



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



---

## **MECHANIZED EXPLOITATION OF COAL UNDER UNEXPECTED RISKS OF METHANE OCCURRENCE. CASE STUDY: LIVEZENI MINE, ROMANIA**

**Constantin Lupu, Ion Toth, Doru Cioclea, Cristian Tomescu\*, Emeric Chiuzan**

*National Institute for Research and Development in Mine Safety and Protection to Explosion – INSEMEX Petroșani, 32-34 G-ral  
Vasile Milea Street, 332047, Petroșani, Hunedoara, Romania*

---

### **Abstract**

Coal mining still represents a solid primary energy resource in Romania, although it was constantly restructured and optimized. The production of energy from coal-fired thermal power stations at the level of year 2011 was 18% higher than the corresponding period of the previous years, according to the data provided by the National Institute of Statistics. In Jiu Valley, coal exploitation through mechanized methods accounts for 19.4% of the entire production achieved by the National Hard-Coal Company Petrosani. However, the full performances can not be always achieved due to various factors related to the coal mineral, among which the most important factor is the occurrence of methane.

The unexpected occurrence of a methane emission represents a risk factor for the safe exploitation of the coal bed as well as for the safety of underground mining workers. In order to decrease the risk related to the methane presence over the permitted limit in underground atmosphere a series of technical and organizational measures have been taken.

In this paper, some analyses are developed for several location of coal mining exploitation in Jiu Valley. This case is represented by the mechanized coal face, panel 4N, bed 3, block VI from the E.M. Livezeni mining field. As a consequence, a series of technical and organizational measures are discussed for diminishing methane accumulations as well as for preventing and fighting against spontaneous combustions.

*Key words:* coal, degassing, mechanized coal face, methane, mining

*Received: February, 2012; Revised final: June, 2012; Accepted: July, 2012*

---

---

\* Author to whom all correspondence should be addressed: e-mail: [cristian.tomescu@insemex.ro](mailto:cristian.tomescu@insemex.ro); Phone: +40 254541621; Fax: +40 254 546277