

# SUMAR Metalurgia nr. 7 2008

ISSN 0461-9579

<b>DEZVOLTARE DURABILĂ</b> ..... 5-13	<i>IVĂNUȘ RADU CRISTIAN</i> : Cercetări privind efectul porozității asupra călibilității oțelurilor sinterizate ..... 38
<i>ANDREEA BĂLTĂREȚU</i> : Implicațiile dezvoltării durabile asupra societăților moderne ..... 5	<b>MATERIALE EMERGENTE</b> .....47-49
<b>CERCETĂRI DIN DOMENIUL ȘTIINȚA MATERIALELOR</b> ..... 14-46	<i>ANA VETELEANU, BOT DUMITRU, IOANA APOSTOLESCU</i> : Caracteristicile mecanice ale compozitelor tribologice hibride ..... 47
<i>MAUTHNER ANDREI-IOAN, NICOLAE AVRAM</i> : Analiza unor procese termice de la laminarea la cald a benzilor din oțel ..... 14	<b>MANAGEMENT ECONOMIC FINANCIAR. CONTABILITATE ÎN METALURGIE</b> .....50-58
<i>VELICU ȘTEFAN, MIRELA SOHACIU, PREDESCU CRISTIAN</i> : Metodologie de evaluare a prelucrabilității materialelor prin aşchiere ..... 20	<i>LEPĂDATU V. GHEORGHE, POPESCU H. GHEORGHE</i> : Transparența în situațiile financiare anuale ale unei entități economice. Raportul cost – beneficiu în contabilitatea de angajamente ..... 50
<i>POP MIHAI – ALIN, CONSTANTINESCU ALEXANDRU</i> : Tehnologii de obținere a modelelor cave tip coață pentru confecționarea formelor de turnare ..... 23	<i>MANOELA POPESCU, DIANA COCONOIU, LUMINIȚA CRENICEAN</i> : Aspecte privind relația logistică – E-logistică în economia electronică ..... 54
<i>PĂDUREAN IOAN, TRUȘCULESCU MARIN, ARPAD FAY, NEDELCU DORIAN, ELVIRA PĂDUREAN</i> : Cercetări privind rezistența la eroziune cavitațională a oțelului inoxidabil austenitic GX5CrNi19-10 tratată termic ..... 26	Arta în metalurgie..... I
<i>DANIELA FLORENTINA TĂRĂȚĂ, CEALÎCU DRAGOȘ</i> : Cercetări cu privire la alegerea oțelurilor de scule pentru deformare plastică la cald (partea a II-a) ..... 31	Cărți apărute la EDITURA ȘTIINȚIFICĂ F.M.R. .... III-VI
	Revista Revistelor ..... 13, 19, II



# ABSTRACT Metalurgia nr. 7 2008

## SUSTAINABLE DEVELOPMENT ..... 5-13

D.C.: 574.

**Key words:** sustainable development, competitive benefits, environment  
**ANDREEA BĂLTĂREȚU:** Sustainable development consequences on nowadays societies  
Metalurgia (60) 2008, nr. 7, p. 5

*Sustainable development nowadays is a must for both society in its whole, and business operating inside the economy field. The present paper aims at identifying ways of creating and developing long term sustainability, as well as its major implications on future life and labor conditions. Promoting sustainable development will generate competitive benefits for both society in its whole, and each business involved in developing activities on the market, whichever the domain.*

## MATERIALS SCIENCE RESEARCH AND DEVELOPMENT ..... 14-46

D.C.: 666.346.6

**MAUTHNER ANDREI-IOAN, NICOLAE AVRAM:** Analyse of some thermal processes during sheet hot rolling  
Metalurgia (60) 2008, nr. 7, p. 14

*Evolution of temperature variation on material surface is presented and for heat exchanges a mathematical model between material and rolls is developed. Reheating due to the plastic deformation and cooling during descaling are also analysed.*

D.C.: 621.91

**Key words:** machinability, criteria, composites  
**VELJCU ȘTEFAN, MIRELA SOHACIU, PREDESCU CRISTIAN:** Methodology for assessment the materials machinability  
Metalurgia (60) 2008, nr. 7, p. 20

*In this paper, machining parameters are defined and a unitary methodology of determining the machinability of materials is settled. The cutting forces, the durability of the cutting tool, the roughness of the resultant surface are settled by means of experimental equipment especially designed.*

*The results of the tests allow establishing a clear hierarchy regarding the machinability of materials by facing.*

D.C.: 621.744.072

**POP MIHAI – ALIN, CONSTANTINESCU ALEXANDRU:** Manufacturing process for shell-type patterns utilised for moulds manufacturing  
Metalurgia (60) 2008, nr. 7, p. 23

*Current patterns are, as a rule, massive, heavy, with complex manufacturing and big material consumptions. They could have casting and execution faults (shrink holes, misplaced surfaces, dimensional lack of precision and so on). Patterns of massive plastic materials require a complex manufacturing process and big material consumption.*

*For this purpose specialised equipment and complex devices are required, possibly to exist only in specialised workshops.*

*In this paper, manufacturing of shell-type reinforced patterns, with synthetic resins, having suitable thickness according to the casting part dimensions, are presented.*

