA CARLANESCU,
MIHAELA GRIGORESCU, NICOLAE CONSTANTIN,
CRISTIAN DOBRESCU, NICOLETA GHEORGHE
RESEARCHES REGARDING THE CARRYING OUT OF CERAMIC CRUST USED
FOR PRECISION INVESTMENT CASTING OF HIGH PERFORMANCES
CENTRIFUGAL ROTORS

Keywords: precision investment casting, centrifugal rotors, technological parameters

Abstract: The technology of carrying out of ceramic crust used for precision investment casting of high performances centrifugal rotors imposed the use of special raw materials such as: zirconium flower, malachite, colloidal silica, cobalt alumina. Their characteristics have to be strict controlled and kept during all the technological process.

Technological parameters chosen for the optimum (number of layers, granulation, viscosity, moistening capacity, specific barbotine weight, pH, permeability, bending strength, dry regime, deceleration parameters, and temperature and calcinations regime) are the fruits of recent researches and allow to obtain parts with high quality standard.

Metalurgia International vol XIV, no.7 special issue pg.12

SORIN DIMITRIU, MIRCEA DOBRESCU, MARIUS VASILESCU
TITANIUM AND TITANIUM-BASED ALLOYS FOR AEROSPACE

Keywords: titanium, physical and mechanical properties, applications in aerospace

Abstract: There are many aerospace programs which have identified requirements for higher temperature, strength capability and excellent corrosion resistance of titanium alloys. In the paper are shown the main properties of titanium and titanium alloys, the influence of boron and silicon in Ti-Al alloys for aerospace, titanium alloys based on intermetallic compounds and possibilities of replacing classic alloy Ti-6Al-4V with other low-cost titanium alloys with similar or even superior properties.

Metalurgia International vol XIV, no.7 special issue pg.14

PETRU MOLDOVAN, SORIN DIMITRIU, WIM SILLEKENS,
GABRIELA POPESCU, DAN M. CONSTANTINESCU
MAGNESIUM ALLOYS FOR STRUCTURAL AUTOMOTIVE APPLICATIONS

Keywords: magnesium alloys, automotive industry, electronic microscopy
Abstract: In this paper is presented a study referring to performances of AZ and ZK magnesium wrought alloys in attempting of replacing ferrous and aluminum alloys in automotive construction.

Microstructural characteristics, by electronic microscopy, and some static and dynamic mechanical properties of AZ80 and ZK60 forged alloys were determined.

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MARIANA POP, ADRIANA NEAG
DIMENSIONAL PRECISION IN NON-CONVENTIONAL PROCESSES OF
PLASTIC DEFORMATION

Keywords: drawing, bending, dieless, plastic deformation, precision,

Abstract: Dieless drawing of wires and bars and dieless banding of non circular pipes are two non conventional processes of plastic deformation of metals. Both of them are incremental processes of deformation where the deformation stress, power and energy consumed are lower than in the classical processes, where the deformation take place in the whole volume of material. These processes use for produce the local deformation a heating-cooling device. To cause necking the semiproduct is locally heated and to stop further deformation the necked part is rapidly cooled.

Because no die is present in the processes is very important to obtain an acceptable value of dimensional and shape precision of the products.

The aim of this paper is to present the main factors and their influence on the dimensional and shape precision of drawn and bend products.

Metalurgia International vol XIV, no.7 special issue pg.24

ANA JOSAN, TEODOR HEPUȚ, ANA SOCALICI,
ERIKA ARDELEAN, SORIN RAȚIU
THE SIMULATION OF HOT ROLLING PROCESS, IN ORDER TO DETERMINE
THE THERMAL FIELD DISTRIBUTION IN THE MILL ROLLS

Keywords: mill rolls, thermal field, simulation, durability

Abstract: By taking into consideration thermal field we could carry out a complete study, very close to the real conditions of rolling cylinder exploitation, as the thermal influences constitute one of the basic causes leading, even under favorable exploitation conditions, to thermal fatigue fissures, that reduce the use of cylinders in rolling sessions.

The paper is presenting the thermal field distribution inside the rolls, during the hot rolling process obtained through the phenomenon simulation by way of the finite element method. The simulation has as outset data registered in the industrial usage, respectively the case of profile throttling I, at Middling Profile Rolling Mill of the metallurgical enterprise.

