

CENTRUL UNIVERSITAR NORD DIN BAIA MARE  
Facultatea de Inginerie

*NORTH UNIVERSITY CENTRE OF BAIA MARE  
Faculty of Engineering*

**BULETIN ȘTIINȚIFIC**

**AL CENTRULUI UNIVERSITAR NORD DIN BAIA MARE**

SERIA D

Exploatări Miniere

Prepararea Substanțelor Minerale Utile

Metalurgie Neferoasă

Geologie și Ingineria Mediului

Volumul XXXV Nr. 1

Indexat ProQuest, EBSCO, ERIH PLUS

**SCIENTIFIC BULLETIN**

**OF NORTH UNIVERSITY CENTRE OF BAIA MARE**

*Series D*

*Mining*

*Mineral Processing*

*Non-ferrous Metallurgy*

*Geology and Environmental Engineering*

*Volume XXXV No. 1*

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**EDITURA UNIVERSITĂȚII TEHNICE DIN CLUJ NAPOCA - UTPRESS**

**ISSN 1582-0548, 2021**

**NORTH UNIVERSITY CENTER OF BAIA MARE**

**FACULTY OF ENGINEERING**

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**OF NORTH UNIVERSITY CENTER OF BAIA MARE**

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**PUBLISHING HOUSE OF THE TECHNICAL UNIVERSITY OF CLUJ-  
NAPOCA - UTPRESS  
ISSN 1582-0548, 2021**

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2. Paper includes: title, authors, institution, abstract, keywords, paper content, conclusions and references.
3. Page dimensions A4, top 2cm, down 2cm, left 2,5cm, and right 2cm.  
Times New Roman font, single spacing.
4. Paper's title will be written with capital letters 14pts, bold, centered. Authors will be written with 12pts, bold, italic, centered. Affiliation will be written with 12pts, italic, centered. Abstract and keywords with 10pts, italic, justify. After title, affiliation, abstract, keywords leave one line space. Before and after each subtitle leave one line space. Paper text will be written with 12pts, justify, figures/tables included in the text. References will be listed with 10pts.

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## METHODS OF REMOVAL HYDROGEN FROM ALUMINUM ALLOYS

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**Abstract:** The main methods and processes of degassing aluminum alloys consist in treating the melts with solid degassers, bubbling in the melt the reactive gases, vacuum degassing and degassing by unconventional methods. Combined methods are sometimes used to increase the efficiency of degassing during the process. Excess hydrogen has a negative effect on the mechanical properties of aluminum alloys that make macroporosity and microporosity. Therefore, the operation of removing hydrogen during the melting and casting process is very important.

**Keywords:** *aluminum alloys, hydrogen, methods, bubbles gas, degasser rotor.*

## **CARACTERISATION OF FLORA AND AVIAN FAUNA IN SĂPÂNȚA PERIMETER OF A NATURA 2000 PROTECTED AREA**

**CRISTINA MIHALI<sup>1,2</sup>, THOMAS DIPPONG<sup>1,2\*</sup>, MONICA MARIAN<sup>1,2</sup>, OVIDIU NASCA<sup>3</sup>  
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### **ABSTRACT:**

*The paper presents the ecological characterization of the flora and fauna from a part of the protected area RO-SPA 0143 Upper Tisza NATURA 2000 located in Săpânța, a well known tourist village in Maramureș county, Romania with special attention on birds species. The area is of great interest due to the secular oak forest where is located one of the tallest wooden constructions in the world, Peri Monastery a special architectural and spiritual tourism objective. The oak forest and the surrounding areas host a large biodiversity of flora and avian fauna that is put in danger by anthropic pressure. It is essential to give priority to the conservation and protection of flora and fauna in this area. This paper includes the results related to the area of Săpânța, within a larger study, which aims to create an inventory of bird species in the RO SPA 0143 –Upper Tisza protected area and assess in detail their conservation status. The work is of great interest due to the presentation of the vegetation in the oak forest area and in its proximities highlighting the present threats for biodiversity as well as due to the inventory of 104 species of birds whose habitat has been identified in Săpânța and in the neighboring areas. Monitoring of forest and their surroundings showing its important functions on biodiversity could provide valuable information necessary to support managers and local authorities to conserve, protect and sustainably manage these areas.*

