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ABSTRACTS

INFLUENCE OF THERMAL AND THERMOCHEMICAL TREATMENTS IN ELECTROLYTIC PLASMA ON THE SURFACE QUALITY OF CARBON AND ALLIED STEELS

MARIA BACIU and ADRIAN ALEXANDRU
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Abstract. The paper presents the way in which the thermal and thermo-chemical processings in electrolytic plasma influence the roughness of the exterior surfaces of the steels OLC 15 and 21MoMnCr12 previously processed by turning and alignment.

Keywords: electrolytic plasma, thermal treatment, roughness

INFLUENTA TRATAMENTELOR TERMICE SI TERMOCHIMICE ÎN PLASMA ELECTROLITICA ASUPRA CALITATII DE SUPRAFATA A OTELURILOR CARBON SI ALIATE

Rezumat. Lucrarea prezinta modul în care prelucrarile termice si termochimice în plasma electrolitica influenteaza rugozitatea suprafetelor exterioare a otelurilor OLC 15 si 21 MoMnCr12, prelucrate anterior prin strunjire si rectificare.

EXPERIMENTAL DENSITIES OF BINARY MIXTURES. BUTYLBENZENE-HEPTANE MIXTURES AT 298.15 K AND 318.15 K

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Abstract. This paper reports the density of butylbenzene-heptane mixture at 298.15 K and 318.15 K throughout the whole concentration range. The excess molar volumes were calculated from experimental data for the same mixtures and fitted by using of a new polynomial equation ("Zeta equation") comparing the results with the known equation of Redlich-Kister. Results of excess volumes were analyzed in terms of molecular interactions.

Keywords: density, butylbenzene-heptane, mixture, molecular interactions.

DETERMINAREA EXPERIMENTALA A DENSITATII PENTRU SISTEMUL BINAR BUTILBENZEN-HEPTAN LA TEMPERATURILE DE 298.15 SI 318.15K

Rezumat. S-au determinat experimental densitatile amestecului binar butilbenzen-heptan la temperaturile de 298.15 si 318.15K, pe un domeniu larg de concentratii. Volumele molare de exces pentru sistemul studiat au fost calculate din datele experimentale obtinute, iar corelarea datelor s-a realizat utilizând o ecuatie polinomiala noua („ecuatia Zeta”) si comparate cu ecuatia Redlich-Kister. Rezultatele obtinute pentru volumele de exces au fost analizate din punct de vedere al interactiunilor moleculare care apar între moleculele sistemului binar studiat.

THE PRECISION OF DECISION-MAKING AGAINST THE BACKGROUND OF EVENT EVOLUTION

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Abstract. A reasonable relationship between the level of outputs and the consumption of resources may be provided by the optimization of each production mean provided in the technology. To this purpose, we resort to the most adequate production forces.

Keywords: optimization, programming, linear, polynomial, exponential.

CALITATEA DECIZIEI ÎN PRODUCTIE FUNCȚIE DE EVOLUTIA PRODUCTIEI

Rezumat. Asigurarea unui raport rational între nivelul randamentelor și consumul de resurse se poate realiza prin optimizarea fiecărui factor de producție prevăzut în tehnologie. În acest scop, facem recurs la funcțiile de producție care se pretează cel mai adecvat.

MANAGERIAL PERSPECTIVE - A QUANTITATIVE APPROACH

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Abstract. This approach regarding the evaluation of the quantifiable managerial efficiency takes into account the efficiency of forecast and organization improvement within a company. In order to determine it, we resort to a series of indicators that we consider the most appropriate.

Keywords: efficiency of managerial systems, outputs, expenses, quality indicators.

EFICIENȚA MANAGERIALĂ – O APROXIMARE CANTITATIVĂ

Rezumat. Demersul de față privitor la evaluarea eficienței manageriale cuantificabile ia în considerare eficiența perfecționării previziunii și organizării în cadrul companiei. La determinarea acesteia recurgem la o serie de indicatori, considerați de noi ca fiind cei mai adecvați.

