

Monitoring method for nanofibers: Personal sampler and corresponding reading device

M. Keller¹; N. Neubauer², M. Seipenbusch²

¹ Fraunhofer Institute for Manufacturing Engineering and Automation IPA, 70569 Stuttgart, Germany

² Karlsruhe Institut für Technologie KIT, 76131 Karlsruhe, Germany

Keywords: nanofibres, workplace safety, personal sampler

At present, CNT and other nanofibre materials in air can only be detected by deposition on a substrate and the use of off-line imaging analysis such as SEM. The majority of techniques suitable for the quasi-real-time ENP measurement such as ELPI, SMPS, and CPC can not distinguish between nanoparticles in general and airborne nanofibres in particular. In common workplace settings the considerable background of fine and ultrafine particles thus poses a challenge for these instruments. Furthermore, a true portability of the present devices is not given due to their size and power consumption. However, there is an urgent need due to the expected toxicity of nanofibres to control workplace environments with a robust and mobile device to ensure the safety of the working personnel as soon as possible. To meet these challenges, a suitable personal sampler together with a corresponding reading device is under development in the NANODEVICE-project, funded by the European Commission under grant agreement FP7-211464-2. The measurement principle, a pre-prototype personal sampler together with first results will be shown.

The research leading to these results has received funding from the European Commission under grant agreement FP7-211464-2 (NANODEVICE).