Metalurgia International vol XIV, no.7 special issue pg.27

TUDOR PRISECARU, AUGUSTIN SEMENESCU, CONSTANTIN
DANIEL COMEAGA, CRISTIAN GABRIEL ALIONTE
EXPERIMENTAL INTEGRATED SYSTEM USED FOR COMBUSTION PROCESS
AND RESULTED FLUE GAS ANALYSIS

Keywords: Horiba PG 250 S gas analyzer, computer-aided measurement.

Abstract: This paper presents a complex integrated system used for gas measurement and analysis based on Horiba PG 250 S gas analyzer. This computer-aided measurement and analysis system has been controlled by a

PC computer, which has conferred flexibility, an automation of the measurement process, communication with other measurement systems, together with the possibility of working in hostile places. The interface of the controlling software has virtual panels (where the functioning mode has been indicated): the reading panel, the data writing, and the measurement control panel. The system has been tested in two experiments of solid fuel (biomass type) combustion.

Metalurgia International vol XIV, no.7 special issue pg.36

RADU PAHONIE, IONICĂ CÎRCIU, MIRCEA BOȘCOIANU AN ANALYSIS OF DIFFERENT ROTARY WING MICRO AIR VEHICLES SOLUTIONS

Keywords: MAV, 4RW-MAV, FW MAV, RW-MAV, dynamics

Abstract: First we present the benefits of rotating wing micro aerial vehicles (RW-MAVs) and a classification of the mission scenarios. According to the new missions we define the basic requirements that RW-MAV that should be satisfied in order to successfully complete urban and indoor missions. We define the new 4RW-MAV architecture and we propose a comparative analysis with the characteristics and performances of different classic solutions including the shrouded RW-MAV configuration. With a better maneuverability, portability and agility there are some differences regarding the performances and the payload capacity. In urban or indoor missions the maneuverability is crucial and thus the new architecture should provide better movement capabilities. The 4RW-MAV configuration is effective in indoor narrow space with a capability to maneuver in a very fast and effective way, and performable for other configurations. The net effect relevant for control during autorotation landing is analyzed by adding a vertical offset relative to the vertical position predicted in the absence of ground effect. This vertical offset is estimated from flight data and taken into account accordingly.

Metalurgia International vol XIV, no.7 special issue pg.43

MARIUS GABRIEL PETRESCU, RODICA BUCUROIU STUDIES ON THE ASSESSMENT OF RESIDUAL STRESSES IN WELDED JOINTS OF CYLINDRICAL SHELLS

Keywords: residual stresses, welded structure, welded joints.

Abstract: The presence of the residual stresses greatly influences the reliability of the welded structure. That is why it is necessary to know the level of these stresses and to reduce them as much as possible. The paper present a method for the evaluation of the residual stresses level in the butt welds of the cylinder type pieces (cylindrical shell). The method was used in order to emphasize the influences of the technological process over the interior stresses that are produced in the cylinder pieces. The obtaining results can be extended to the welded joints of the flat semi-products.

Metalurgia International vol XIV, no.7 special issue pg.49

ION NAE, MARIUS GABRIEL PETRESCU, RODICA BUCUROIU MODELING OF THE DIE-TUBULAR MATERIAL CONTACT WITH APPLICATIONS IN DRILLING-EXTRACTION WORKS

Keywords: drilling – extraction papers, tubular material, tribomodelling of the contact die – tubular material.

Abstract: In the drilling – extraction papers, in the tubular material maneuver operations, there are used the drilling pincers that have the role of making screwing up-unscrewing operations of the tubular material: drilling percussions, casings, drill-stems, assembly reductions etc. The functioning (working) condition of the pincer supposes the screwing up (unscrewing) without slipping of the tubular material.

Between the die and the tubular material without existing any relative motion there should be determined the appearing limit conditions – (during the contact of the tow elements – die and tubular material) of the relative slipping phenomenon that is the criteria by which the pincer has no functional role.

In this context, in the paper there is made a tribomodelling of the contact die – tubular material and there is realized an experimental research programme that has as purpose the limit coefficient determination of the appearing slipping conditions during contact die – tubular element.

Metalurgia International vol XIV, no.7 special issue pg.52

DORIN BĂDOIU, MARIUS GABRIEL PETRESCU ON THE ANALYSIS AND SYNTHESIS OF A MANIPULATOR ROBOT SYSTEM

Keywords: manipulator, robot system.