Cu-Al-Ni SHAPE MEMORY ALLOYS WITH Mn AND Ti ADDITIONS

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Abstract. The present paper shows the experimental data concerning the effect of Mn and Ti additions on the some properties of Cu-Al-Ni shape memory alloys. By these experiments, we attempted to use conventional methods to make polycrystalline shape memory alloys, which can be used for practical purposes.

Keywords: SMA, CANTIM, transformation temperature, properties

ALIAJE CU MEMORIA FORMEI Cu-Al-Ni CU ADAOSURI DE Mn, Si, Ti

Rezumat. În această lucrare sunt prezentate date experimentale referitoare la efectul adaosurilor de Mn și Ti asupra unor proprietăți ale aliajelor cu memoria formei Cu-Al-Ni. Prin aceste experimente s-a încercat utilizarea metodelor convenționale de producere a aliajelor cu memoria formei, care pot fi utilizate în scopuri practice.

THE INFLUENCE OF SOME ELECTRON BEAM MELTING PARAMETERS ON THE CHEMICAL COMPOSITION OF Ti5Al2.5Fe ALLOY

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Abstract. In the present paper a evaluation of alloying elements losses during the electron beam melting of Ti5Al2.5Fe alloy is performed. To evaluate the alloying element losses an own mathematical model of alloying element evaporation process was used. Using the mathematical model the Fortran SIM_EVAP program was performed. The SIM_EVAP program was used for numerical simulation of alloying elements evaporation process during electron beam melting. The inputs of the program are the chemical composition and weight of initial ingot, thermodynamic data about evaporation process (the vapour pressure in standard state, the thermodynamic activity coefficient, the Langmuire's evaporation coefficient) as well as the range of values of the process parameters, which were taken into account (melting rate, metal bath surface temperature and area). The outputs of the program are the variation coefficients of alloying elements, the chemical composition, and weight of final ingot. The highest losses of alloying elements are determined by the minimum value of melting rate and the maximum values of both temperature and area of metal bath surface.

Keywords: elaboration, mathematical model, evaporation process, control of chemical composition, titanium

alloy.

INFLUENTA UNOR PARAMETRI AI TOPIRII CU FASCICUL DE ELECTRONI ASUPRACOMPOZITIEI CHIMICE A ALIAJULUI Ti5Al2,5Fe

Rezumat. În prezenta lucrare este realizata o evaluare a pierderilor în elemente de aliere în timpul topirii în cuptoare cu fascicul de electroni. Pentru a evalua pierderile în elemente de aliere s-a utilizat un model matematic propriu. Pe baza acestui model matematic s-a realizat programul Fortran SIM_EVAP. Datele de intrare ale programului sunt compozitia chimica si masa lingoului initial, date termodinamice despre procesul de evaporare (presiunea de vapori în stare standard, coeficientul de activitate termodinamica, coeficientul de evaporare Langmuir), precum si parametrii de proces care au fost considerati (viteza de topire, aria si temperatura suprafetei bii metalice). Datele de iesire ale programului sunt coeficientii de variatie ai elementelor de aliere, compozitia chimica si masa lingoului final. Pierderile cele mai mari în elemente de aliere sunt determinate de valoarea minima a vitezei de topire si valorile maxime ale temperaturii si ariei suprafetei bii metalice.

THE SUBSTRUCTURE ELEMENTS MODIFICATION BY RESEARCHES ABOUT SMELTING AND EDUCATION OF SHAPE MEMORY MATERIALS TYPE Cu-Zn-Al

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Abstract. Shape memory materials have a series of structures properties witch induce shape modification or making a mechanical work once with temperature modification. Alloys Cu-Zn-Al has a concentration well determined of elements. This thing was marked by tracing dilatometer diagrams after materials education by thermal treatment. Thermal treatment made was annealing homogenization to nullification structure and chemical anisotropy, fallowing by a burning solution apply. Materials educations are made thermo-mechanical, plastic deformation to obtain warm form is made up to point Af and plastic deformation to obtain cold form is made below point Mf.

Keywords: shape memory alloys, homogenization, education, double sense memory, austenite, dilatometer, cold hardening, martensite transformation, mechanical work.