*These are light patterns, easy to manufacture even in non-industrial conditions, utilising a few types of resins and insertions.*

D.C.: 001.4; 621.785.019

**Key words:** cavitation, heat treatment, vibration device, erosion velocity, abraded mass, cavitation attack period

**PĂDUREAN IOAN, TRUȘCULESCU MARIN, ARPAD FAY, NEDELCU DORIAN, ELVIRA PĂDUREAN:** Research upon cavitation resistance erosion of the GX5CRNi19-10 austenitic stainless steel thermally treated  
Metalurgia (60) 2008, nr. 7, p. 26

*The paper present the experimental results obtained by cavitation tests of the GX5CrNi19-10 (SR EN 10283/99) austenitic stainless steel, which have been thermally treated with solution treatment. Cavitation erosion was made with magnetostrictive device with nickel tube, from Hydraulic Machines of Timisoara University. The results were compared with the following steels: 40Cr10, T07CuMoMnNiCr165-Nb, T09CuMoMnNiCr185-Ti and GX5CrNiMo13-6-1.*

*The final conclusion is made by the cavitation characteristic curves and attest the better cavitation resistance of the GX5CrNi19-10 stainless steel.*

D.C.: 669.14.018.25; 539.374

**DANIELA FLORENTINA TĂRĂȚĂ, CEALÎCU DRAGOȘ:** Research regarding the selection of steels grades for hot working (Part II)  
Metalurgia (60) 2008, nr. 7, p. 31

*The selection process steel grades destined to manufacturing of*

*tools for hot working tools, using the computerized selection program, is presented in this paper.*

*The computerized selection program was presented previously.*

D.C.: 669.018.25;621.762.4

**IVĂNUȘ RADU CRISTIAN:** Research concerning the effect of porosity on the hardenability of P/M steels  
Metalurgia (60) 2008, nr. 7, p. 38

*Hardenability is the ability of a steel to harden by the formation of martensite during quenching. It is the depth at which steel hardens when quenched from its austenitizing temperature. The procedure commonly used to determine hardenability is the Jominy end-quench test which has been standardized by ASTM. The hardenability of a steel is dictated by metallurgical factors (primary alloy composition, austenitic grain size, homogeneity of alloying elements) and the cooling rate. The cooling rate is a function of composition and, in the case of sintered steel, of the level of porosity. The literature on the hardenability of P/M steels is limited and of recent vintage. From an industrial perspective, it is important to determine quantitatively speaking relationships between thermal properties, cooling rate and hardenability for sintered steels, as a function of the level of porosity. In this paper, the results of experimental investigation of the cooling rates and hardenabilities of P/M steels at various levels of porosity are reported.*

## EMERGENT MATERIALS..... 47-49

D.C.: 669.018.25

**ANA VETELEANU, BOT DUMITRU, IOANA APOSTOLESU:** Mechanical characteristics of hybrid tribologic composites  
Metalurgia (60) 2008, nr. 7, p. 47

*Hybrid composites with Al-alloys matrix (AlSi7Mg), reinforced with hard ceramic particles (SiC) and lubricant particles (graphite-cooper) are largely utilised in manufacturing of parts for transport industry, due to following advantages: higher resistance, higher specific rigidity, lower specific density, improved high temperature properties, wear resistance and higher fatigue resistance, controlled thermal expansion coefficient, higher electric performances.*

## ECONOMIC AND FINANCIAL MANAGEMENT. ACCOUNTANCY IN METALLURGY ..... 50-58

**Key words:** financial statements, balance sheet, income statements, cash flow statement, IAS/IFRS

**LEPĂDATU V. GHEORGHE, POPESCU H. GHEORGHE:** Transparency in yearly financial statements of an economic organisation. Cost-profit rate in commitment accountancy  
Metalurgia (60) 2008, nr. 7, p. 50

*The provision of transparent and useful information on market participants and their transaction is essential for an orderly and efficient market, and it is one of the most important preconditions for imposing market discipline. Left to themselves, markets may not generate sufficient levels of disclosure. Market forces would normally balance the marginal benefits and marginal costs of additional information disclosure and the end result may not be what the market participants really need.*

**Key words:** logistic, e-logistic, electronic economy, distribution, customer  
**MANOELA POPESCU, DIANA COCONOIU, LUMINIȚA CRENICEAN:** Aspects regarding the relation between logistic and E-logistic in the electronic economy  
Metalurgia (60) 2008, nr. 7, p. 54

*Key component of the company, the logistic represents a complex process of planning, execution and control in an efficient manner of the prime material fluxes, finite products, services and information with the purpose of satisfying the customers.*

*Considered to be a form of traditional logistic, using the electronic means, the e-logistic keeps the interest of both specialists and practisers. This is because the companies, in order to achieve their goals, have become interested in logistic and its administration in efficient conditions. In case of e-commerce, the logistic has as a result the creation of a distribution network based on mechanisms and Internet technologies.*

*The electronic economy offers opportunities and development methods of all components of logistic inside the companies, on the real market. More than that, the Internet implies a new dimension of logistic that forces the companies to adopt concentrated and specialized strategies in a limited number of activities, in order to integrate new technologies and, obviously, the e-commerce in the sphere of the activities developed.*



