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# ABSTRACT

## Metalurgia International 3/2008

**Key words:** the dust particles composition of process gas exhausted  
**DORINA SAVIN, DANIELA MANEA, MARIA NICOLAE, NICOLAE AVRAM:**  
**The knowledge about the dust particles composition of process gas exhausted from metallurgical furnaces**

Metalurgia International (vol. XIII), no.3, 2008, p. 5

*The processes of pollutants post-generation and especially the cleaning and recycling ones, have to be characterized obligatorily by taking into account the knowledge about the composition of dust particles from polluting gas. In this context, the paper emphasizes:*

- some motivations referring to the necessity of knowledge about the chemical composition;
- the characteristic compositions for the EAF – electric arc furnace, agglomeration and blast furnace;
- the chemical composition variation along the production stream.

**Key words:** interactive software

**GHIMBĂȘEANU IOAN: Monitoring interactive software of mechanical testing**

Metalurgia International (vol. XIII), no.3, 2008, p. 9

*The aim of the paper is to develop interactive software for monitoring the mechanical testing of the multifunctional materials. Thus, the conceptual, theoretical and methodological framework in IT for generating new instruments, technologies for specific applications in the area of mechanical testing. Taking into account the state of the art of knowledge in this area, the following specific objectives are proposed in the paper: developing techniques and methods for mechanical testings for advanced multifunctional materials; modelling the state of tension in tubes subjected to mechanical testings by using the method with finite element; designing programmes for a database containing the results obtained during the theoretical and experimental research; developing interactive programmes for monitoring the results obtained by simulating the state of mechanical tension in the studied materials.*

**Key words:** aluminium bronzes, composition disturbances, SEM-EDX  
**CARCEA IOAN, ROMAN COSTEL, SANDU A.V., CHELARIU ROMEO, SANDU I.: Structure and composition disturbances in certain aluminium bronzes**

Metalurgia International (vol. XIII), no.3, 2008, p. 14

*The melting of aluminum bronze was performed in an induction heated electrical furnace using a metallic charge made up from aluminum bronze waste with well-determined composition, copper, steel and cast iron waste, and a nickel, chrome and silicon powder. The complex investigation of the samples taken from the cast parts was performed by means of a SEM – VEGA II LSH scanning electronic microscope manufactured by TESCAN for the Czech Republic, coupled with an EDX – QUANTAX QX2 detector manufactured by ROENTEC Germany. If in the bronze area the concentration and distribution of the Cu, Al and Ni elements is close to the one corresponding to the proposed alloy, the Fe, Cr and Si elements are found in a much smaller amount than the one corresponding to the load and calculation of the batch. The explanation is that these elements were concentrated in the unknown white gathering in incredibly large amounts. The white area is mainly made up of Fe, Cr and Si, the other elements being in an almost similar (Ni) or much smaller amount than in the bronze (Cu, Al). The presence of the iron-, silicon- and chromium-rich gatherings in solid state at casting temperature and density lower than that of liquid bronze, determines their more powerful gathering towards the rotation axis.*

**Key words:** metallic charge, elaboration, alloy, models

**CHELARIU ROMEO: The computation of the composition of the metallic charge used for alloy elaboration**

Metalurgia International (vol. XIII), no.3, 2008, p. 21

*The paper indicates the computation methods of the composition of metallic charge used to elaborate one alloy with imposed chemical composition and different technological restrictions. Mathematical and numerical models were developed.*

**Key words:** copper alloys, structure, microhardness, heat treatment  
**ROMAN COSTEL, CHELARIU ROMEO, CARCEA IOAN: Modelling influence of the treatment process parameters applied on some aluminium bronzes**

Metalurgia International (vol. XIII), no.3, 2008, p. 27

*Aluminum bronzes belong to the category of special bronzes that also contain, besides Cu and Al, which are the main components, Fe, Mn, Ni, Co as alloy components. These are specific for cast parts subjected to high mechanical stresses and working in aggressive environments. The choice*