CERCETARI PRIVIND TURNAREA SI EDUCAREA MATERIALELOR CU MEMORIA FORMEI TIP Cu-Zn-Al

Rezumat. Materialele cu memoria formei au o serie de proprietati structurale care induc modificarea formei sau realizarea unui lucru mecanic odata cu modificarea temperaturii. Aliajele Cu-Zn-Al au concentratii bine stabilite a elementelor componente. Acest lucru a fost evidentiat prin trasarea diagramelor dilatometrice dupa educarea materialelor prin tratament termic. Tratamentul termic aplicat materialului a fost de recoacere de omogenizare pentru anularea anizotropiei chimice si structurale dupa care urmeaza o calire de punere în solutie. Educarea materialului se face termodinamic, deformarea plastica pentru obtinerea formei calde realizându-se deasupra punctului Af iar deformarea plastica pentru obtinerea formei reci se face sub punctul Mf.

CRITERIAL PENTAGON FOR DECISION MATRIX SOLVING

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Abstract. The decision maker may be often interested in determining the least favourable situation created by nature. The choice of the optimal alternative lies in the use of certain criteria or rules, depending on the given situation and the level in the hierarchy that the decision maker belongs to. This paper refers to five such rules.

Keywords: caution, regret, optimism, balance, mixed strategy

CRITERIUL PENTAGON DE REZOLVARE A MATRICII DE DECIZIE

Rezumat. Adesea decidentul poate fi interesat în determinarea situatiei celei mai nefavorabile în care poate sa-l puna natura. Alegerea alternativei optime se efectueaza cu ajutorul unor criterii sau reguli în functie de situatia data si nivelul ierarhic la care se afla decidentul. In demersul de fata ne referim la cinci asemenea reguli.

EXPRESSION OF THE MANPOWER MARKET SEGMENTATION IN THE

ECONOMIC THEORY

PETRU CONDREA

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Abstract. The manpower market segmentation theory was formulated two decades ago in the Western (Anglo-Saxon) specialized writings and it speaks about the occurrence of three (parallel) manpower markets. These are based on the three sectors of the economy that were structured in the developed countries: the central sector, found at the "core" of the economy, the peripheral sector and the irregular or dependent sector.

Keywords: dualistic diagram, central sector, peripheral sector, social division, regularity

EXPRESIA SEGMENTARII FORTEI DE MUNCA ÎN TEORIA ECONOMICA

Rezumat. Teoria segmentarii pietei fortei de munca, aparuta în urma cu doua decenii în literatura economica occidentala (anglo-saxona), sustine existenta a trei piete (paralele) ale fortei de munca. Acestea se întemeiază pe cele trei sectoare ale economiei care s-au structurat în tarile dezvoltate: sectorul central, care constituie "inima" unei asemenea economii, sectorul periferic si cel lipsit de regularitate sau fara existenta de sine statatoare.

SUPERFICIAL HARDENING BY ZONAL HEATING PROCESS THROUGH CONTACT

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Abstract. ASPTZC method is formed from two main phases:- successive alloying - direct achieved from casting through interaction of the liquid steel with the alloying layers which are deposited on the casting form walls. These alloy layers were obtained using alloying pastes which contain graphite, FeV, FeMo, FeCr, electrolytic Ni, diluent and binders; - zonal heating process through contact – it is made on a simple PTZC installation using treatment cyclograms, which were established before, depending on the material of the pneumatic and calibration tools which are treated, composition and structure of the superficial layers obtained after the first phase AS.

Keywords: successive alloying, zonal heating processes

DURIFICARE SUPERFICIALA PRIN PRELUCRARI TERMICE ZONALE PRIN CONTACT

Rezumat. În aceasta lucrare este prezentata tehnologia de realizare a sculelor pneumatice si de calibrare prin alieri succesive si prelucrari termice zonale prin contact. În cadrul experimentarilor realizate sunt analizate valorile principalilor parametri tehnologici si avantajele noii tehnologii în comparatie cu variantele clasice de realizare a sculelor pneumatice si de calibrare.

