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Metalurgia International 1/2008

ISSN 1582 – 2214

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ABSTRACT

Metalurgia International 1/2008

Key words: combustion, gaseous fuel, burner, self-carburizing, radiant flame, toxic
VASILICA DINA, GEANTĂ V., STEFANOIU RADU, IONELIA VOICULESCU, CIOACA I.: Studies and researches regarding the obtaining of self-carburizing flames by burning of gas fuels

Metalurgia International (vol. XIII), no.1, 2008, p. 5

In this scientific paper the theoretical and practical results of the researches regarding the self-carburizing process at gaseous fuels combustion are presented. For this purpose, the work is focused on two work directions: first of all, the theoretical analysis regarding the specific problems of the self-carburizing process of gaseous fuels, and second step the experimental researches on the laboratory stand, for establish the practical self-carburizing process conditions and burner types for this purpose. Final aim of this research is the reducing of fuel consumption and the minimization of the toxic emission, especially NO_x in the environmental.

Key words: convection, fluid flow, applications, mass flow

ALINA ADRIANA MINEA: Theoretical studies on forced convection in a variety of configurations

Metalurgia International (vol. XIII), no.1, 2008, p. 11

Incompressible forced convection heat transfer problems normally admit an extremely important simplification: the fluid flow problem can be solved without reference to the temperature distribution in the fluid. Thus, it can first find the velocity distribution and then put it in the energy equation as known information and solve for the temperature distribution.

Our aim in this paper is to present the analysis of a few problems and to show the progression toward increasingly empirical solutions as the problems become progressively more unwieldy. As in any forced convection problem, it first describe the flow field. This description will include a number of ideas that apply to turbulent as well as laminar flow. The velocity profile changes greatly near the inlet to the pipe. A b.l. builds up from the front, generally accelerating the otherwise undisturbed core. The b.l. eventually occupies the entire flow area and defines a velocity profile that changes very little thereafter.

In this paper it is intended to expand the theoretic researches concerning heat processes intensification and their use in industrial practice. In conclusion the fundamental research with concrete technical applications represent a significant contribution to the development of knowledge in domain.

Key words: CO₂ forecast model, iron and steel sector, CO₂ emissions forecast and assessment, simulations, comparisons

MIHAELA BALANESCU, MELINTE ION, DARIE GEORGE: Romanian models for the CO₂ emissions forecast in iron and steel sector and comparison with other models developed in EU countries

Metalurgia International (vol. XIII), no.1, 2008, p. 18

The first step to set out the measures requested for the mitigation and the reduction of the CO₂ emissions in the iron and steel sector is the assessment and the forecast of the CO₂ emission amounts released into atmosphere in a certain period of time, both at the overall sector and for the iron and steel plants.

Hence, at the international level a series of assessment and forecast models for

works development are used, including graphic representation, based on mathematical graphs theory.

These methods have different denominations, like CPM (critical perth method) or PERT (technics of programs evaluation control).

Key words: ERP, competitiveness, e-business, enterprise connectivity
MIHAELA MUREȘAN: ERP systems in the metallurgical industry

Metalurgia International (vol. XIII), no.1, 2008, p. 32

The competitiveness is a real concern of the enterprises involved in the metallurgical area. The efficiency in the internal processes and in the interaction with the global market represents the major needs of the enterprises. The global enterprise needs a software solution designed to bridge the gaps in functionality at internal and external level. The ERP systems provide the needed flexibility to be an excellent solution for managing a global enterprise involved in metallurgical field. The ERP systems support all major internal processes as well as the external links implementing the e-business paradigm. The ERP solutions represent also an efficient management tool personalized for various management levels, including the top management.

Key words: knowledge society, employed population, social conflicts, sociopolitical organizations, social mobility

POPESCU H. GHEORGHE: Knowledge Society

Metalurgia International (vol. XIII), no.1, 2008, p. 37

Knowledge has always played an important role in society. The knowledge society implies a certain type of society reorganized on the knowledge axis. From this perspective, it is the new social actors that are essential, being promoters of this new type of human community existence and functioning mechanism, and thus, of the new change mechanisms.

Knowledge is created, promoted and used by the new elite situated in the new strategic institutions of society (research, education, innovation, new enterprises etc.)

Key words: septal deflections, strip resections, original forceps

ZAINEA VIOREL, HAINĂROȘIE RĂZVAN, ISABELA POSTOLACHE: A new surgical instrument for septoplasty

Metalurgia International (vol. XIII), no.1, 2008, p. 42

The aim of this paper is to present a new surgical instrument for septoplasty. The most common causes of nasal obstruction in children are adenoids and posttraumatic septal deflections.

Surgical correction of the septal deflections for blocking nose has limited indications in children due to the influence of the general and regional process of grows and development at the level of craniofacial region.