*of technological hardening and tempering parameters depends on the chemical composition of the alloy and of the characteristics variation during secondary stage precipitation. This paper studies, from the structural and microhardness viewpoint, the influence of certain technological parameters, like temperature and hardening and tempering hold time, applied to some aluminium bronzes: CuAl11Fe3, CuAl11Fe3 Ni1.5 and CuAl11Fe3 Ni1.5 Co1.*

**Key words:** matlab programming, numerical solve, heat-conduction equation  
**LEPĂDATU V. DUMITRU: Numerical solve of the heat – conduction equation using matlab**

Metalurgia International (vol. XIII), no.3, 2008, p. 34

*The aim of this paper is to show how can be solved of a same problem using the matlab system. We present the facility of solving this problem and argues the possibility to recall for this matlab procedure to others problems. We states and possibility to plot and export of the solution.*

**Key words:** effect of infiltration on the mechanical properties  
**IVĂNUȘ RADU CRISTIAN: Effect of infiltration on the mechanical properties and corrosion resistance of 316L austenitic stainless steel**

Metalurgia International (vol. XIII), no.3, 2008, p. 39

*The 316L austenitic stainless steel P/M parts has been infiltrated with different levels of copper and bronze. The materials have been subjected to mechanical tests (tensile strength, elongation and hardness) and to corrosion in sulfuric, hydrochloric and nitric acids. Infiltration improves the sintered density and mechanical properties. Bronze enhances the corrosion resistance in sulfuric and hydrochloric acids. Infiltration with copper or bronze reduces the corrosion resistance in nitric acid.*

**Key words:** crystallization, ultrasounds, metals, melt  
**CIUREA AUREL, BORDEI MARIAN: Crystallisation in ultrasonic field**

Metalurgia International (vol. XIII), no.3, 2008, p. 46

*The treatment with ultrasounds of the metals and alloys during the crystallization process leads to important metallurgical modifications in the metal or in the solidified alloy. The main modifications are the following ones: decreasing the medium size of the grain; eliminating the columnar structure; modification of the phases distribution character; semi-finished homogeneity. The present article suggests clarifying the phenomena which lead to these modifications after treating the melt with ultrasounds.*

**Key words:** balance sheet, opening IFRS, previous GAAP, shares, financial instruments, fair value

**LEPĂDATU V. GHEORGHE: Shares based payment (IFRS 2). New accounting and the IFRS requests**

Metalurgia International (vol. XIII), no.3, 2008, p. 52

*The transactions with payment based on shares represent a payment condition more and more used in the new economy.*

*The transaction may mean either the effective transfer of the capital instruments or the cash settlement – depending on the value of some capital instruments.*

*The basis of these transactions is the information delivered by the annual financial positions with a view to meeting the requirements of the end-users of information (shareholders, creditors, employees etc.).*

**Key words:** human development indicator, sustainable human development, region, regional development, territorial statistics

**MARINELLA TURDEAN: Social indicators for assessing the regional development level**

Metalurgia International (vol. XIII), no.3, 2008, p. 59

*Human development indicator allows establishing some priorities regarding human-oriented economic policies. The issues regarding the regional dimension of the European integration process involve new institutional and financial models of the regional development. In this case is essential to adjust territorial statistics to ground regional policies.*

**Key words:** intelligent system  
**MIRONELA PÎRNĂU, CRISTEA ANDREI-MIHAI: The Exsys developer intelligent system**

Metalurgia International (vol. XIII), no.3, 2008, p. 65

*Exsys Developer is produced by an American company bearing the same name and it was launched in 1989. The last version of this system works in graphic media controlled by Windows system, the Exsys intelligent system being elaborated for computers compatible with IBM PC/PS that operate with IF-THEN-ELSE rules. Exsys Developer is created for personal fast applications and consists of five fundamental components and three advanced components.*

