**Cleaning sprays – Cleaning worker’s airway exposure and ergonomic load Short project description – Updated 19th September 2016**

In Sweden, professional cleaning is the 10th most common occupation, with more than 70 000 employed in 2012. Cleaning workers are exposed to many risk factors, including high physical workload and the handling of chemical products. Documented risks for professional cleaners include pain in the neck, shoulders, elbows and hands. Epidemiological studies have shown an increased risk of development of new-onset asthma and other types of respiratory symptoms. Spray as an application method is a fast and easy way to clean and gives an even and precise dosage of cleaning product. However, a few studies have shown a correlation between the use of cleaning sprays and the development of asthma and other respiratory symptoms. If the use of spray is a more preferable cleaning method with regards to musculoskeletal load has not yet been scientifically investigated.

At the Faculty of Engineering in Lund, Sweden, at the Division of Ergonomics and Aerosol Technology, a research project has been initiated where the health of cleaning workers is put into focus. The general purpose of the project is to identify the use of cleaning sprays among professional cleaning workers and investigate the health effects, both with regard to respiratory health and ergonomic load, connected to the use of cleaning sprays. The project is funded by AFA insurance (AFA Försäkring) and carried out in collaboration with the Division of Occupational and Environmental Medicine at the Faculty of Medicine, Lund University.

The project is divided into a few different work packages. A survey among a few hundred cleaning workers was performed during spring of 2016. Some of the aims were to identify to which extent cleaning sprays are used professionally, how they are used and which products that are the most common. Preliminary results show that about 78 % of the 219 cleaning workers that participated in the survey use cleaning sprays during their work. Almost half of the ones that use cleaning sprays also experience some symptoms during this use.

More advanced data analysis of the answers from the questionnaires will be performed further on.

The amount of airborne chemicals (both particles and gases) generated when using cleaning sprays have also been studied in our aerosol laboratory. The results showed that up to 20 % of the liquid product could remain airborne after spraying and not reach the intended surface. This depended a lot on which type of product were used. The measurements also showed that the mass fraction of airborne particles is small compared to the gas phase.

A controlled human exposure study will be performed during autumn and winter of 2016/2017, to study the acute (direct) health effects from cleaning spray use, both concerning exposure of eyes and airways, and musculoskeletal load. Volunteering cleaning workers will come to the aerosol laboratory three times and clean in our exposure chamber. The cleaning will be done with three different methods (one with cleaning sprays, one with an alternative application method and one with microfiber cloths and water) to be able to compare the health effects between the different methods.

Finally interventions at a few different workplaces will be conducted, where cleaning sprays are exchanged for other cleaning methods and the workers’ health are being evaluated before and after the change.