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DEVELOPMENT OF THE TESTING INFRASTRUCTURE FOR VERIFICATION OF FIREWORKS CATEGORIES 1,2,3

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Abstract

According to European rules, the pyrotechnic articles have to meet certain essential safety requirements in the view of placing of market, so as to ensure a minimum level of risk in use, sale, and storage of these products. These requirements are specified in Directive 2007/23/EC transposed into the Romanian legislation, which entails checking their performance following the harmonized European standards family EN 15947 referring to *Pyrotechnic articles - Fireworks category 1, 2, 3*.

To perform the test required by the European standards, it was necessary to upgrade and develop the test facilities in the Romanian test laboratory for the type of products. In the view of fulfilling the requirements for thermal and mechanical conditioning of the test samples, this paper highlights and discussed the necessary equipment and procedures. A quite large heating chamber and a special designed mechanical shock apparatus are described. These conditioning operations can influence significantly the behavior of the tested samples comparing with the non-conditioned ones. The thermal conditioning can influence negatively the sensitivity and the appropriate running of the tests (unexpected explosion, disintegration of the pyrotechnic article). The mechanical conditioning of samples can lead to loses of pyrotechnic composition and / or malfunction.

These two types of conditioning performed before the functioning test reproduced the worst depositing and transport condition. The heating chamber was commercially available, our role was to select a proper one from the market, but the mechanical shock apparatus was designed and constructed by ourselves on the bases of the recommendations of the standards.

Key words: essential security requirements, fireworks, laboratory tests

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