Abstract: The paper presents a method that permits the positional analysis and synthesis of a Lynx robot system with five degrees of freedom. With this end in view, Khalil-Kleinfinger parameters have been used. First, the calculus of the relative position and orientation between the component modules has been done. Then, a method for trajectory generation is presented. Finally, some simulation results are presented. The verification of the results obtained after simulations has been done using the robot arm

interactive operating system Lynxmotion Rios SSC-32 V1-04 which controls the robot system.

Metalurgia International vol XIV, no.7 special issue pg.58

ALINA ADRIANA MINEA ACTIVE TECHNIQUES FOR IMPROVING HEAT TRANSFER

Keywords: enhancement technique, convection, active technique, heat transfer

Abstract: The analysis of the enhancement techniques of the transfer processes is realized by the very identification of the methods that can be applied, regardless of the process nature. In this context, the study of the heat transfer processes has become an essential aspect for assuring an optimum functioning of all industrial processes and this fact creates the basis of the multidisciplinary study of these processes. The main priority is the development of a consistent methodology that will represent the base of the specific practical methods' development in order to increase heat transfer. Enhancement techniques essentially reduce the thermal resistance in conventional industrial heating equipment by promoting higher convective heat transfer coefficient with or without surface area increases. As a result, the size of equipment can be reduced, or the heat duty of an existing exchanger can be increased or the exchanger's operating approach temperature difference can be decreased. The latter is particularly useful in thermal processing of biochemical, food, plastic, and pharmaceutical media, to avoid thermal degradation of the end product. On the other hand, heat exchange systems in spacecraft, electronic devices, and medical applications, for example, may rely primarily on enhanced thermal performance for their successful operation. The commercialization of enhancement techniques, where the technology has been transferred from the research laboratory to full-scale industrial use of those that are more effective and workable.

Metalurgia International vol XIV, no.7 special issue pg.62

PETRICĂ VIZUREANU EXPERT SYSTEM DESIGNED FOR HEAT TREATMENT FURNACES

Keywords: expert system, heat treatment, furnace, process control

Abstract: Measurement and control digital systems had mainly enforced in the last decades cause to the technological revolution within electronic components domain. It is hereby obtained a bigger accuracy in digital information processing process.

The expert system is made on the basis of an original mathematical model theoretically and experimentally obtained. The mathematical model respects and combines static and dynamic behavior of an industrial furnace and the model of a temperature regulator with PID behavior.

Metalurgia International vol XIV, no.7 special issue pg.66

IOZSEF JUHASZ, VASILE HOTEA, ELENA POP, IRINA SMICAL EXPERIMENTAL RESEARCHES CONCERNING NICKEL PRECIPITATION ON THE COPPER ELECTROLYTE PURIFICATION

Keywords: electrolyte, nickel precipitation, redox potential.

Abstract: Over the 60% in the annual world production of copper is used for electrical engineering applications and electronics where high electrical conductivity is the main requirement. For such high conductivity copper, it is necessary that the content of adverse impurity elements be as low as possible. Nickel is said to be one of the worst elements in contributing to decreased copper electrical conductivity as it forms a solid solution with copper. Consequently, the maximum permissible level of nickel in copper for electrical uses is 7.0 ppm[1].

Metalurgia International vol XIV, no.7 special issue pg.72

AUGUSTIN SEMENESCU, TUDOR PRISECARU, MALINA PRISECARU, CRISTINA CIOBANU LOW COST NOx REDUCTION POSSIBILITIES FOR COAL FIRED BIG STEAM BOILERS

Keywords: steamboilers, NOx, CFD simulations, secondary air

Abstract: This paper presents a part of the work concerning the team activity towards CFD simulations about the pulverized lignite burning process' management inside a 525 t/h steam boiler's furnace in order to find a cheap way to reduce the nitrogen oxides (NOx) formation until the end of the analyzed domain. The presentation is divided into more parts concerning the gradually effect upon the NOx formation, according to more and more sophisticated input conditions. The first step is considered only to validate the present situation of the furnace operating conditions; that means to simulate the burning process in such a way that the most important operating parameters to be validated by measurements. The further steps are to simulate the whole process considering first that parts of the secondary air are introduced somewhere over the burners and then recirculated cold flue gas is injected somewhere along the furnace's height.

Finally, minor constructive modifications upon the burners are also taken into consideration.

