

EMISSIONS FROM GLUES USED ON WRAPLINES AT PAPER MILLS

FOREST INDUSTRY HEALTH RESEARCH PROGRAM

c/o Pulp and Paper Employee Relations
Forum

#100-620 Royal Avenue

New Westminster, BC V3M 1J2

Telephone: (604) 777-1533

Facsimile: (604) 777-1567

Website: www.paperforum.com

FIHRP Forest Industry Health Research Program has published a report titled "**Emissions from Glues used on Wrapslines at Paper Mills**". The report is available to members on the Pulp and Paper Forum's web site at www.paperforum.com or contact **Agi Lee** 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.

Laboratory tests and air sampling at two paper mills examined the types and concentrations of volatile and particulate compounds emitted by six hot melt adhesives, polyethylene coating for end caps, and a liquid glue.

Laboratory tests were done at the use temperatures specified by the mills that supplied samples, and at elevated temperatures to examine the effect of overheating the glues. Personal samples were collected for wrapline operators and area samples were collected above glue pots.

Products tested were: Easybond 90-804; Instant Lok 34-200A; Pickets 34-7510; Swift 2H613; Swift 24364; Inseal 30-5111; Cascades Sonoco polycoating; and Swift 16492 Pulp Bond (liquid).

Air samples were analyzed for aldehydes, terpenes, resin acids, total particulate, acetic acid, and other "unknown" volatile and particulate organic compounds. Formaldehyde was the key compound present in emissions produced by all the products. The smoke produced by most of the products was similar to paraffin wax fume.

Laboratory tests demonstrated the potential for significant amounts of volatile and particulate (smoke) emissions when hot melt adhesives are heated at specified use temperatures. Overheating the glues showed a substantial increase in airborne concentrations for many volatile compounds and smoke.

The polyethylene coating on end cap paper produced formaldehyde and trace amounts of other emissions at the use temperatures, but no smoke. The liquid adhesive produced trace amounts of a few volatile compounds and no smoke.

Personal and area samples collected at two mills showed that wrapline operators' exposure to the emissions was low and does not represent a health risk. Operators' exposure to formaldehyde ranged from 0.004 to 0.025 ppm, well below the WCB exposure limit of 0.15 ppm for a 12-hour shift. Area samples above glue pots typically gave 10- to 500-times lower concentrations than measured in laboratory use temperature tests.

Good temperature control of glue pots and end cap platens is critical in minimizing workers' exposure to emissions.