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Facultatea de Inginerie

NORTH UNIVERSITY CENTRE OF BAIA MARE
Faculty of Engineering

BULETIN ŞTIINŢIFIC
AL CENTRULUI UNIVERSITAR NORD DIN BAIA MARE

SERIA D

Exploatări Miniere

Prepararea Substanţelor Minerale Utile

Metalurgie Neferoasă

Geologie şi Ingineria Mediului

Volumul XXVIII Nr. 2

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RESEARCH ON THE EFFICIENCY OF USING THE WASTES RESULTED FROM THE WOOD PRIMARY PROCESSING

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Abstract: *Based on the particularities issued by the increasing carbon dioxide concentration in the atmosphere and the climate changes that we have already experienced, the redeemable power sources gain more and more ground (solar power, wind power, biomass, geothermal power, sea wave's power).*

The local factor is represented by the existence of huge quantities of beech wood wastes resulted from the wood primary processing. These wastes could be used as biofuel by consensus with the durable development requests, as the wood accumulates solar energy, grows in our atmosphere taking carbon dioxide from air, minerals from soil, energy from the Sun and eliminates oxygen, and when it is burned off, the carbon dioxide is eliminated back in the atmosphere. On the other hand, the caloric value of the wood is comparable to the other fuels currently used to warm our houses.

The conclusion of the experiments shows that the optimum solution for the presented issues depends mostly on the technologies and plant/equipment being used. The more and more performing and variable technologies, the particular requests of the wood processing industry and financially stimulating politics make bases of the efficiency for using completely these redeemable power sources.

Key words: *wood primary processing, redeemable power source, efficiency, durable development*

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FEATURES OF ENVIRONMENTAL IMPACT ASSESSMENT BECAUSE OF THE WIND ENERGY

YA. ADAMENKO, N. MOSKALCHUK, K. RADLOVSKA
Ivano-Frankivsk National Technical University of Oil and Gas, Ukraine

Abstract: *The article characterizes the prospects for the development of renewable energy sources. It discloses the question dealing with highlight impacts from wind farm on the environment. As a result of research we received the key impacts that should be considered in detail in the EIA wind energy projects.*

Keywords*: renewable energy, wind farm, EIA.*

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THE CHANGING OF SUPERFICIAL PROPERTIES OF NON-FERROUS MINERALS AS A RESULTS OF IONIC COMPOSITION OF FLOTATION PULP

GABRIELA FILIP, VALERIA BREZOCZKI
Technical University of Cluj-Napoca, North University Centre of Baia Mare

ABSTRACT*: The ionic composition is the result of the presence of various heavy metals' ions in the flotation pulp. Due to their presence occur superficial properties essential changes which significantly influences the minerals flotation properties, the flotation separation selectivity and the flotation process results.This paper presents a few experimental measurements performed on pure minerals (galena and chalcopyrite) in the presence of the heavy metallic ions most often found in the flotation pulp's liquid phase. In these experimental conditions it were tracked the modification of some parameters as pH, the reduction-oxidation potential, surface tension that characterize the superficial properties of mineral surface in the flotation pulp.*

KEYWORDS*: ionic composition of flotation pulp, superficial properties of minerals, reduction-*

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COMPARATIVE STUDY OF PHYSICO-CHEMICAL PARAMETERS VARIATION OF WATER SOURCES IN RURAL AREAS

THOMAS DIPPONG[1], CRISTINA MIHALI[1], ELENA CICAL[1]

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Abstract: *In this paper we presented the evolution of the main physico-chemical parameters of drinking water across the year 2013 in 9 rural settlements located in Satu Mare county: Sanislau, Ciumesti, Halmeu, Turulung, Orasu Nou, Prilog, Remetea, Gelu and Madaras. The investigated physico-chemical parameters were turbidity, conductivity, pH, chloride, iron, manganese, oxidability, ammonia, nitrates, nitrites total hardness, alkalinity. The parameters values were compared with the legal accepted limits. Also, the microbiological parameters such as coliforms, Escherichia coli, fecal streptococci and the number of colonies at 22^{o}C and 37^{o}C were investigated. These data reflected the trend of the phyisico-chemical parameters and could be useful in the management of water quality and in the investigation of possible measures for maintaining or improving the quality of drinking water in these rural localities.*

Keywords*: drinking water, microbiological parameters, risk analisys*

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FRENCH MODELS REGARDING THE ORGANIZATION OF GREEN AREAS IN THE ECOLOGICAL GARDEN

BREZOCZKI VALERIA MIRELA

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Abstract: The paper proposes on to a discussion some French models of planning green areas around the green houses. In achieving these models, it pays special attention to choosing vegetation to be planted (species of plants and trees in danger of extinction), creating conditions for development (change soil structure, access to natural sunlight, etc.), but and in reproducing the natural habitats for different species of small animals.