Metalurgia International vol XIV, no.7 special issue pg.77

VASILE COJOCARU-FILIPCIU
NEW ASPECTS OF NODULAR GRAPHITE-LIQUID METALLIC MATRIX INTERFACE

Keywords: Thermodynamical equilibrium; iron microstructure, ductile iron.
Abstract: Paper broaches chemical potentials thermodynamic equilibrium of the chemical elements from the liquid metallic matrix and graphite nodules. Tendency to thermodynamic equilibrium involves chemical elements diffusion from the liquid metallic matrix to the graphite nodules.

One achieves variation profiles and X radiation images, by electronic microsounder, for some chemical elements, in metallic matrix, graphite nodules and flake graphite which confirm tendency to thermodynamic equilibrium of chemical potentials.

If the inoculant agent contains silicium in big quantity, silicium particles will be in a bigger quantity right round graphite nodules.

Metalurgia International vol XIV, no.7 special issue pg.82

GELU BARBU, VASILE COJOCARU-FILIPCIU, SERGIU STANCIU
VIBRATING EFFECTS OF A CAST IRON WITH REFERENCE TO THE INCREASE OF THE MECHANICAL PROPERTIES AND THE METALLOGRAPHIC MICROSTRUCTURE

Keywords: Microstructure; solidification; vibrating; failure.
Abstract: This paper presents an analysis of a cast iron solidified dynamically – improvement of the mechanical properties and metallographic microstructure.

Failure mechanism is presented, too.

Nodular and flake graphite samples were researched by dynamical and static casting conditions.

A vibrating plant, invented by authors, [1], was used.

Ultimate tensile strength increases with 8% in the case of nodular graphite and with 14% in the case of flake graphite, by vibrating.

Refinement of grain and graphite distribution degree where occurred bigger.

Vibrating involves failure change from the intercrystalline manner to the transcrystalline manner. That is why vibration ensures a better cohesion among grains.

Metalurgia International vol XIV, no.7 special issue pg.87

ION MITELEA, ILARE BORDEAȘU, BRANDUSA GHIBAN
THE ANTICAVITATIONAL CHARACTERISTICS OF DEPOSITED LAYERS OF AUSTENITIC MANGANESE STEEL

Keywords: erosion by cavitation, filler layer welding, austenitic manganese steel

Abstract: This paper presents the results of cavitation erosion tests on the deposited layers of austenitic manganese steel on the surface parts of low alloy ferrite-pearlite steels by welding technique by melting archery equipment.

Metallographic examinations by alloy electron microscopy had shown the structural changes in the cavitation affected portion of the material and the propagation mechanism of cracks.

Comparison of characteristic curves of cavitation erosion of austenitic manganese layer, made by welding with the referable standard steel 41Cr4, shows excellent resistance to cavitation which it has.

Metalurgia International vol XIV, no.7 special issue pg.91

CARMEN NEJNERU, NICANOR CIMPOEȘU, SERGIU STANCIU, PETRICĂ VIZUREANU, ANDREI VICTOR SANDU
SEA WATER CORROSION OF A SHAPE MEMORY ALLOY TYPE CUZNAL

Keywords: shape memory alloy, electrochemical corrosion, potential, electrolyte

Abstract: Shape memory alloys have multiple applications in different fields of activity and are in contact with much kind of surroundings like air, water, human body liquids or special controlled atmospheres. All this work environments have, in time, effects on metallic materials like them corrosion. In this paper is presented an investigation on a shape memory alloy based on copper expose to corrosion in sea water using a potentiostat / galvanostat equipment type Volta Lab 21. Alloy micrographs, before and after corrosion test, was realize on a scanning electron microscope and chemical analyze was made with a laboratory spectrometer type Foundry Master. After corrosion test we analyze the results using specialized software Volta Master 4.

Metalurgia International vol XIV, no.7 special issue pg.95

IORDACHESCU MIHAELA, IORDACHESCU DANUT, BLASCO MANUEL, SCUTELNICU ELENA
COMPARATIVE ANALYSIS OF THE FRICTION STIR PROCESSING EFFECTS ON AS CAST AND ROLLED PLATES OF ALUMINIUM ALLOYS

Keywords: Friction Stir Processing, aluminium alloys, microstructures, hardness, residual stresses

Abstract: The research objective was to investigate the effects of Friction Stir Processing technique on modifying AA6061-T4 and as cast AA6061 alloys properties. This was assessed by material characterisation through microstructural analysis, hardness testing and residual stress analysis. Cold working conditions were considered for producing sound FSP layers, to enhance the process capabilities on inducing compressive stresses. Residual stress measurements were made with Ω - diffractometer, using $\sin^2 \psi$ method. The correlation between the features of the residual stresses field and the material flow in the processed zone was of interest, as too.

