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MODERNIZATION OF THE TEST METHOD FOR NON-SPARKING MATERIALS INTENDED FOR USE IN EXPLOSIVE AREAS

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Abstract

For assessing the intrinsic safety to mechanical sparks, two dedicated methods are implemented in testing laboratories and further used for the conformity assessment of products with regard to explosive atmospheres ignition, namely: impact test and friction test. The purpose of the article is to present the results obtained by using the first method mentioned, results which shall be applied in further research for comparison with the ones resulting from the friction test. The article presents the process for developing the research facilities used for testing activities in the field of non-electrical equipment intended to be applied in potentially explosive atmospheres. Also, the paper highlights important aspects on non-sparking tools used to carry out the specific maintenance works within technical installations located in hazardous Ex areas, in compliance with the European workplace safety and health principles and practices. Theoretical and practical studies, laboratory research, assessment methods and tests for determining the ignition hazard by mechanical sparks generated by non-electrical equipment are developed in order to improve the performance of the actual testing system for the assessment and testing of non-electrical equipment intended for use in atmospheres with explosion hazard. The development of the test method for non-sparking materials and the test setup ensures the optimal performance of the tests required for carrying out the conformity assessment process for equipment and non-sparking tools intended for use in potentially explosive atmospheres, taking into consideration the provisions of international regulations in force.

Key words: explosive atmospheres, explosion protection, ignition, materials, mechanical sparks, non-sparking

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