

Airborne Endotoxin Exposure Associated with Pulp and Paper Machines in BC

FOREST INDUSTRY HEALTH RESEARCH PROGRAM

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FIHRP FOREST INDUSTRY HEALTH RESEARCH PROGRAM has published a report titled "*Airborne Endotoxin Exposure Associated with Pulp and Paper Machines in BC*". The report is available to FIHRP members on the Pulp and Paper Employee Relations Services website at www.paperforum.com or contact Mr. Scott MacLean by phone (604) 532-0642, by fax (604) 532-0639, or by e-mail at smaclean@paperforum.com. Non-members of FIHRP may be charged for the report.

Airborne endotoxins are commonly found in different occupational environments including agricultural, cotton industries, waste processing, buildings and pulp and paper industries with concentrations ranging from very low to very high levels. Although exposures to low levels of endotoxins may have beneficial effects, exposure to higher levels of airborne endotoxins can be harmful to workers.

To determine the levels of endotoxin exposure for their members, the Advisory Committee of FIHRP contracted BC Research Inc. to conduct a workers' exposure assessment of endotoxin associated with the pulp and paper machine operations in British Columbia.

A total of 43 area and personal samples were collected at three pulp machines and three paper machines operating at three coastal BC pulp and paper mills between July and August 2003. In addition, a total of 18 white water samples from different phases of the wet-end operations were collected and analyzed for both bacteria and endotoxin of the six machines.

In general, the study has demonstrated that dust and endotoxin are unlikely health hazards for workers at pulp and paper machine operations of BC coastal mills. The dust levels were all well within the current Workers' Compensation Board of BC exposure limit while the airborne endotoxin levels were also well within commonly used exposure guidelines. The mean endotoxin levels in white water from paper machines was approximately 16 times higher than the mean levels in white water from pulp machines; possibly due to the pH differences of the white waters between the pulp and paper machines.

Among the 18 white water samples collected, a total of 44 gram-negative bacteria, 15 gram-positive bacteria, 3 unclassified bacteria and 7 fungi were identified. Higher bacteria and endotoxin concentrations were associated with elevated pH of the white water. Recommendations on further endotoxin reductions are also included as part of the report.