Metalurgia International vol XIV, no.7 special issue pg.99

MULTIDISCIPLINARY RESEARCHES IN NEW FIELDS

NICU MARCU, DANIELA GIURESCU
ASPECTS REGARDING THE EVALUATION PROCESS IN THE ROMANIAN LEGISLATIVE CONTEXT

Keywords: evaluation process, public projects, budgets, culture of evaluation

Abstract: Based on well defined criteria and respecting certain principles of progress, the evaluation process is an essential step in the management of programs, policies and/or public projects.

Romanian legislation in the field of administration and monitoring the use of public funds mainly contains specific provisions of evaluating the budgets co-financed by the European Union.

All these are grounded arguments in the sense of developing a culture of evaluation at the level of the financial management of Romanian public sector.

Metalurgia International vol XIV, no.7 special issue pg.105

DOREL BERCEANU, MARIAN SIMINICĂ, NICU MARCU, CRISTIAN NICOLAE STOINA
INDEBTEDNESS OF THE FIRMS BY LEASING

Keywords: leasing, firm, credit bank, rent, lessor, lessee, supplier
Jel classification: G32

Abstract: This article discusses a subject of great topicality, namely leasing issues. Thus, after a short introduction we submitted partners participating in a leasing operation (lessor, lessee, suppliers and the insurance company) and the relationships that are established between them.

An ample space is devoted to the most important forms of leasing operations (sale and leaseback, operational leasing and financial leasing). Next, we present features of the leasing and spotlighted the triple option that lessee has at the end of the leasing period. Afterwards, we are busy highlighting the similarity between leasing and credit bank and how to carry out the option between them, with outlining clear that indeed, leasing is a viable alternative to the system of credit that new conditions becoming more restrictive.

Finally, we are focused on feedback on leasing in Romania and Romanian leasing market in the European context.

Metalurgia International vol XIV, no.7 special issue pg.107

MARIAN SIMINICĂ, NICU MARCU, ANCA BĂNDOI
THE DEVELOPMENT OF A BANKRUPTCY PROGNOSIS MODEL REGARDING ROMANIAN COMPANIES BETWEEN THEORY AND PRACTICE

Keywords: bankruptcy, prognosis models, economic growth, financial situation

Abstract: The problem of bankruptcy is very important under financial crisis conditions.

The paper take into accounts many elements regarding the apparition of bankruptcy phenomena in different developed country. Bankruptcy risk models are also analysed in detail.

Metalurgia International vol XIV, no.7 special issue pg.114

SIMONA-MAYA TEODOROIU
PREVENTING AND COMBATING CLIMATE CHANGE. AN APPROACH FROM THE PERSPECTIVE OF THE EUROPEAN PUBLIC POLICIES AND LEGISLATION, AND OF THE NEW VALENCES OF THE FUNDAMENTAL PRINCIPLES OF ENVIRONMENTAL PROTECTION
-PART I-

Keywords: climate change, global warming, air pollution, environmental protection

Metalurgia International vol XIV, no.7 special issue pg.117

MIHAELA TABARCA
THE PRINCIPLE OF THE ACTIVE ROLE OF THE JUDGE IN THE LIGHT OF THE NEW CODE OF CIVIL PROCEDURE

Keywords: Civil Procedure, legal instruments, law application, legal decision, juridical ground.

Abstract: In the marginal notes related to "role of instance in finding out the truth", as in art. 21 of the New Code of the Civil Procedure, it is mentioned that the judge solves the dispute in conformity with the appropriate applicable laws [paragraph (1)]. His duty is to insist – by means of all legal instruments – in preventing any mistake connected with the finding out of the truth in a cause, in the basis of settling the facts and the correct application of the law, with a view to pass a grounded and legal decision.

Metalurgia International vol XIV, no.7 special issue pg.124

CONSTANȚA-AURELIA CHIȚIBA, OCTAVIAN-LIVIU OLARU
WHERE IS GOING THE WORLD ECONOMY?

