

## WOOD DUST: A REVIEW OF POTENTIAL EFFECTS ON HEALTH

### SUMMARY

This report discusses health problems reported from exposure to wood dust. In the last 20 years, dusts from many wood species have come under increasing scrutiny for their potential health effects such as allergic respiratory diseases and nasal cancer.

The major health problem from wood dust exposure in the B.C. forest industry is asthma caused by western red cedar dust. As many as five percent of cedar mill employees may be allergic to the dust, and some asthmatics may not recover completely when they are no longer exposed to cedar dust. There is evidence that the higher the airborne cedar dust concentration, the more likely it is that an employee will develop asthma. Cedar dust concentrations should be kept as low as possible, and short-term exposures to high dust concentrations should be avoided.

Commercial wood species used in British Columbia, other than cedar, are unlikely to cause asthma. However, there is a possibility that a few sensitive individuals could develop asthma from exposure to dusts from species such as balsam fir, Douglas-fir, western hemlock, red alder, spruce, and pine. One case of asthma from balsam wood dust has been confirmed.

B.C. forest industry employees could develop an allergic reaction of the lungs called hypersensitivity pneumonitis. The disease has occurred in people exposed to wood dust, but it is caused by mould spores released from wood during operations such as bark stripping, conveying of wood chips, and sawing of untreated lumber. Airborne concentrations of moulds associated with cases of hypersensitivity

pneumonitis are not known, but the conditions likely to cause the disease seem to occur rarely in B.C. mills. In British Columbia, only one confirmed case of hypersensitivity pneumonitis has been reported. Early diagnosis is important. Prolonged exposure of a person sensitized to moulds can lead to permanent lung damage.

Dusts from Douglas-fir, western hemlock, red alder, balsam, spruce and western red cedar may cause obstruction of the breathing airways in some people, which results in a decrease in lung capacity. In the few studies carried out, a slight decrease in lung capacity has been demonstrated among forest industry employees exposed to these wood dusts. Dust concentrations for softwoods other than western red cedar should be kept below the current B.C. Workers' Compensation Board 8-hour exposure limit of  $5 \text{ mg/m}^3$  to minimize obstructive respiratory effects and irritation of eyes, nose and throat.

Allergic dermatitis rarely occurs from contact with the dust of local wood species. Douglas-fir and western red cedar have caused allergic dermatitis, but only in a few people. Instances from contact with spruce, pine, larch, and alder have been reported in other countries, therefore local species may affect a few sensitive people. Contact with lichens and liverworts on logs causes most of the allergic dermatitis cases related to wood dust exposure in the B.C. forest industry.

B.C. forest industry employees exposed to wood dust from local softwoods appear to have no greater risk than the general population of developing nasal cancer. An increased incidence of nasal cancer has been found in furniture-makers who worked with hardwoods, particularly beech and oak. The carcinogen appears to be a component

of fine, dry hardwood dust produced during the manufacture of furniture, not a chemical used in furniture-making or other woodworking operations. It is generally believed that the conditions of high dust exposure which gave rise to the cases of nasal cancer no longer occur in furniture factories. Local exhaust ventilation should be used to minimize employee exposure to dust from hardwoods such as red alder, oak, ash, and birch. Where this is not practical, employees should wear an approved dust mask.

The incidence of lung and stomach cancer among woodworkers has been examined in epidemiological studies. Woodworkers appear to have no greater risk of developing lung cancer than do the general population. A small increase in the incidence of stomach cancer was found in English and United States studies of woodworkers. However, the increase may not be related to occupational factors but may be related to other factors such as a person's diet.

Employee exposure to wood dust should be measured periodically. The higher the dust concentrations in mill air, the more frequently air samples should be taken.