

ACROLEIN AND OTHER ALDEHYDES

FOREST INDUSTRY HEALTH RESEARCH PROGRAM

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The *Forest Industry Health Research Program (FIHRP)* has completed a study of aldehydes in air and process liquids. The report, which is now available to members, is titled "**Acrolein and Other Aldehydes in Pulp Mill Environments**". To request a copy, phone **Agi Lee** at the Pulp and Paper Forum at (604) 777-1533, fax (604) 777-1567, or e-mail alee@paperforum.com. Non-members of the Forum may be charged for the report.

Two BC mills participated in the study during October and November 1999. Sampling sites included: bleach and brown-stock washers; batch digester; sludge dewatering areas; a groundwood and a TMP mill.

Acrolein was detected in five of 36 air samples, and was not detected in the ten process liquid samples. The highest airborne concentration measured was 0.005 ppm in a sludge dewatering area; 10-times lower than the 12-hour exposure limit of 0.05 ppm. The second sample at this site did not contain acrolein at a detection limit of 0.0004 ppm.

Acrolein was present beside a bleach washer (0.003 ppm), near the Impressafiner discharge in the TMP mill basement (0.0005 and 0.0014 ppm), and where peroxide is added to pulp in the groundwood mill (0.0005 ppm). These results are 36-times to more than 125-times lower than the 12-hour limit of 0.05 ppm.

Formaldehyde was detected in about half the air samples, and five of ten liquid samples. The highest airborne concentration was 0.017 ppm beside a bleach washer; 9-times lower than the 12-hour exposure limit of 0.15 ppm. Other sites gave concentrations of 0.004 to 0.014 ppm.

The highest formaldehyde level in the liquids was 1.2 mg/L in a brownstock sample. Bleach washer liquids had 0.1 mg/L. No guidelines exist for evaluating the health risk of skin contact with these liquids.

Acetaldehyde was present in most of the air and liquid samples, generally at higher concentrations than formaldehyde. The exposure limit for acetaldehyde is a Ceiling value of 25 ppm which cannot be exceeded at any time and is independent of shift length. All the measured concentrations were well below this limit. The highest airborne level was 0.44 ppm, and the highest amount in the liquids was 2 mg/L.

Results of the study indicate that the risk of health problems appears to be minimal from inhalation of acrolein and the other aldehydes, and from skin contact with process liquids. However, individuals who are sensitized sampling sites.