

Nanoinventory: a representative survey of nanoparticle usage in Suisse industry

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Keywords:

Indoor particles, Industrial aerosols, Nanoparticles, applications, Occupational exposure, Statistical analysis

Background

Addressing the risks of nanoparticles requires knowledge about their hazards, which is generated progressively, but also about occupational exposure and liberation into the environment. However, currently such information is not systematically collected, therefore the risk assessment of this exposure or liberation lacks quantitative data.

In 2006 a targeted telephone survey among Swiss companies (1) showed the usage of nanoparticles in a few selected companies but did not provide data to extrapolate on the totality of the Swiss workforce. The goal of this study was to evaluate in a representative way the current prevalence and level of nanoparticle usage in Swiss industry, the health, safety and environment measures, and the number of potentially exposed workers.

Results

A representative, stratified mail survey was conducted among 1,626 clients of the Swiss National Accident Insurance Fund (SUVA). SUVA insures about 80,000 manufacturing firms, which represent 84% of all Swiss manufacturing companies.

947 companies answered the survey (58.3% response rate). Extrapolation to all Swiss manufacturing companies results in 1,309 workers (95%-confidence interval, 1,073 to 1,545) across the Swiss manufacturing sector being potentially exposed to nanoparticles in 586 companies (95%-CI: 145 to 1'027). This corresponds to 0.08% (95%-CI: 0.06% to 0.09%) of all Swiss manufacturing sector workers and to 0.6% (95%-CI: 0.2% to 1.1%) of companies.

The industrial chemistry sector showed the highest percentage of companies using nanoparticles (21.2% of those surveyed) and a high percentage of potentially exposed workers (0.5% of workers in these companies), but many other important sectors also reported nanoparticles.

Personal protection equipment was the predominant protection strategy. Only a minority applied specific environmental protection measures.

Conclusions

This is the first representative nationwide study on the prevalence of nanoparticle usage across a manufacturing sector.

The information about the number of companies can be used for quantitative risk assessment. Furthermore it can help policy makers designing strategies to support companies in the responsible development of safer nanomaterial use.

Noting the low prevalence of nanoparticle usage, there would still seem to be time to introduce necessary protection methods in a proactive and cost effective way in Swiss industry. But if the predicted "nano-revolution" becomes true, now is the time to take action.

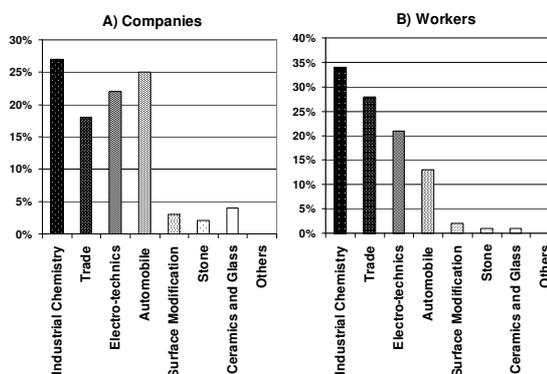


Figure 1. Distribution of companies with nanoparticle applications within the Swiss production sector: A) by company from the different branches, B) by number of workers in these branches.

This work was supported by the Swiss Federal Offices for Health (FOPH), the Environment (FOEN) and the Economy (SECO), the Swiss National Accident Insurance (SUVA) and the French Agency for Environmental and Occupational Health and Safety (AFSSET)..

Schmid, K.; Riediker, M. 2008, Use of Nanoparticles in Swiss Industry: A Targeted Survey, *Environ. Sci. Technol.*, (7), 2253-2260.