BIMETALLIC LAYERS OBTAINED BY IMMERSION AND CENTRIFUGATION

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Abstract. The joining temperature is the most important metallurgic factor that influences the characteristics and structure of the bimetallic layers obtained by immersion and vertical centrifugation. In order to outline the influence of the joining temperature, a series of parameters have been held constant, and assessments for different values of the joining temperature have been performed. Proper outcome was obtained at joining temperatures ranging between $T_{\text{join}} = 1100$ and $T_{\text{join}} = 1160^\circ\text{C}$. At this joining temperature we obtained a correspondence between the main features of the bimetal: R_m and R_p have high values; the A_5 elongation is low; specific adherence reaches values above 170 N/sq.mm, corresponding to the dead hard joints.

Keywords: bimetal jacks, immersion – vertical centrifugation

STRATURI BIMETALICE OBTINUTE PRIN IMERSIE SI CENTRIFUGARE

Rezumat. Este prezentata influenta factorului metalurgic temperatura de îmbinare asupra caracteristicilor si structurii straturilor bimetalice otel - bronz. Bucsele bimetalice realizate au dimensiunea J 140x8x4 OLT35-CuSn10, OLT 35- CuAl9T, OLT35- CuSn4Zn4Pb17.

MICROSTRUCTURE, CHEMICAL COMPOSITION AND ELECTRIC PROPERTIES OF $\text{Sr}_2\text{Fe}_{1-x}\text{Ni}_x\text{MoO}_6$ PEROVSKITES

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Abstract. The $\text{Sr}_2\text{FeMoO}_6$ double perovskite type (SFMO) are very promising magnetoresistive materials near the room temperature. We obtained by ceramic technology a SFMO series, where Fe is substituted with Ni. The compounds contain a main phase, with SG 117 (P 4 b2), and a second phase (about 10%). Two conduction mechanisms were put in evidence: a typical semiconductor mechanism, important at low temperatures, and a small polaron hopping mechanism (SPH), at temperatures near room temperature.

Keywords: double perovskites, microstructure, unit cell parameters, transport mechanisms

MICROSTRUCTURA, COMPOZITIA CHIMICA SI PROPRIETATILE ELECTRICE ALE PEROVSKITILOR $\text{Sr}_2\text{Fe}_{1-x}\text{Ni}_x\text{MoO}_6$

Rezumat. Perovskitii dubli de tip $\text{Sr}_2\text{FeMoO}_6$ (SFMO) sunt materiale magnetorezistive foarte promitatoare in apropierea temperaturii camerei. Noi am obtinut prin tehnologia ceramica o serie de SFMO, in care Fe este substituit cu Ni, si care contin o faza principala, cu GS 117 (P 4 b2), si o faza secundara (cca 10%). Doua mecanisme de conductie au fost puse in evidenta: o conductie tipic semiconductoare, importanta la temperaturi joase, si un mecanism SPH (small polaron hopping), la temperaturi apropiate de temperatura camerei.

THE TRANSPORT MECHANISMS AT $\text{Sr}_2\text{Fe}_{0.9}\text{Gd}_{0.1}\text{MoO}_6$ DOUBLE PEROVSKITES SUBSTITUTED WITH W

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Abstract. $\text{Sr}_2\text{Fe}_{0.9}\text{Gd}_{0.1}\text{Mo}_{1-x}\text{W}_x\text{O}_6$ perovskites were prepared by an improved standard ceramic technology, in vacuum at 1190°C . Transport measurements were performed at temperatures higher as room temperature. Together the main phase, which have an Fm3m (GS225) structure, its were observed small quantities of $\text{Sr}_2\text{Fe}_2\text{Gd}_{6.16}$, Sr_2FeO_9 , $\text{Sr}_2\text{FeO}_{2.5}$. Lattice constants, atom positions in the unit cell, volume of the unit cell, average size of the mosaic domains and microstrains were determined. . Around room temperature the transport is dominated by the Mott mechanism.

