

DECOMPOSITION OF CHLORINE DIOXIDE

FOREST INDUSTRY HEALTH RESEARCH PROGRAM

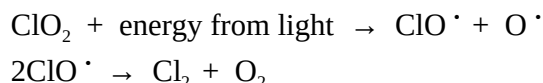
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The *Forest Industry Health Research Program (FIHRP)* has published a report on the factors that cause airborne chlorine dioxide to decompose and produce chlorine. The report, which is now available to members, is titled "*Decomposition of Chlorine Dioxide in Workplace Atmospheres*". To request a copy, contact **Agi Lee** at the Pulp and Paper Forum, by phone (604) 777-1533, fax (604) 777-1567, or e-mail alee@paperforum.com. Non-members of the Forum may be charged for the report.

Workplace surveys to measure airborne concentrations of chlorine dioxide have shown the presence of chlorine when none was expected. This finding introduced uncertainty into measurements of workers' exposure to chlorine dioxide because monitoring procedures generally also react to chlorine.

The decomposition of chlorine dioxide has been investigated extensively by various researchers. The report presents information from two Technical Bulletins published by the National Council of the Paper Industry for Air and Stream Improvement (NCASI), and from other published literature.

Chlorine dioxide is readily decomposed by visible and/or ultraviolet light. The median lifetime during daylight hours is 15 seconds, and at night is 43 hours. Reaction products include chlorine and other compounds containing chlorine and oxygen. The major reactions are:



Chlorine is also rapidly decomposed by sunlight with a median reported lifetime of 10 minutes.

NCASI studies on emissions of chlorine dioxide from bleach plant stacks demonstrated that chlorine dioxide decomposes after brief exposure to sunlight and produces chlorine.

Inside a workplace, such as a bleach plant without direct sunlight, airborne chlorine dioxide would degrade slowly, possibly with a lifetime of 43 hours, as if under nighttime conditions.