These models for arranging the green offer the possibility to observe them and even take part in their life cycle;

Keywords: ecological garden, green areas, preservation of biodiversity

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MATHEMATICAL AND ECONOMIC ANALYSIS OF STOCKPILING COSTS FOR MINING PROCESSES

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Abstract: *This paper shows some aspects about the mathematical description of inventory cost analysis. The reason is that in most inventory situations the essence of the solution is simply: a rule indicating when to replenish, and a rule indicating the amount to replenish. Different approaches of determining the dimension of economic order amount, an issue which is highly important in storage system management, should be based on profound analysis of some factors which influence the storage processes efficiency. Among these factors, the most important are those linked to the expenses generated by stockpiling and material inventory maintenance. Notwithstanding their way of formation, for organizations these diverse categories of stocks represent investments. The investments which characterize the stockpiling activities respect the same rules regarding the basis, as well as the other investment categories. They will be analyzed and in parallel correlated with the profit which is expected to be obtained subsequent to the selling, in some way, of the immobilized parts. The paper treats some mathematical aspects about the inventory costing policies in the mining process management.*

Keywords*: cost analysis, system management, mining process management, stocks, profit.*

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ASSESSMENT OF LEAD CONTENT IN SOME VEGETABLES GROWN NEAR TAILING DEPOSITS IN BAIA MARE AREA

CRISTINA MIHALI[1], GABRIELA OPREA1, ANGELA MICHNEA[2], THOMAS DIPPONG[1*], CLAUDIA BUTEAN[1], LUCIA MIHALESCU[1], ANCA DUMUȚA[1], OANA MARE[1]

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ABSTRACT: *The traceability of lead (Pb) in vegetables grown in Bozanta Mare village located in surrounding of tailing deposits was assessed. The Pb content in the agriculture soils and in vegetables was investigated. Bozanta Mare is located near Baia Mare in the proximity of 3 tailing ponds. Samples of soil and vegetables were collected from Bozanta area and from a reference location, Berbesti. Pb content in soil and plants was analyzed by inductively coupled plasma atomic emission spectrometry. The average Pb content in vegetables species grown in Bozanta area ranged from 0.56 mg kg^{-1} (dry matter) for green beans to 3.05 mg kg^{-1} for parsley, while in Berbesti, varied in the range 0.19 mg kg^{-1} for garlic and 0.61 mg kg^{-1} for parsley. Transfer factors (TF) of Pb from soil to vegetables were calculated being 0.0089 in the range of 0.0005 -0.0389 while in the reference area TF was 0.0244 (0.0008 - 0.0244) showing a low mobility of Pb in Bozanta area. The vegetables are safe to consumption except the leafy vegetables as parsley whose lead content was the highest.*

Keywords*: lead in vegetables, lead in soil, traceability, vegetables, transfer factor*

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THE AERODYNAMICS OF POLLUTING AEROSOLS IN THE MAZE OF LACUNAR CAVITIES GAS – DUST PROOFING STRIPS OF ROADS

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Abstract*: In article has considered the question of analytical research the aerodynamic processes of pollutants in the forest gas-dustproofing strip of roadsin the presence of the maze of lacunar cavities.Installed the dependenceof the content aerosols in a roadside strip, depending on the levelof organization the artificial protection of the landscape, namely dustproofing strips.On the basis of researches is establishedthe number of factors that must be consideredwhen examining the distribution and redistribution ofcontaminatingimpurityin the roadside landscape: features the transfer of impurity by wind flow;the turbulent diffusion of admixture in horizontal and vertical planes; physico-chemical processes the transformation of impurity (gravitational settling, chemical conversion, leaching by rainfall); the presence of lacunar cavities in gas-dustproofing strips and the feature of reduce the dynamic pressure in the air flowwhich leads torepayment speed turbulent flows of aerosol's pollutants.*

Keywords: *combustion products, migration and deposition of pollutants, geochemical barrier, the maze of lacunar cavities, the turbulent airflow.*

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DETERMINATION OF MULTIFACTOR DEPENDENCIES OF CHANGE OF EXHAUST GASES COMPOSITION IN DIFFERENT MODES OF GAS PUMPING UNIT OPERATION

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Abstract. *The article analyzes complex environmental and technical inspection of gas pumping unit in different technological operation modes and determines multifactor dependencies of exhaust gases concentration (nitrogen oxides NO_x and carbon oxide CO) depending on the gas consumption Q, excess air coefficient, rated power, and combustion temperature.*

Key words: *multifactor dependency, technological parameters, gas pumping unit, exhaust gases concentration, environmental and technical inspection.*

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NEW POSSIBILITIES OF MUNICIPAL WASTE MANAGEMENT FROM THE GRAPH THEORY AND APPLIED MATHEMATICS PERSPECTIVE

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Abstract: *Municipal solid waste management (MSWM) has become, in the last decades, a global environmental priority in the context of increasing amounts of waste generated due to the development of a mass consumer society. Various issues of municipal solid waste management, territorial and temporal variability, spatial analysis of treatment or disposal facilities, systemic implications on the environment, the harmonization of international policy at national, regional and local level are solid arguments for studying this field by other sciences such as, but not limited to: geography, graph theory, applied (computational) mathematics, dedicated software etc.*

This paper performed on the one hand, an overview of various approaches in current literature on municipal solid waste management issues and, on another hand, analyses the new possibilities to handle this type of waste due to the geography, graph theory and applied mathematics contributions in the field.

Our conclusions lead to the idea that waste management must be performed according to the mathematical and geographical features of the territory concerned, so, in this case, before going to implement a viable management strategy, is more than necessary to study in depth the complete life cycle of municipal solid waste according to the municipal solid waste management hierarchy required by the environmental international policy.

Key words: *municipal solid waste management (MSWM), graph theory, Travelling Salesman Problem (TSP)*

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