Keywords: double perovskites, unit cell parameters, Mott mechanism, extrinsic magnetoresistance

MECANISMUL DE TRANSPORT ÎN PERESKOVITII DUBLI AT $\text{Sr}_2\text{Fe}_{0.9}\text{Gd}_{0.1}\text{MoO}_6$ SUBSTITUITI CU W

Rezumat. Perovskiti de tip $\text{Sr}_2\text{Fe}_{0.9}\text{Gd}_{0.1}\text{Mo}_{1-x}\text{W}_x\text{O}_6$ au fost obtinuti printr-o tehnologie ceramica modificata, in vid la 1190°C . Masuratori de transport au fost efectuate la temperaturi mai mari decat temperatura camerei. Impreuna cu faza principala, care are o structura Fm3m (SG225), au fost observate cantitati mici de $\text{Sr}_2\text{Fe}_2\text{Gd}_{6.16}$, Sr_2FeO_9 , $\text{Sr}_2\text{FeO}_{2.5}$. Constantele de retea, pozitia atomilor in celula elementara, volumul celulei elementare, dimensiunea medie a blocurilor de mosaic si microdeformarile au fost determinate. In apropierea temperaturii camerei transportul este dominat de mecanismul Mott.

NEW HYBRID NANOMATERIALS TYPE LAYERED DOUBLE HYDROXIDE (LDH)-CHLORAMPHENICOL

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Abstract. . New hybrid nanomaterials type layered double hydroxides – chloramphenicol were synthesized by incorporation of the chloramphenicol in the layered structure of layered double hydroxides (MgAlLDH) using two methods: direct coprecipitation of metal nitrates and chloramphenicol aqueous solutions and reconstruction method of the thermal treated layered double hydroxides. Hybrid nanomaterials has been characterized by DRX, FTIR, thermogravimetry and elemental analysis. The XRD patterns of the samples the diffraction peaks are typical to those of

well crystallized solids with the layered double hydroxides structure. The FT-IR spectroscopy (FTIR) and thermogravimetric (DTG) analysis point out that the presence of the organic compound in the network structure of the synthesized MgAlLDH.

Keywords: hybrid nanomaterials, layered double hydroxides – chloramphenicol.

NOI NANOMATERIALE HIBRIDE DE TIP HIDROXIZI DUBLI LAMELARI-CLORAMFENICOL

Rezumat. Noi nanomateriale hibride de tip hidroxizi dubli lamelari-cloramfenicol au fost obtinute prin incorporarea cloramfenicolului in structura stratificata a hidroxizilor dubli lamelari (MgAlLDH) folosind doua metode de sinteza: coprecipitarea directa a nitratilor metalici si solutia de cloramfenicol si metoda reconstructiei hidroxizilor dubli lamelari tratati termic. Nanomateriale obtinute au fost caracterizate folosind metode fizicochimice de analiza cu ar fi: DRX, FTIR, DTG, analiza elementara a azotului. Analiza DRX confirma ca dupa fiecare sinteza s-au obtinut structuri specifice argilelor anionice de tip hidrotalcit. Analiza prin spectroscopie FTIR cat si analiza DTG arata prezenta compusului organic in matricea argilei MgAlHT sintetizate.

ON THE NEW MODEL BASED ON ANN FOR SOME SPECIAL FERROMAGNETIC ALLOYS DESIGN AND CHARACTERIZATION

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Abstract. We introduce here as tools, the Artificial Neural Network (ANN). A neural network is an adaptable system that can learn relationships through repeated presentation of data and is capable of generalizing to new, previously unseen data. Neural networks are used for both regression and classification. Since ANN's learn from the data, the data must be valid for the results to be meaningful. A successful neural network simulation requires the specification of many parameters. The performance is highly dependent on the choice of these parameters. By adapting its weights, the neural network works towards an optimal solution based on a measurement of its performance. In our model we intend to use for the input data the following: the chemical composition, the thermal treatments and possibly some structure data. As output data Hall Effect, magnetoresistance effect of this alloys.