Keywords: financial crisis, growth rate, world economy, downturn, monetary policies, financial market.

Abstract: In accordance with the last projections drawn up in January this year by the specialists of the International Monetary Fund, the world economy is facing a deep downturn in 2009, global growth being expected to fall to 0.5%, its lowest rate since the World War II.

Helped by continued efforts to ease credit strains as well as expansionary fiscal and monetary policies, the global economy is projected to experience a gradual recovery in 2010, with growth picking up to 3 percent. However, the outlook is highly uncertain, and the timing and pace of the recovery depend critically on strong policy actions.

Reform of financial market supervision and regulation is clearly necessary to build a more resilient financial system. Here, the efforts need to focus on identifying the market imperfections that gave rise to the incentives for excess risk taking and high leverage, as well as the regulatory failures that together caused this unprecedented global financial crisis.

The recent G20 meetings initiated an action plan and a process aiming to continue furthering multilateral co-ordination to overcome the immediate problems facing the global economy and to strengthen the international financial architecture over the medium term.

Metalurgia International vol XIV, no.7 special issue pg.130

ANGELA ROGOJANU, DIANA POCIOVĂLIȘTEANU, LIANA BADEA

THE ROMANIAN METALLURGICAL INDUSTRY NOWADAYS

Keywords: metallurgy, competition, crisis, history of Romanian metallurgical industry

Abstract: The metallurgy is one of the oldest industries in the Romanian economy and plays a significant role within the Romanian economy. The history of metallurgical industry in Romania is related to ancient times and to the Romanian people history. Nowadays, the metallurgical industry is analyzed from two different points of view: the ferrous metallurgy and the nonferrous metallurgy. The metallurgy industry in Romania was heavily hit by the world crisis at the end of last year and at the beginning of this one, which translated into a significant decline in demand for exports and in sales prices, prompting many manufacturers to reduce or halt production for certain periods of time.

Metalurgia International vol XIV, no.7 special issue pg.135

MARIN ANDREICA, BOGDAN NITU, COSTEL VISAN
OVERVIEW OF MODELLING THE RISK ASSESSMENT PROCESS IN APPLIED PROJECT MANAGEMENT

Keywords: risk analysis, vulnerability, contingency models, knowledge management, project management.

Abstract: The real life implies that risks, vulnerabilities and threats are connected or can be decomposed down to primary (basic) events. It is recommended to model this by taking into accounts the conditional probabilities and strength of the links between the events.

The best structure that reflects the above is a Bayesian Network (BN). Since building BN directly, in a naïve mode, depends on the ability/ expertise of the assessor, the proposed solution is to split in two phases:

1. Applying consecrated techniques (FTA, FMEA, Ishikawa diagrams, FAST, etc.) - by each team, under supervision of Risk Manager
2. Deriving the BN from resulted graphical models by a consistent procedure and performing the analysis – by a Risk Analysis Group, including the Risk Manager, while the results must be approved by a Risk Committee.

Such BN has to be constantly updated and the Project / Organization shall continuously "learn". Therefore, the organization may commence with expert assessments on the basic events, but it will grow to build a database by registering all the modifications appeared (building historical data), in order to permanently refine the assessment.

Such integrated qualitative-quantitative may prove to be effective approach - although computing intensive – once the adequate tools are used.

Metalurgia International vol XIV, no.7 special issue pg.139

MOISA ALTAR, JUDITA SAMUEL, ADAM – NELU ALTAR-SAMUEL
A MACROECONOMIC GROWTH MODEL FOR ROMANIA, INCLUDING HUMAN CAPITAL

Keywords: Human capital, Tracking problem, Linear-Quadratic optimization. JEL Classification : E24, O41, O47, C61

Abstract: We propose a model of the evolution of the Romanian economy, which, using human capital as the engine of growth, aims at reaching European standards with respect to the quality of life, to the structure of labour force and to external deficit.

We perform simulations with the model, using Romanian data. These simulations can highlight the convergence speed of the Romanian economy towards EU standards, under several scenarios regarding the size of investment in human capital.

