

Title *

Are dust samplers and analytical techniques keeping up with lower concentrations and OELs?
Experiences from the European Industrial Minerals Sector

Abstract *

Personal measurements of exposure to hazardous dusts are essential to assess health risks and to design effective control measures. In high income countries exposure concentrations have been declining and as a consequence it has become increasingly difficult to reliably measure current exposure concentrations. The question arises whether developments in instrumental and analytical techniques match up with these lower concentrations and will enable assessment of compliance with new (lower) OELs?

The prospective IMA-Europe Dust Monitoring Program in which measurements of workers' exposure to respirable dust and quartz have been collected since 2000 might provide insight. The IMA-DMP database consists of 28,000 personal measurements, collected from 160 different worksites from 35 companies in 23 countries. Exposure measurements were collected with either respirable dust cyclones with a filter or with multi-fraction samplers containing a foam-matrix. Various respirable dust samplers have been used including the low-flow Higgins-Dewell and Dorr-Oliver cyclones and high-flow CIP-10-R and FSP-10 samplers.

Over the 15-year period the IMA-DMP quartz concentrations almost halved. Despite the considerable lower concentrations the number of measurements below the limit of detection remained remarkably stable and showed even a slight decline. It appeared that during this period the number of samples analyzed with the more sensitive FT-IR increased, but no trends in type of sampler used was discernable.

In conclusion, lower concentrations appear to be more likely met with more sensitive analytical methods than with high-flow personal samplers. However, given the imminent lowering OELs a combination of high-flow samplers and new analytical techniques will be essential.

Permission to publish *



Check this box to give us permission to publish your abstract on a flash drive/USB Stick for distribution to all delegates if it is accepted for presentation

Affiliations and Authors *

Author Information

Hicham Zilaout (Presenting)

Affiliations

Institute for Risk Assessment Sciences, Division of Environmental Epidemiology, Utrecht University, Utrecht, Netherlands

Author Information

Remko Houba

Affiliations

Netherlands Expertise Centre for Occupational Respiratory Disorders (NECORD), Utrecht,

Netherlands

Institute for Risk Assessment Sciences, Division of Environmental Epidemiology, Utrecht University, Utrecht, Netherlands

Author Information

Hans Kromhout

Affiliations

Institute for Risk Assessment Sciences, Division of Environmental Epidemiology, Utrecht University, Utrecht, Netherlands