Keywords: nanocrystalline and amorphous alloys, ANN, MLP, PE

ASUPRA UNUI NOU MODEL CU RETELE NEURONALE PENTRU PROIECTAREA SI CARACTERIZAREA UNOR ALIAJE FEROMAGNETICE SPECIALE

Rezumat. In lucrarea noastra propunem un nou model cu metode ale inteligentei artificiale in vederea rezolvarii problemei obtinerii de noi aliaje feromagnetice nanocristaline si amorfe cu proprietati Hall si magnetorezistive superioare. O simulare de succes cu retele neuronale artificiale solicita specificarea mai multor parametri. Obinerea performantei este dependenta de buna alegere a acestor parametri. Prin adaptarea ponderilor retelei neuronale, aceasta permite obtinerea solutiei optime, bazata fiind pe masuratori ale performantei sale.

DIVIDEND POLICY IMPACT ON THE ENTERPRISES

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Abstract. The dividend policy is controversial. More implausible reasons are offered in order to explain why dividend policy may be important and more affirmations about dividend policy are economically speaking illogical. Even in these conditions, in the real world of company finances, identifying the most suitable dividend policy is considered an important issue that deserves being analyzed from all the perspectives.

Keywords: enterprises, dividend policy

IMPACTUL POLITICII DE DIVIDEND ASUPRA INTREPRINDERILOR

Rezumat. Politica de dividend este controversata. Multe motive neplauzibile sunt oferite pentru a explica de ce politica de dividend poate fi importanta si multe afirmatii despre politica de dividend sunt economic ilogice. Chiar si in aceste conditii, in lumea reala a finantelor firmei, identificarea celei mai potrivite politici de dividend este considerata o tema importanta si care merita studiata din toate unghiurile.

PROBLEMS MET IN FINANCING THE ROMANIAN ENTERPRISES

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Abstract. Any enterprise is placed by its activity in the middle of a multitude of monetary-financial fluxes. Thus, the enterprise, i.e. the method of the choice between its own sources and the borrowed ones, makes up the main objective in the achievement of the financial management.

Keywords: enterprises, privatization, sub capitalization, financing policy

PROBLEME ÎN FINANȚAREA ÎNȚEPRINDERILOR ROMÂNESTI

Rezumat. Orice întreprindere, prin activitatea pe care o desfășoară, se situează în centrul unei multitudini de fluxuri financiar-monetare. Astfel, finanțarea întreprinderii, adică procedeele alegerii între sursele proprii și cele împrumutate, constituie principalul obiectiv în realizarea managementului financiar.

SOME PRELIMINARY EXPERIMENTS UPON THE INFLUENCE OF TOOL PARAMETERS AT ELECTROMAGNETIC FORMING WITH FLAT COIL

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Abstract. The paper describes a series of researches through preliminary experiments that observes the influence of some parameters (variables) that are specific to tools used for the processing through electromagnetic forming. The parameters chosen in this paper were: the distance coil-piece, number of windings of a coil, the form of winding's section and dimensions (dimensions ratio) winding's section. The workpieces disk-shaped prepared were independently deformed, then it was measured the maximum obtained deformation depth (flawless), considered to be the measure for the pieces deforming processed by flat electromagnetic forming. The data we obtained were statistically processed in order to select the significantly parameters that will be a part of the statistical-mathematical model that is to be studied in the next researches.

Keywords: tool, distance coil-workpiece, number of windings, form of winding's section, section's dimensions, formability, statistical-mathematical modeling, significant parameters, flat electromagnetic forming.

UNELE EXPERIMENTE PRELIMINARE ASUPRA INFLUENȚEI PARAMETRILOR SCULEI LA MAGNETOFORMAREA CU BOBINE PLATE

Rezumat. Lucrarea descrie o serie de cercetări prin experimente preliminare care urmăresc influența unor parametri (variabile) specifici sculelor de lucru folosite la procesarea prin magnețoformare. Parametrii aleși în această lucrare au fost: distanța bobina-piesă, numărul de spire al bobinelor, forma secțiunii spirei și dimensiunile (raportul dimensiunilor) secțiunii spirei. Piesele de lucru pregătite sub formă de disc au fost deformate liber, după care s-a măsurat adâncimea de deformare maximă obținută (fără fisurare), considerată ca măsură a deformabilității pieselor procesate prin magnețoformare plană. Datele obținute au fost prelucrate statistic pentru a selecta parametrii semnificativi ce vor face parte din modelul statistico-matematic, care se propune a fi elaborat în cadrul cercetărilor ulterioare.

