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FACTORS AFFECTING THE FLAMEPROOF MOTOR ENCLOSURES DESIGN FOR EXPLOITATION IN EXPLOSIVE GAS MIXTURES

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Abstract

The purpose of the paper is to perform a thorough study on the major factors which influence the design concepts of flameproof electric motors enclosures designed to be used in potentially explosive mixtures of gases and vapors (especially of group II C), in order to successfully pass the non transmission test of an internal explosion. The researches conducted in the specialized Laboratory of INSEMEX Petrosani, on a very large number of flameproof motor samples have identified the pressure pilling phenomenon as the main responsible for the transmission of an internal explosion in the case of self ventilated electrical motors. The term pressure pilling, as used in this report, refers to the increase in pressure in a subdivided enclosure, above the pressures that would be likely to occur in the same compartment without subdividing. This pressure increase is a relative measure and may be considered abnormal compared to the pressure obtained in a constant volume combustion process with a precombustion gas pressure at or very near standard atmospheric pressure.

Key words: enclosure, flameproof, motor, pressure pilling

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