The measuring approaches of nanoparticles at workplaces of wood and metal industries in Latvia

Zanna Martinsone[1], Ivars Vanadzins[1], AnitaSeile[1], Inese Martinsone[1], Pavels Sudmalis[1], Ilona Pavlovska[2], Jelena Reste[1], Tija Zvagule[1], Natalija Kurjane[1]

[1]Institute of Occupational Safety and Environmental Health, Rigas Stradins University, Latvia

[2] Institute of Silicate Materials, Riga Technical University, Latvia

e-mail: Zanna.Martinsone@rsu.lv

The several new measuring instruments are available for nanoparticles measuring in the occupational environment, what includes nanoparticles characterization by number, diameter, and surface area, chemical structure and mass as well. All these parameters are significantly for occupational exposure description and planning of prevention activities. According to project ("The development of up-to-date diagnostic and research methods for the risks caused by nanoparticles and ergonomic factors at workplaces", project Nr. 2013/0050/1DP/1.1.1.2.0/13/APIA/VIAA/025) main aims, there were tested workplaces of wood (fine grinding processes) and metal (welding processes) industries, and offices (as control) in Latvia. The measurements show high concentrations of nanoparticles (by number, area, mass) during wood grinding and metal welding. During measuring were collected also nano-scale particles on sampling foils and filters for further chemical analyses of nanoparticles. Still there are problems on occupational risk assessment: lack of occupational exposure limits for nanoparticles in occupational environment (air) and how to collect samples and make nanoparticles measurements as closer as possible to employees' breathing area, because there is limitation of instruments mobility? These are necessary to correctly evaluate nanoparticle exposure and impact to health.