

CHLORINE DIOXIDE: METHODS TO MEASURE WORKERS' EXPOSURE

FOREST INDUSTRY HEALTH RESEARCH PROGRAM

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The FIHRP *Forest Industry Health Research Program* has published a report on measuring workers' exposure to chlorine dioxide. The report, which is now available to members, is titled "***Chlorine Dioxide: Methods to Measure Workers' Exposure***". To request a copy, contact **Agi Lee** at the Pulp and Paper Forum by phone (604) 777-1533, by fax (604) 777-1567, or by e-mail at alee@paperforum.com. Non-members of the forum may be charged for the report.

The report presents information on methods to measure workers' exposure to chlorine dioxide, primarily methods described in Technical Bulletin No. 794 published by the National Council of the Paper Industry for Air and Stream Improvement (NCASI).

In March 1999, FIHRP approved a project to investigate methods to measure workers' exposure to chlorine dioxide in the presence of chlorine. ALS Environmental (formerly ASL Analytical Service Laboratories) proposed to investigate use of adsorbent tubes to collect samples. The investigation was not successful.

NCASI developed a passive bubbler method for personal sampling which appears to meet all the criteria for measuring low levels of chlorine dioxide when chlorine is present. A key part of the sampler, the membrane diffusion disk, is not available at this time. When the disk becomes available, this method is recommended for workplace sampling.

OSHA Method ID202 and WCB Method 5210 use impingers which are not convenient for personal sampling. However, spill-resistant impingers are now available.

NCASI evaluated passive card badges and detector tubes. ChromAir badges appear to give reliable estimates of workers' exposure when both chlorine dioxide and chlorine are present. Matheson chlorine tubes did not respond to chlorine dioxide.

Tests done by NCASI indicated that an MDA Scientific paper-tape device for chlorine dioxide gave reliable results.

A study done in Quebec showed that electrochemical chlorine monitors could underestimate workers' exposure to chlorine dioxide and chlorine when both gases are present.