

## WEIGHT GAIN OF ESCAPE RESPIRATOR CARTRIDGES AFTER 12 MONTHS OF USE IN A PULP MILL

## FOREST INDUSTRY HEALTH RESEARCH PROGRAM

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The *Forest Industry Health Research Program (FIHRP)* has completed an assessment of the weight gain of unused escape respirator cartridges after being exposed to the mill environment for 12 months. A report is now available to members titled "**Weight Gain of Escape Respirator Cartridges after 12 Months of Use in a Pulp Mill**". To request a copy, contact **Agi Lee** at the Pulp and Paper Employee Relations Forum at (604) 777-1533, send a fax to (604) 777-1567 or email [alee@paperforum.com](mailto:alee@paperforum.com). Non-members of the Forum may be charged for the reports.

The change in weight of a cartridge has been shown to be a good indicator of reduced respirator effectiveness due to moisture (relative humidity). Based on a previous FIHRP study, it was established that a change in weight greater than 5% would adversely affect the breakthrough time of the cartridge. The WCB increased the escape respirator cartridge replacement schedule to 12 months with the proviso that weight gain of cartridges does not exceed 5% after 12 months of use.

This study aimed at evaluating the change in weight of unused escape respirator cartridges after being carried by workers in a pulp mill for 12 months.

The six participating mills were asked to provide cartridges from all lot numbers of respirators (either bite block or dual cartridge) normally issued to mill personnel. These samples were weighed to determine an average weight for each lot number. The cartridges were then issued to mill personnel for use in the pulp mill for twelve months. At the end of twelve months, if the escape respirators were not used for an emergency situation, cartridges were collected and sent to BCRI for final weighing.

Three types of cartridges were assessed in this study: 1) Acid gas/organic vapor/HEPA from MSA GMC-H; 2) Acid gas/organic vapor from MSA GMC and AO Safety; and 3) Escape acid gas cartridges from AO Safety.

Overall, the results showed that for all pre-weighed and post-weighed cartridges, the percent difference in weight ranged from -2.8% to 4.8%. These differences in pre- and post-exposure cartridge weights did not exceed the WCB criteria of 5%.