**Key words:** *ecosystem function conservation, protected area, birds, environmental monitoring*



## **STUDY OF THE POSSIBILITIES OF EXPLOITATION AND VALORIZATION OF THE QUARRY PODUL TUFELOR SAPANTA - MARAMURES**

***IOAN BUD\*<sup>1</sup>, DOREL GUSAT<sup>1</sup>***

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### ***ABSTRACT***

*The paper presents the situation of a deposit that has been exploited in conditions of insecurity and partial capitalization of its potential. The natural environment with the geological structures specific to the cracked andesites in plates represents an opportunity for the community from Sapanta. The proposal of a project through which this objective will materialize is developed through geometries and technologies that are as traditional and environmentally friendly as possible. After securing, conditions will be created for the introduction in the tourist circuit of the quarry.*

***Keyword:*** *Environmental foot print, open pit, Rhinoceros 3D modeling*

## RESEARCH REGARDING PASSAGE DESIGN FOR THE TRANSFORMATION OF THE ROLLING SHAPE

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### **Abstract**

*Carrying out the calculations regarding the design of the passages was made possible by calculating the number of passages and taking into account the dimensions of the initial product and the dimensions of the prolling product.*

*The first objective was to determine how many passes can be made when rolling a blum with nominal dimensions. Nine transitions were determined for the established dimensions. When other dimensions are desired, they are entered in the database tables and the necessary degrees of deformation are calculated. This way of working increases the productivity and quality of the product obtained by rolling. The next step is the calculation of the passages and the necessary overturnings for the rolling of the blooms. We analyzed the rolling process, which makes it possible to reduce the time required to establish the design stages in the case of practical rolling of the blum. The connecting element between the rolling stages is the computing system and its associated calculations.*

**Keywords:** laminating, blooms, the rolling shape

## **STUDIES REGARDING THE DETERMINATION OF DISSOLVED OXYGEN IN THE “IZVORUL CIONTOLAN”, DRINKING WATER FROM BAIA SPRIE**

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**Abstract:** *The paper showcases research conducted in order to determine the oxygen dissolved in the “Izvorul Ciontolan” drinking water from Baia Sprie, Maramures County, Romania. The electrical conductivity and the pH levels were determined for the same water sampled from a source which serves as a supply point for many consumers. Determining the dissolved oxygen was possible using two different devices, edge<sup>(R)</sup> together with HI 764080 OD probe and Dissolved Oxygen Meter, and for the pH levels a Combo pH & Ec device was used. The results are shown in the paper. At a temperature of 22<sup>0</sup>C, the O<sub>2</sub> value expressed in ppm is 8.4487, considering the correction factor for the altitude difference. At a temperature of 21.3<sup>0</sup>C, an electrical conductivity of 0.20mS and a pH value of 7.41 were obtained.*

**Keywords:** *Dissolved oxygen, drinking water, spring water, electrical conductivity, pH.*

## **EXTENDING THE FIELD OF STRUCTURAL HEALTH MONITORING TO TRACKING THE BEHAVIOR OF LANDSLIDES OVER TIME, ANOTHER APPROACH TO LAND SUBSIDENCE MONITORING**

***TIBERIU T. KALMAR<sup>1</sup>, ADRIAN TRAIAN G.M. RĂDULESCU<sup>2</sup>,  
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Abstract: The activity, Tracking behavior over time of land and buildings, have a history of over 150 years, which merges with the advent of optical-mechanical instruments for measuring angles and level differences, theodolites, level, has dealt with quasi-static structural monitoring. In fact, between the observation cycles, at an interval of several months to several years, based on the evolution of the phenomenon of subsidence and landslides, there were deviations of a few millimeters or fractions of a millimeter. In this context monitoring was considered static. In this paper the authors form concepts and classifications for the field here called Land Subsidence monitoring starting from the very good principles adopted in Structural Health Monitoring.

