Environmental Engineering and Management Journal *April 2019, Vol. 18, No. 4, 839-845*
http://www.eemj.icpm.tuiasi.ro/; http://www.eemj.eu

"Gheorghe Asachi" Technical University of Iasi, Romania

IMPROVING THE SAFETY LEVEL OF PYROTECHNIC ARTICLES TESTING IN VARIABLE CONDITIONS OF MICROCLIMATE

Ilie Ciprian Jitea*, Gabriel Dragos Vasilescu, Daniela Carmen Rus, Cristian Rădeanu, Sorin Bordoş

National Institute for Research and Development in Mine Safety and Protection to Explosion – INSEMEX Petroşani, 32-34 G-ral Vasile Milea Street, 332047 Petroşani, Hunedoara County, Romania

Abstract

The related European directives in force stipulate that product testing shall be performed in conditions that reproduce as accurately as possible the real ones that may be encountered during their operation. These are products whose intended use are specified in the safety data sheet or within the instructions for use, and whose limits of the micro-climatic parameters that can be encountered (temperature, humidity, wind - for the outside ones, temperature, humidity, generation of restricted toxic compounds for interior ones) are known. In order to implement an integrated and complete solution for ensuring the compliance for measurement and determination of operational testing of pyrotechnic articles (categories F1, F2, F3 and F4), under high accuracy conditions in accordance with the methods and standards applied, there was used a multifunctional equipment purchased under within the research project code PN 16 43 03 04, developed within the Nucleu Program. The equipment type Rain Wise CC-3000 is designed for monitoring and recording micro-climate parameters and disposes of an incorporated software. Taking into account the applicable requirements in the field of pyrotechnic articles testing and the possibility of monitoring / determining micro-climate parameters specific for the test environment, for each type / category of pyrotechnic article tested may be established, on a scientific basis, the possible influence of external factors of the test environment, factors which may affect their proper operation, respectively: the wind (by its intensity and direction), ambient temperature, humidity, atmospheric pressure, nature and consistency / soil quality / launch platform on which the pyrotechnic article is placed before to actual testing.

Key words: microclimate, monitoring, pyrotechnic article, test, test infrastructure

Received: September, 2018; Revised final: January, 2019; Accepted: April, 2019; Published in final edited form: April, 2019

* Author to whom all correspondence should be addressed: e-mail: ciprian.jitea@insemex.ro; Phone: 40 254 541 621; Fax: +40 254 546 277