Metalurgia International vol XIV, no.7 special issue pg.145

EUGENIU ȚURLEA, AURELIA ȘTEFĂNESCU
ASSERTIONS ON THE INCIDENCE OF INTERNAL AUDIT UPON THE CORPORATE GOVERNANCE PROCESS OF THE PUBLIC SECTOR ENTITIES IN ROMANIA

Keywords: public internal audit, corporate governance, public entity, informational asymmetry, risk management

Abstract: The international economic crisis and the financial scandals affecting several well-known private sector entities influenced also the public sector entities. The public, the main resource supplier, doubts these entities' management and control of services supply.

By the undertaken study, we structure the scope of corporate governance and the role of the internal audit within this process at the public sector entities level in Romania.

This research is based on a synthesis of materials published into national and international regulations by accounting professional bodies, works proposed for debates on this theme.

Metalurgia International vol XIV, no.7 special issue pg.153

CRISTIAN SILVIU BANACU, CLAUDIU CICEA
THE MANAGEMENT OF PRODUCTS AND TECHNOLOGIES IMPACT LIFE CYCLE ANALYSE IN METALLURGICAL INDUSTRY

Keywords: life-cycle, environment, products, life time usage

Metalurgia International vol XIV, no.7 special issue pg.156

CRISTIAN SILVIU BANACU, CRISTINA ALPOPI
RISK AND UNCERTAINTY ANALYSE FOR INVESTEMENT PROJECTS IN METALLURGICAL INDUSTRY

Keywords: investment project, risk, costs, forecast, uncertainty

Metalurgia International vol XIV, no.7 special issue pg.166

CRISTIAN SILVIU BANACU, CLAUDIU CICEA
LIFE CYCLE COSTING FOR TECHNOLOGIES AND PRODUCTS OF THE METALLURGICAL INDUSTRY

Keywords: life cycle, sustainable production, product, process, project

Metalurgia International vol XIV, no.7 special issue pg.171

BURJA CAMELIA, BURJA VASILE

A COMPANY PERFORMANCE ANALYSIS BASED ON VALUE CREATION

Keywords: economic performance; Economic Value Added (EVA); Market Value Added (MVA); Cash Value Added (CVA); cost of capital

JEL Codes: G11, G12, G31, M21

Abstract: A basic management objective is the analysis of the value creation mechanism as it answers the main interest of shareholders and of other company. The paper presents several indicators that can quantify the companies' value creation and that, if analyzed, help substantiate decisions leading to an increase of economic performance. The case study presented in the paper is a theoretical and practical model for the economic value added indicator. The model shows the factors that influence the indicator's evolution and how they operate.

Metalurgia International vol XIV, no.7 special issue pg.180

CAMELIA BURJA, VASILE BURJA

ECONOMIC PERFORMANCE AND ITS INFLUENCE ON FINANCIAL EQUILIBRIUM

Keywords: economic performance, financial equilibrium, rates of return, economic risk, financial analysis

JEL Classification: M1, D5, L1

Abstract: The return of an expected economic performance, capable of satisfying the interests of the shareholders, managers, creditors and other stakeholders implies managing assets and covering financing needs in financial equilibrium conditions.

The correlation between the financial equilibrium and economic performance of companies can be studied by means of a system of rates of return and equilibrium indicators determined from financial statements. The analysis indicators assess if the balance between needs and resources can be achieved. A company's high economic performance may result in future normal activity and in an advantageous economic and financial position.

Our paper presents the methodology which analyzes the correlation between economic performance and financial equilibrium. It also shows its importance for the activity of enterprises. The analysis model under operation validates the main theoretical aspects identified.

Metalurgia International vol XIV, no.7 special issue pg.186

CAMELIA BURJA, VASILE BURJA

EVALUATION OF INDUSTRIAL INVESTMENTS FROM THE PERSPECTIVE OF SUSTAINABLE ECONOMIC GROWTH

Keywords: sustainable development, investments, investment efficiency, multi-criteria analyses

JEL Codes: D61, O12, Q56

Abstract: The rationalization of resource allocation in the investment process requires the evaluation and selection of projects based on rigorous criteria of sustainable economic growth, which imply an integrated perspective on economic, social and environmental aspects.

The evaluation of industrial investment projects is based on a multitude of economic, financial and technical indicators, as well as on environmental and social ones. In such conditions, the selection of investment projects becomes a complex and relative difficult problem, because of conflicting conclusions that can be reached by evaluating the reference indicators. The substantiation of investment opportunities is realized based on a feasibility study which implies the selection of the optimal choice from an existent portfolio, based on the multi-criteria analyses. The paper proposes a methodological approach of industrial investment project analyses, in the context of respecting the requirements of sustainable development.