POTENTIODYNAMIC POLARIZATION AND ELECTROCHEMICAL IMPEDANCE SPECTROSCOPY CHARACTERIZATION OF A COPPER BASED ALLOY

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Abstract. It was analyzed the corrosion behavior in artificial saliva of a commercially copper-based alloy denoted as Gaudent. Using the potentiodynamic polarization curves and the electrochemical impedance spectroscopy (EIS) the main parameters of the corrosion process were determined. It found that by maintaining in artificial saliva the corrosion resistance of the alloy increases but the corrosion type does not modify. This alloy is susceptible to pitting corrosion and by keeping in artificial saliva the breakdown potential increases (E_{BD} is 700 mV for freshly polished alloy and 1340 mV for 7 days maintenance in artificial saliva). Nevertheless, due the low repassivation potentials, remains a great susceptibility to pitting. Bode-phase spectra show two maxims and from the simulation one obtain an equivalent circuit which can be characteristic for a three layers corrosion state, including three resistors: the polarization resistance, pitting corrosion resistance and the salt layer resistance.

Keywords: Gaudent, dental alloys, polarization, EIS, corrosion

POLARIZAREA POTENTIODINAMICĂ ȘI CARACTERIZAREA EIS A ALIAJULUI GAUDENT

Rezumat. Aliajul pe baza de cupru, sub denumirea comerciala de Gaudent, a fost analizat din punct de vedere al comportarii la coroziune în saliva artificiala. Utilizând curbele de polarizare potentiodinamica si spectroscopia de impedanta electrochimica (SIE) s-au determinat parametri principali ai procesului de coroziune. S-a constatat ca în urma mentinerii aliajului în saliva artificiala creste rezistenta la coroziune a acestuia însa nu se modifica tipul de coroziune. Mentinerea în saliva artificiala determina o crestere a potentialului de strapungere (E_{str} este 110 D. MARECI et al. 700 mV pentru aliajul cu suprafata proaspat slefuita, si 1340 mV pentru aliajul cu suprafata mentinuta 7 zile în saliva artificiala). Cu toate acestea datorita, potentialelor de repasivare mici, to mai ramâne o susceptibilitate ridicata la coroziunea în puncte. Spectrele Bode-faza indica prezenta a 2 maxime, iar în urma simularii se obtine un circuit echivalent care poate fi caracteristic pentru o stare coroziva cu trei straturi, care include trei rezistori: rezistenta la polarizare, rezistenta la coroziune în puncte si rezistenta stratului de sare.

RESEARCHES CONCERNING THE PARTIAL SOLUTION QUENCHING OF SOME ALUMINUM ALLOYS

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Abstract. Taking into consideration the alloying elements of the alloy used for the experimental tests, the tests were made at three different making temperatures for the partial solution quenching heat treatment (570°C, 580°C, 590°C) and at three soaking times (4h, 6h and 8h) in order to obtain a dissolving of the secondary precipitates as complete as it can be (intermetallic components Al – Cu – Ni – Fe) to obtain a better cutting workability. Metallographic photos were made on the bar tests which were heat treated in order to show precipitates dissolving and also to measure the microhardness HV 100 to determine the efficiency of the heat treatment.

Keywords: partial solution quenching, secondary precipitates.

