Polish Mine Safety Regulations Regarding Methane Hazard Prevention in Coal Mines

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ACT of 9 June 2011, Geological and Mining Law and two main executive acts of this act related to ventilation:

- Regulation of the Minister of the Environment of 29 January 2013 on natural hazards in mining plants
- Regulation of the Minister of Energy of 23 November 2016 on detailed requirements for the operation of underground mining plants
CATEGORIES OF METHANE HAZARD IN POLAND

- **I**\textsuperscript{st} methane hazard category - 0.1 to 2.5 m\textsuperscript{3}/Mg (daf)
- **II**\textsuperscript{nd} methane hazard category - 2.5 to 4.5 m\textsuperscript{3}/Mg (daf)
- **III**\textsuperscript{rd} methane hazard category - 4.5 to 8.0 m\textsuperscript{3}/Mg (daf)
- **IV**\textsuperscript{th} methane hazard category - >8.0 m\textsuperscript{3}/Mg (daf) or if there was sudden outflow of methane or outburst of methane and rocks
WORKINGS IN METHANE FIELDS IN UNDERGROUND COAL MINES CAN BE CLASSIFIED:

• to the endangered with methane explosion (degree "a"), if the concentration of methane in the ventilation air above 0.5% are excluded,
• to "b” degree of methane explosion hazard if in normal ventilation conditions the concentration of methane in air higher than 1% is excluded,
• to "c” degree of methane explosion hazard, if in normal ventilation conditions the concentration of methane in air can be higher than 1%.

PRINCIPLES OF CLASSIFYING WORKINGS IN METHANE FIELDS IN UNDERGROUND COAL-MINING TO THE DEGREES OF METHANE EXPLOSION HAZARD

Instruction No. 18 issued by the Central Mining Institute
Methane prevention for the longwalls:

- Selection of the proper ventilation system for the longwall
- Ensuring the required air volumes in the area of the longwall
- Methane hazard monitoring system
- Effective actions to combat the methane accumulations in the places of possible initiation of ignition or explosion
- Technology of methane drainage of the longwall environment
Methane hazard monitoring

- Measurements of methane concentration (automatic and individual)
- Measurement of methane concentration in the methane drainage pipelines
- Measurement of air flow speed in the workings
- State of closure of ventilation dams, that affects the ventilation conditions, as well as changes in the distribution of aerodynamic potentials in the environment of longwalls
Distribution of permissible content of methane within a longwall ventilated using the “U” method along the body of coal

PRINCIPLES OF LONGWALL CONDUCTING IN METHANE HAZARD CONDITIONS

Instruction No. 17 issued by the Central Mining Institute
Diagram of the intersection of the longwall ventilated in the “U” system with the ventilation roadway, with the location of methane sensors and the system of auxiliary ventilation equipment for dilution of methane.
Location of methane sensors in the area of the longwall ventilated in the “U” type system with the ventilation roadway liquidated with insulating baffles with a length of the dead end of 2 meters, under the following ventilation and methane conditions: ventilation methane content Q=10 m³/min, =1000 m³/min. Horizontal 2D arrangement at the level of the sensor in the longwall.
THANK YOU FOR YOUR ATTENTION

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