Metalurgia International vol XIV, no.7 special issue pg.190

GEORGETA VINTILĂ, DAN ARMEANU

USING THE MODELS OF DATA ANALYSIS IN FINANCIAL EVALUATION OF COMPANIES PERFORMANCES

Keywords: cluster analysis, representative indicators, financial power, branches

Abstract: The purpose of this article is the identification through the cluster and discriminatory analysis of the most profitable branches of a company with general insurance profile which carry on its activity through a network of 36 branches. By these methods and techniques of data analysis we shall identify those characteristics of the branches with the highest power of discrimination between branches that are subject to analysis through which we emphasize their most probable membership to certain pre-established categories. In order to make the classification of the branches in accordance with their performances we shall use the classifiers

Bayesian, Mahalanobis and Fisher which allow the identification of the optimum rules for allotting the observations into categories.

We took into consideration a number of eight indicators representative for the branches activity: subscribed net premiums minus cancelled premiums – PRI_NET, total income – VEN_TOT, administrative expenses – CH_ADM, acquiring expenses – CH_ACH, net claims – DESP_NET, number of employees – NR_ANG, premium net reserve – REZ_NE_P, claims net reserve – REZ_NE_D and the financial result – REZ_FIN. The results of the study are concretized in a valid model for classifying the branches of the company in relation with their financial power.

Metalurgia International vol XIV, no.7 special issue pg.195

ANCA OPRE

LEGAL STATUS OF THE PROPERTY RESTITUTION IN ROMANIA

Keywords: property, retrocession, compensation, restitution.

Abstract: The property is, both economically and legally, the supreme expression of human access to the possession, use and disposal of goods. Therefore, being by excelency the way to exercise the power over goods, the property has been the object of avid and hystorical disputes. Such disputes have been, and still are, based on a complex of economical, political, philosophical and religious ideas, theories and conceptions and can be classified in two large currents or trends: the collective property and the private property.

Metalurgia International vol XIV, no.7 special issue pg.202

GEORGESCU NICOLAE, MULER ONOFREI

RISK ANALYSIS TECHNIQUES IN THE CONTEXT OF REAL ESTATE PORTFOLIOS- FACTS AND FICTION

Keywords: Risk analysis, risk management, real estate, portfolios, investment activity

Abstract: While real estate plays a significant role in many institutional portfolios it still faces what could be called a credibility issue because of concerns regarding measurement of performance and risks. Risk is basically associated with uncertainty. While most of the risks can be mitigated, they cannot be entirely eliminated. The process of mitigating risks can be expensive and on a simplified description it has to do with identifying the risk, analyzing it, and finding the solution to reduce its impact.

Metalurgia International vol XIV, no.7 special issue pg.208

NICOLAE GEORGESCU, COSMIN SERBANESCU

V.A.T. A NEW FISCAL APPROACH

Keywords: Reduced rate, Taxation basis, chargeability, fiscal policy, tax avoidance.

JEL Classification: H32

Abstract: As a result of the current financial crisis, the Government introduced at the end of 2008 a few fiscal facilities, in order to ease the transactions in the economy. No matter the fiscal issue, we have to compute the results for the entrepreneurs, taking care to the new opportunities for fiscal fraud or tax avoidance.

There are alterations about the carry forward of losses, the non-taxable expenses, the research and development expenses, but in our opinion the most important, and we stress this, VAT on buildings delivery should be granted the first place on a qualitative analysis.

Metalurgia International vol XIV, no.7 special issue pg.211

EMILIA GOGU

SHAPING THE GROSS DOMESTIC PRODUCT, THE PRICES AND THE INTEREST RATE

Keywords: gross domestic product, price level, market interest rate, correlation, unemployment rate.

Abstract: The "Revised ST. Louis" model is a model that allows the analysis and forecasting of the following fundamental economic evolutions: the nominal GDP evolution, the general price evolution, the real GDP and the employment rate evolution, all of these as a consequence of certain changes in the monetary supply and the budget expenses at a potential given by the production, corresponding to a full employment. In order to elucidate the state and evolution of the Romanian economy main macroeconomic factors in the last 10 years we have resorted to the "Revised ST. Louis".

Metalurgia International vol XIV, no.7 special issue pg.213