Keywords: Structural Health Monitoring, Land Subsidence Monitoring, Static - SLM, or Dynamic – DLM

## **STUDY ON THE HEALTH CARE WASTE MANAGEMENT IN MARAMURES COUNTY, ROMANIA**

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### ***Abstract***

*This study highlights the dynamics of medical waste management in Maramureş County during 2015-2020. 9 categories of medical waste with the related codes were addressed. The statistical analysis showed that 88% of the medical waste generated during the study period is hazardous waste, the remaining 12% being non-hazardous. The highest amount of hazardous waste (27%) in the analyzed period was generated in 2020 being represented by infectious medical waste, a situation that could have been caused by the SARS CoV-2 pandemic and the highest amount of non-hazardous waste, in 2018. The medical waste from the county was subjected to treatment and its disposal was done mainly by incineration, the largest amount being registered in 2020 (181314 kg). On the other hand, the smallest amount was disposed by landfilling in the reference period, ie 7111 kg in 2020. This indicates a stronger alignment with the European waste management policy which considers landfilling as being the least accepted from all waste management operations.*

***Keywords:*** *health care waste, hazardous waste, non-hazardous waste, waste disposal*

## DETERMINING THE ATMOSPHERIC RELATIVE HUMIDITY AND DEW POINT USING A THERMO-HYGROMETER

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**Summary:** *A portable thermo-hygrometer HI-9565 designed to measure temperature, relative humidity (RH) and the dew point, was used for this experiment. The temperature and RH probe is a “smart probe” made of a factory calibrated electronic sensor (it does not require user calibration) which tracks performance and stores the calibration history directly on the probe; unlike HI9564, HI-9565 has the advantage that it can calculate the dew point using temperature and RH. In a laboratory room, at a temperature of 26<sup>0</sup>C, the relative humidity has a value of 24%RH and  $t_d$  has a value of 4; outside, at a temperature of 4.2<sup>0</sup>C, values of 64%RH and -1.7  $t_d$  were determined.*

**Keywords:** *relative humidity, dew point, thermo-hygrometer, electronic sensor, water vapours.*

## **APPEARANCE REGARDING THE MANUFACTURING PROCESS OF THE GLASS FIBER - REINFORCED POLYMERIC COMPOSITES**

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**Abstract:** *In this paper were highlighted some aspects regarding the manufacturing process of the fiber glass reinforced polymer composites. Polymeric composites reinforced with glass fiber they are used mainly utilized in aircraft industries and is due to low specific weight, increase of corrosion resistance in the fasteners and reduction number of structural components. The paper essentially approaches the steps for the manufacture of a landmark such as ram air inlet.*

**Keywords:** *polymer composites, fiber glass, cutting processing, mechanical property.*

**THE ROLE OF CROSS-BORDER PROJECTS IN DISASTER  
MANAGEMENT. CASE STUDY: GEOSSES PROJECT - EXTENSION OF  
THE OPERATIONAL "SPACE EMERGENCY SYSTEM" TOWARDS  
MONITORING OF DANGEROUS NATURAL AND MAN-MADE GEO-  
PROCESSES IN THE HU-SK-RO-UA CROSS-BORDER REGION**

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Abstract: HUSKROUA cross-border projects fall into the category of European Cross-Border Cooperation projects, known as Interreg A. These projects support cooperation between NUTS III regions in at least two different Member States with or adjacent to common borders. Interreg A aims to address the common challenges identified in the border regions and to exploit the untapped growth potential of these areas, while strengthening the cooperation process for the overall harmonious development of the Union. Among the objectives of all calls organized within INTERREG A are those related to disaster management. The Technical University of Cluj-Napoca has a tradition of almost 10 years in projects of this kind, participating from the beginning in the calls for projects organized by the Joint Managing Authority of the Hungary-Slovakia-Romania-Ukraine ENPI CBC Program 2007-2013 (JMA). Both projects with which TUCN participated in the HUSKROUA calls, respectively SES (Space Emergency System), carried out in 2014-2015 and GeoSES (Extension of the operational "Space Emergency System"), in progress, are part of this theme. The paper presents an essence of how the project partners understood to respond to the challenges of the call in which they participated with the GeoSES Project, with particularization on the management of project-related activities carried out by Partner 2 within the TUCN project.

Keywords: Cross-Border Projects, Disaster Management, HUSKROUA, objectives, results





2021

