



**“Gheorghe Asachi” Technical University of Iasi, Romania**



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## NEW ASPECTS REGARDING IGNITION SENSITIVITY OF AIR-METHANE MIXTURES

**Marius Darie<sup>1\*</sup>, Sorin Burian<sup>1</sup>, Tiberiu Csaszar<sup>1</sup>, Lucian Moldovan<sup>1</sup>,  
Clementina Sabina Moldovan<sup>2</sup>**

<sup>1</sup>National Institute for Research and Development in Mine Safety and Protection to Explosion – INSEMEX Petroșani,  
32-34 G-ral Vasile Milea Street, Postcode: 332047, Petroșani, Hunedoara County, Romania

<sup>2</sup>University of Petroșani, 20 University street Postcode: 332006, Petroșani, Hunedoara County, Romania

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### Abstract

In the economic activities related to combustible substances, it may occur possible emissions and explosive atmospheres. Some typical examples include industrial activities in general, firedamp mines and power generation in particular. The aim of this paper is to accentuate hidden aspects regarding ignition sensitivity of moisturized air methane mixtures. Therefore, the first objective of the paper is to emphasize the air humidity as an extra factor needed to be considered in relation to ignition sensitivity changes. The second objective is to briefly present materials and experiments. For the third objective, a statistical method was implemented for the analysis in order to highlight the influence of air humidity on the ignition sensitivity of methane air mixtures. The statistical method was chosen because of stochastic character of the experimental output results. The main achievement of this work is the identified value for the threshold of relative humidity of the inlet air, over which the ignition probability decreases rapidly. Also, this paper emphasizes a new assessment dimension for the risk management process.

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\* Author to whom all correspondence should be addressed: e-mail: [marius.darie@insemex.ro](mailto:marius.darie@insemex.ro); Phone: +40 254541621; Fax: +40 254546277