POF009: General platform presentation

Work protection factor of RPD's
used in asbestos abatement operations in France

Eric Silvente
Sandrine Chazelet

Presenter's affiliation:
INRS－Institut national de recherche et de securite
1 rue du Morvan, Vandoeuvre, France ZIP Code: 54519
Email: eric.silvente@inrs.fr

Abstract:

In order to improve protection towards the asbestos exposure of the workers operating in asbestos removal sector, the French regulation on asbestos exposure has undergone major changes to take into account new elements of toxicity of the asbestos and the evolution of the analytical techniques for asbestos sampling. Thus, on July 2015, the Occupational Exposure limit (OEL) value for the asbestos has decreased from 0.1 f/cm^3 to 0.01 f/cm^3 with control of the dustiness in fibers by Analytical Transmission Electron Microscopy (ATEM). These changes had to come along with an assessment and an improvement of collective and individual protection of the operators doing asbestos abatement.

This study has been focused on the assessment of assigned protection factors (APF) of Respiratory Protection Devices (RPD) which are most used in asbestos removal activities in France: supplied air and powered air purifying respirators (PAPR) with full face masks. It has been undertaken in three phases. First of all, three RPD's manufacturers have been involved to design modified respirators for the sampling of asbestos on a filter inside the full face mask. These masks were certified in compliance with PPE European directive (89/686/EC).

The workplace measurements have been carried out by INRS in nine work places: 6 for the assessment of APF of air supplied respirators and 3 for APF of PAPR. Different asbestos abatement processes were assessed involving sprayed asbestos, asbestos-containing plasters, asbestos-containing paints and manual or pneumatic tools.

Finally, 132 paired samples (inside and outside the mask) were collected for the determination of supplied air respirators APF and 50 for the determination of PAPR APF. All the samples were analyzed by ATEM method.
Suitable statistical analysis has been carried out based on a lognormal model to get an APF for air supplied respirators and for PAPR with full face mask.