Our experience in the surgery of the nose especially in children showed that minimal area resections needs for a special instrument which makes our work easier. We imagined a forceps having distal end able to resect small areas from nasal septum. In this way we try to preserve the septal support and create a straight septum.

The surgeon must restrain from removing excessive quantities of cartilage, to avoid creating difformities in the external appearance.

Many cases of septal deviations may be treated by strip resections using this new original forceps.

This minimally invasive technique aims to preserve septal support and

CO₂ emissions has been developed. These models takes into consideration a variety of economical and technological parameters.

This paper presents the Romanian assessment and forecast model for CO₂ emissions released by iron and steel sector, developed by the authors.

Also, numerical simulations with one of the forecast model was performed, in the situation when the structure of the Romanian iron and steel production is to be changed.

Finally, a comparison with other models developed in EU countries was made, in order to establish the possibilities to harmonize all the European forecast models for CO₂ emissions released by iron and steel sector.

Key words: mechanical alloying, homogenous mixture of TiAl powders

IRINA CÂRCEANU, COMAN CRISTIAN, MIHAELA BĂLĂNESCU, NEDELICU IOAN:

TiAl powders synthesis and processing by modern technologies of powder metallurgy
Metalurgia International (vol. XIII), no.1, 2008, p. 26

Over the last decade the technological evolution in the field of the metallurgy of powders has been in close connection with the emergence and development of new procedures of obtaining composite metallic powders through mechanical alloying. These procedures enable create new materials with mechanic characteristics superior to those still existing, obtained either through modifications in the chemical composition, or through modifications related to the way of getting the material. Mechanical alloying leads to composite metallic powders, extremely difficult to be obtained otherwise. Thus, amorphous states, intermetallic compounds at room temperature, nano-crystalline powders, alloying of immiscible metals or the synthesis of certain carbides or azotides at low temperatures can be obtained. Initially, mechanical alloying had developed with the aim of obtaining hardened materials through dispersion, Ni-based super-alloys, but later on there were developed new techniques of getting inter-metallic materials at room temperature, nano-crystalline powders, etc. The paper presents the preoccupation of authors in production of homogenous mixtures of TiAl powders system by mechanical alloying. Elemental powder mixtures were carried out in a planetary mill, without protective atmosphere. The milling time was 45 hours. The influence of the technological parameters on structural, physical and mechanical characteristics of the materials thus obtained are also presented.

Key words: financial administration accountancy, direct costs, indirect costs, PERT costs

LEPĂDATU V. GHEORGHE: **The PERT-Costing method for financial administration accountance and cost calculation**

Metalurgia International (vol. XIII), no.1, 2008, p. 30

During last years, various methods for planning and controlling of complex

reconstruct a straight septum.

Key words: metallic plate, damaged cricoid, reconstructive surgery

Metalurgia International (vol. XIII), no.1, 2008, p. 45

ZAINEA VIOREL, HAINĂROȘIE RĂZVAN: **Metallic plate for the reconstructive surgery of the damaged cricoid**

The aim of this paper was to present a titanium metallic plate which can be used in clinical situations consisting in damaged cricoid and first tracheal ring. In our experience and opinion such a material with such a design can help solving some clinical cases with laryngo-tracheal stenosis.

The objective was to create the prototype of a titanium metallic plate with a specific design according to the objective of surgery, which was the correction of the laryngo-tracheal stenosis by means of reconstructive surgery.

The method consisted of applying metallic plate at the site of the damaged cricoid during the surgery. The results seems to be promising in some selected clinical situations.

In this type of lesion and surgery there is no ideal solution and no golden rules, any promising alternative is worth to be discussed and analysed.

Key words: Connected graph; partial minimum spanning tree; Roy-Floyd algorithm; Kruskal algorithm; Prim algorithm

Metalurgia International (vol. XIII), no.1, 2008, p. 48

GHIONEA FLORIAN, CRISTINA FLAUT: **An optimization of a transportation problem**

The problem of finding the minimum distances in a graph is well known and there are the algorithms which establish that, for example, Roy-Floyd algorithm, which we are going to use as follows.

For the connected graphs, Prim and Kruskal algorithms determine the existence of a partial minimum spanning tree which connect all the vertices of the graph. In the case of a transportation network, in our case, the Romanian railway network, the fixing a minimum spanning tree might implies the establishment of regular races among the vertices of the network under the condition that a minimum route should be covered. As follows, this condition, given by Prim and Kruskal algorithms of a covered minimum route seems not to be the best rule of regular races. The problem of the access to a railway network appears in the case when some regular routes, among those established on the arcs fixed by Kruskal or Prim algorithm, could be suspended. This problem we believe to have a solution in this paper. The above mentioned problem, namely the access to a railway network, can be used for any type of transportation network, being economically efficient in comparison with the one with minimum length, since it permits a greater access.