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ANALYSIS OF PROTECTION SYSTEMS FOR REDUCING THE EFFECTS OF SHOCK WAVES PRODUCED BY EXPLOSIONS IN ENCLOSED SPACES

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Abstract

Explosion-type accidents can cause significant human losses and material damages; therefore, special attention has to be granted to explosion risk assessments and to the development of appropriate explosion-protection measures. Such measures of protection aim to reduce the explosion risk to acceptable levels, in compliance with regulations and standards in force, so as to provide the proper safety level for humans as well as to prevent damage to the surrounding goods and environment. The flash-point, explosivity limits and oxygen concentration limit and define the properties of combustion of flammable substances. A certain material all by itself does not represent an explosion hazard, but in contact or in mixture with air may generate an explosion hazard. In this regard, the properties of the air-flammable substance mixture have to be determined. These properties provide information about the reaction to the firing of a substance and whether it can give rise to fire or explosion.

The present work examines the protective systems intended to limit the effects of an explosion and proposes an automatic system intended for reducing shock waves that occur as a result of an explosion in an enclosed space.

Key words: automatic system, explosions in enclosed spaces, predictive algorithm

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