

# Summaries

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MARIAN BRANNY, KRZYSZTOF FILEK, BERNARD NOWAK, BOGUSŁAW PTASZYŃSKI

## **Two-Phase Flow of Air and Water in Mining Excavators •** *Górnictwo i Geoinżynieria* • z. 3, 2008

The article describes examples of two-phase flows in mining excavations and its impact on ventilation systems. Author discusses some of flows features, parameters and its theoretical models. The article presents computational model of two-phase flows in vertical expiratory shaft, using Euler–Lagrange’s method. Numerical simulations were performed with the discrete phase model implemented using computational fluid dynamics (CFD) software- Fluent. Calculations results presented in the form of graphs are enclosed.

**Keywords:** *two-phase flow, flow in ventilating shaft, numerical simulations the two-phase flows, model of discrete phase*

LUKASZ HEREZY

## **Investigation of Mechanical Properties of the Steel Used for Construction of Disc Cutting Tools for Mining Industry •** *Górnictwo i Geoinżynieria* • z. 3, 2008

The disc cutting tools used in the past in longwall shearer has been withdrawn because of extremely high dynamic loading of its elements. Several positive aspects of these solutions are still topic of both theoretical and experimental works which are possible thanks a tremendous progress in thermal and chemise-thermal treatment of the steel. The paper presents results of multi variant investigations made at the laboratory of “Celsa” Steel Work, which have to help in receiving material with needed properties. The results of the research have to improve knowledge about construction of new machines for mining industry.

**Keywords:** *cutting tolls, thermal processing, mechanical properties*

ZBIGNIEW KUCZERA

## **The Profile of Climatcal Threat in Coal Face Zone Heading Mine During for Variable Location Cooler •** *Górnictwo i Geoinżynieria* • z. 3, 2008

The depth growth of exploited layers, concentration of coal and connected with this mechanization of kneading processes and transportation of carbon has influence on deterioration of climatcal conditions, especially in main face heading. In spite of intensive ventilation, the mine face zone microclimate often gets worse. The air cooling allows improve climate conditions improvement for working crew.

In the article, the author analyses changeability cooling power and the changing process of dry temperature, proper and relative humidity in coal face zone during shifted distance between cooler and ancestor’s forehead.

**Keywords:** *cooling air, coal mines, climatic threat*

*BERNARD NOWAK, KRZYSZTOF FILEK, BOGUSŁAW PTASZYŃSKI*

**Influence of Heat and Moisture Sources on Haze Condition of Air in the Underground Dog Headings •**  
Górnictwo i Geoinżynieria • z. 3, 2008

In the article, a matter of haze air flow through horizontal dog heading is discussed. Equations of mathematical description of change the thermodynamic air parameters on the way of flow are given. In this case, appearance of different heat and moisture sources in the heading are taken into account. It was accepted that air can contain a moisture in form of water vapour and fog.

For illustrating the discussed problems, the numerical examples for four variants of dates were solved. The results are presented in form of diagram of air temperature variation, its specific and relative humidity and contents of fog in function of running coordinate along the heading axis.

**Keywords:** *two-phase flows, haze air, mining aerology, mine air-conditioning*

*MARIAN PALUCH, ANTONI TAJDUŚ*

**Estimation of Beam Deflection, Bending Moments and Shear Forces in the Roof Connected with the Seam Heading •**  
Górnictwo i Geoinżynieria • z. 3, 2008

The paper presents the equations for calculating deflections, bending moments, and shear forces in the roof connected with the seam by two-parameter contact. The formulas for elastic energy and critical length of opening were also presented. The solution is applied to solve a practical example.

**Keywords:** *headings, two-parameter contact, bending moment, shear force, elastic energy*

*RYSZARD WOSZ*

**Deflection of the Direct and Basic Roof During Exploitation of Deposit – It is Probability of Appear the Stratification of the Roof under Application of Moment of Couple Forces •**  
Górnictwo i Geoinżynieria • z. 3, 2008

The article is continuation of the research works concerning the principal and direct roof strata deflection above the deposit mined by means of the chamber – pillar system with roof deflection in the exploitation conditions of the copper deposits in LGOM. A model of the roof deflection and the solutions of the equations of the beam's axis deflection have been shown in the earlier papers. In this paper has presented the function of the deflection of the roof in the conditions of propagation the slit, has been generated by moment of the couple of forces application in the middle of the beam.

**Keywords:** *deflection of the beams on the Winkler's ground, tremors of the rock massive*