

PLATFORM: Safe-by-design framework for the development of new pilot lines for the manufacture of carbon nanotube-based nano-enabled products for automotive and aeronautics

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Abstract

To make the leap between the pilot production and the commercialization of nano-enabled products (NEPs) in the European market (TRL9), the compliance with the safety regulatory requirements represents a major challenge, not only in terms of product safety, but also with respect to the manufacturing lines (safe production).

The Machinery Directive 2006/42/EC (MD) – transposed to the respective national legislations – is the EU regulatory framework applying the safe-by-design of new machinery. The Directive establishes the

mandatory Essential Health and Safety Requirements (EHSRs) to be fulfilled by each machine, while detailed technical specifications for compliance are given in harmonized standards (HSs).

However, there are no specific EHSRs for nanosafety, nor HSs to guide the safe design of machinery for the manufacture of NEPs, or for the prevention and control of nanosafety risks involved in the design of such machinery.

In this context, this paper presents the experience gained by the European project PLATFORM (GA 646307) in the safe-by-design of three new manufacturing pilot lines (PPLs) for the industrial production of carbon nanotube-based nano-enabled products (bucky-papers, CNT-doped prepregs and CNT-doped veils); as intermediate NEPs for the manufacture of structural components with improved properties, for aerospace, automotive, military, medical and electronics industries.

References

- [1] Project Platform (<http://www.platform-project.eu/>)
- [2] López de Ipiña JM., Hernan A., Cenigaonaindia X, Insunza M., Florez S, Seddon R., Vavouliotis A., Kostopoulos V., Latko P., Duratek P. and Kchit N. (2017) Implementation of a safe-by-design approach in the development of new open pilot lines for the manufacture of carbon nanotube-based nano-enabled products. IOP Conf. Series: Journal of Physics: Conf. Series 838 (2017) 012018 doi.