

Progress in Accuracy, Reliability and Safety in Firedamp Detection

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Abstract : The communication presents the study results carried out by the Official Laboratory J. M. Madariaga (LOM) of the Polytechnic University of Madrid to analyze the reliability of methane detection systems used in underground mining. Poor firedamp control in work can cause from production stoppages to fatal accidents and since there is currently a great variety of equipment with different functional characteristics, a study is needed to indicate which measurement principles have the highest degree of confidence. For the development of the project, a series of fixed, transportable and portable methane detectors with different measurement principles have been selected to subject them to laboratory tests following the methods described in the applicable regulations. The test equipment has been the one usually used in the certification and calibration of these devices, subject to the LOM quality system, and the tests have been carried out on detectors accessible in the market. The conclusions establish the main advantages and disadvantages of the equipment according to the measurement principle used; catalytic combustion, interferometry and infrared absorption.

Keywords : ATEX standards, gas detector, methane meter, mining safety

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