

Peak exposure. Some thoughts and ideas about the importance of understanding the exposure variation.

Gunnar Rosén, Ing-Marie Andersson, Theme Working Life, Högskolan Dalarna Sweden.

The basis for control of exposure to hazards in the work environment is different kinds of occupational exposure levels (OEL). Such exists nowadays in most countries around the world for a great number of air contaminants as well as for noise, vibration, electromagnetic field etc. In most cases, especially for air contaminants are those limit values set as maximum acceptable average exposure during a certain time period. Most common are limit values for one whole workday but also for shorter time periods as 15 minutes exists. This fact has lead to that the main part of exposure assessments in workplaces are planned and carried out with methods presenting such averages with the intention to clarify whether the exposure complies with the OEL or not. Behind those averages are however a lot of important information hidden. The variation in exposure is typically very high with a geometrical standard deviation (GSD) of 3 or higher. The fact that this hidden information isn't used so much has two implications. Short and high peaks in exposure may in some cases have a critical impact on the exposed health. Peaks reaching 10 times the average or higher is common. The other reason to collect detailed information about the exposure variation is fact that a big portion of the total exposure dose of is explained by a limited number of peaks representing only a small proportion of total time (Andersson, Rosén, 1995). To identify those short peaks and to link them to incidents in work is therefore important. Video exposure monitoring methods as PIMEX offers such possibilities.

To increase the interest in using methods presenting more detailed information about occupational exposure is therefore urgent. One way to do so is to visualize how exposure varies and especially how important this knowledge is for effective exposure control. The authors have developed different such visualizations which will be presented.

Reference

Andersson I-M, Rosén G. (1995) Detailed work analysis for control of exposure to airborne contaminants in the workplace. *Appl Occup Environ Hyg*; 10: 537–44.