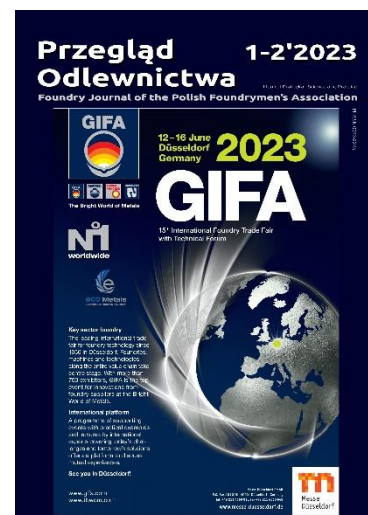


FOUNDRY REVIEW

1-2'2023

- SUMMARIES -



THE ACTIVITY OF THE WFO IN CONTEXT OF THE SITUATION IN THE WORLD FOUNDRY INDUSTRY. INTERVIEW WITH JOSÉ JAVIER GONZÁLEZ – NEW GENERAL SECRETARY OF WFO

José Javier González, is the new Secretary General of the World Foundry Organization, the successor of Andrew Turner. In the interview Jose González indicates directions of WFO activities, ways of supporting associations and the newly undertaken initiatives. The speaker presents the actual situation on the global foundry market after the Covid-19 epidemic and in continuous military conflict in Ukraine.

MAGDALENA JASIŃSKA, KATARZYNA LISZKA

POLISH FOUNDRYMEN'S DAY 2023 INTERNATIONAL CONFERENCE „CHALLENGES OF THE FOUNDRY INDUSTRY”

On 9 December 2022 took place the subsequent Polish Foundryman's Day.

Within celebrations the technical-scientific conference: 'Challenges of the Foundry Industry' was organized. The subject matter of the conference was based on the actual market situation, which provides several challenges for foundry enterprises and cooperating with them companies. These challenges are technological, production, environmental and financial as well as the ones related to the Russian aggression in Ukraine, which intensified the inflation and forced entrepreneurs to look for new sales markets and to diversify the supply directions.

Approximately 230 persons took part in the event.

The award in the competition: Casting of the Year – edition 2021, was presented in the official part of the All-Poland Foundry-Man Day.

The celebrations of the Polish Foundryman's Day were under the patronage of the World Foundry Organization. Media partners: Foundry Planet, Foundry Journal, Steel-Metals New technologies journal and Portal dla produkcji.pl.

The Conference and celebrations of the Polish Foundryman's Day were accompanied by the exhibition formed by numerous companies related to the foundry practice.

JERZY S. ZYCH, JAN MOCEK, KRZYSZTOF PIOTROWSKI, MICHAŁ PTASZNI

HYBRID PROTECTIVE COATINGS – NEW SOLUTIONS IN THE TECHNOLOGY OF HIGH-DIMENSIONAL CASTINGS TO ELIMINATE DEFECTS RELATED TO METAL PENETRATIONS OF SAND MOULDS

Investigation results of innovative protective coatings of sand moulds and cores, called hybrid, are presented in this paper. These coatings are formed of various materials, it means that apart from powders of fire-resisting materials, thermal-resisting mineral unwoven fabrics are incorporated in their structures. Hybrid coatings are characterized by several technological and physical advantageous properties such as: nearly two times lower gaseous penetration and several times higher resistance R_m in the surrounding and increased temperatures than traditional coatings, as well as a low thermal conductivity ($\lambda = 0.02$ [W/m² K]). They can be produced in surfaces of sand moulds and cores by means of a couple of methods, such as e.g.: forming of fabrics, gluing of pressed fibres on ready elements of coatings during the deposition of the traditional coating. The selection of components of hybrid coatings depends on a degree of thermal and mechanical loads of a mould. It was indicated in the hereby work that in case of thick-walled and high-dimensional castings the application of hybrid protective coatings causes significant limitations of metal penetrations of surface layers and formation of shells difficult for the removal. The application of hybrid coatings efficiently limits surface defects such as: sand buckles, burn-on, coarseness, veins and defects colloquially called: 'soaks'. Examples of applications of hybrid protective coatings for high-dimensional castings, made mainly of cast iron and steel, are provided in the study.

DIGITIZATION OF PRODUCTION PROCESSES IN FOUNDRIES USING THE ERP SYSTEM AND ARTIFICIAL INTELLIGENCE

The current limitations in access to resources, combined with the rising prices of energy carriers, mean the need to constantly optimize production processes or change business models.

Using the potential of a new class of ERP systems and artificial intelligence (AI) allows you to adapt to changing conditions and maintain a competitive advantage. ERP systems ensure the automation of planning, implementation and control of processes, which translates into: shortening production cycles, increasing their efficiency, reducing costs.

The abas ERP module for foundries, supporting the production of cores, pouring and accounting for melts, machining of castings, as well as registration of laboratory tests initiating process control - in combination with AI algorithms, allows you to optimize costs by improving the production process.

BURKHARDT HOLLEIS, WOLFGANG LORENZ, RENÉ JOSEF PRIELE, JOHANNES RAUCH, DAVOR SPOLJARIC, MARTIN DEMUTH, PHILIPP SCHINDLER

WARMING DEVICES COVERED BY FIRE-RESISTING MATERIALS

The company Messer Polska Sp. z .o. is part of an international concern producing and distributing technical gases. We have been present on international markets for over 120 years, offering, among other things, technological solutions for the metallurgical industry, in particular for foundries. In the current presentation we can find basic information about Messer Polska and the Messer Group company. Messer is not only a producer of technical gases. For many years, we have been sharing our knowledge in the field of application of the gases we produce in many industries such as the cement, glass, chemical and metallurgical industries. The main purpose of the presentation is to present the possibilities of using technical gases in the foundry industry. In the presentation, in addition to challenges and problems such as decarbonisation, reduction of CO2 emissions, we show modern technological products of our company with collateral for the foundry industry.