CERCETARI PRIVIND CALIREA DE PUNERE IN SOLUTIE PARTIALA A UNOR ALIAJE PE BAZA DE ALUMINIU

Rezumat. Tinand cont de elementele de aliere ale aliajului folosit pentru încercările experimentale. s-au facut încercari la 3 temperaturi diferite de mentinere pentru tratamentul termic de calire de punere in solutie partiala (570°C, 580°C, 590°C) si 3 timpuri de mentinere (4h, 6h si 8h), pentru a obtine o dizolvare cat mai completa a precipitatelor secundare (compusi intermetalici Al – Cu – Ni – Fe) in vederea obtinerii unei bune prelucrabilitati prin aschiere. S-au realizat fotografii metalografice, pe probele tratate termic pentru evidentierea dizolvarii precipitatelor si masuratori de microduritate HV 100, pentru a determina eficienta tratamentului.

RESEARCHES CONCERNING THE HARDENING OF THE GREY CAST IRON THROUGH THE VIBRATING ELECTRODE METHOD USING A Ti AND WC ELECTRODE

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Abstract. There have been tested samples of grey cast iron, the hardening being made through Ti coating through the vibrating electrode method with a layer, two layers and through double layers combined with Ti and in the exterior WC. Afterwards there made photographs of macro-hardness and HV50 micro-hardness into the material in into the layer, then in order to appreciate the internal stresses were made ring specimens type Naimov. On the exterior of these specimens were made coatings with the vibrating electrode.

Keywords: vibrating electrode, coating, microhardness, grey cast iron

EVOLUTIA COMPORTARII HISTERETICE A UNOR ALIAJE CU MEMORIA FORMEI ÎN FUNCTIE DE SARCINA APLICATA

Rezumat. Dupa o scurta recapitulare a comportarii histeretice a Aliajelor cu Memoria Formei (AMF), este analizata evolutia acesteia în functie de sarcina aplicata, în cazul concret al unui AMF Cu-Zn-Al experimental si al unui AMF Ti-Ni comercial. Prin analogie cu parametrii de pseudoelasticitate, este definit si determinat randamentul de recuperare a formei, pentru aliajele studiate, fiind evidentiata variatia sa în functie de sarcina aplicata.

THE CALCULUS OF THE FORCE PARAMETERS IN THE DRAWING OF METALLIC WIRES/OF CYLINDRICAL SYMMETRY IN ULTRASONIC FIELD

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Abstract. : The paper present the calculus of the force parameters in wire drawing/ metallic wires of cylindrical symmetry in ultrasonic field based on the theorem of the total consumed power by admitting into the plastic deformation process the existence of “the reverse mechanism of the medium friction force” to the metal-tool interface.

Keywords: wires/metallic wires of cylindrical symmetry, the force parameters, theorem of the total consumed power, ultrasounds, relative drawing rate, and technologic efficiency.

CALCULUL PARAMETRIILOR DE FORTA LA TREFILAREA SARMELOR METALICE DE SIMETRIE CILINDRICA IN CAMP ULTRASONOR

Rezumat. Lucrarea prezinta calculul parametrilor fortei la trefilarea firelor/sarmelor metalice cu simetrie cilindrica in camp ultrasonor bazate pe teorema consumului total de putere admitand in procesul de deformare plastica existenta mecanismului reversibil a fortei medii de frecare la interfata metal-scula.

THE MECHANICS OF PLASTIC DEFORMATION IN THE DRAWING OF THE METALLIC WIRES WITH HIGH MECHANICAL RESISTANCE IN ULTRASONIC FIELD

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Abstract. The paper presents the fractioned character in impulses of the plastic deformation process in wires drawing/metallic wires with high mechanical resistance/UVD technology – when the auger die is situated in the maximum of the oscillations waves and actuated on the drawing direction.

Keywords: metallic wires with high mechanical resistance, drawing in ultrasonic field, the mechanics of the plastic deformation, the reversion mechanism of average friction force, relative drawing rate.

MECANICA DEFORMARII PLASTICE IN CAMP ULTRASONOR LA TREFILAREA FIRELOR METALICE CU REZISTENTA MECANICA RIDICATA

Rezumat. Lucrarea prezinta caracterul fractionar in impulsuri a procesului de deformare plastica la trefilarea firelor/sarmelor metalice cu rezistenta mecanica ridicata prin tehnologia UVD – atunci cand matrita este situata in maximum oscilatiei pe directia tragerii.