

Occupational Cancer Risk Series.

Wood products

There may be hazards where you work that increase your risk of developing cancer. This fact sheet discusses occupational hazards related to wood dust and pressed wood products.

Key Messages

- Working with wood and pressed wood products containing formaldehyde may increase your risk of developing cancer.
- Wood dust causes cancer, as does formaldehyde released from pressed wood products such as MDF.
- Eliminate or reduce exposure to wood dust and formaldehyde by using the recommended controls.
- Refer to **guidance note - controlling wood dust hazards at work** for more information on how you can control wood dust and formaldehyde hazards.

What is wood dust?

Wood dust is produced via woodworking activities including the manufacture of wood products, machine operations, and hand or machine sanding. Wood dust that has settled can be released back into the air when disturbed from activities such as removing dust from furniture, maintenance activities, or when cleaning equipment or sweeping floors.

What is formaldehyde?

Formaldehyde is a colourless, strong-smelling gas that is used in the production of glues for the manufacturing of pressed wood products. Pressed wood products include plywood, particleboard, and medium density fibreboard (MDF), commonly used for panelling, cabinets, shelving, and furniture. These products are made from breaking down softwood or hardwood into wood fibres that are then glued together with formaldehyde based resin. Formaldehyde can be released as a vapour and absorbed by dust particles in the air.

Table 1. Health effects from wood dust and formaldehyde

Health effects		Wood dust	Formaldehyde
Short-term	Respiratory irritation	•	•
	Congestion	•	•
	Nausea		•
	Eye & skin irritation	•	•
Long-term	Nasopharynx cancer	•	•
	Nasal & sinus cancer	•	
	Leukaemia		•
	Asthma	•	
	Dermatitis		•
	Lung fibrosis (scarring)	•	

Wood dust, formaldehyde and cancer

Wood dust and formaldehyde are classified as Group 1 carcinogens by the International Agency for Research on Cancer (IARC). When wood products are worked on, dust and formaldehyde are released into the air. Prolonged exposure and inhalation of these products may cause cancer of the nasal cavity, sinuses and nasopharynx and leukaemia (Table 1).

It was estimated that around 16% of cancers of the nose and nasal sinuses in men and 2% in women could be due to exposure to wood dust¹.

Jobs and exposure

In 2010, it was reported that 14% of Australian workers (i.e. machinery operators, technicians, trades workers, labourers) were exposed to wood and related dust and 13% were exposed to industrial and medical gases and fumes (formaldehyde included)². Wood dust exposure is highest amongst woodworking machine operators, cabinetmakers, furniture finishers, carpenters and those employed in the manufacture of wood products. You may be exposed to wood dust and formaldehyde if your work involves cutting, sawing, routing, turning, sanding, or milling wood or pressed wood products.

Effective controls

All Australian workplaces must follow work health and safety laws; however these vary between states and territories. The duty of care for employers and responsibilities of workers across Australia is similar:

- Employers are required to ensure the health and safety of their workers at their workplace.
- Within reason, workers must take care of their own health and safety, not negatively affect that of others and follow instructions and workplace health and safety policies.

Eliminate or reduce exposure to hazards by following the **risk management process** and using the hierarchy of control (Figure 1). Workers should always be involved in the process to correctly identify hazards and control measures that suit the workplace and task. If suitable control measures are not in place, anyone working with wood products has an increased risk of developing cancer.

Figure 1. Hierarchy of risk control



Workers should be given information and training on:

- Control measures and how to use them (summarised in Table 3). The Health and Safety Executive (U.K) also have specific job task **fact sheets**.
- Possible health effects of wood dust and formaldehyde exposure.
- Health surveillance and monitoring.

Air monitoring

Work Health and Safety (WHS) **Regulation 50** states air monitoring must be conducted if there is a possible risk to health or if there is potential of exceeding the exposure limit. This should be conducted by a suitable qualified occupational hygienist. However, exposure levels in worksites are often changing and air sampling alone is not enough.

Table 2: Current Australian Occupational Exposure Standard

Carcinogen	8hr TWA	15mins STEL
Hardwood	1 mg/m ³	-
Softwood	5 mg/m ³	10 mg/m ³
Formaldehyde	1 ppm or 1.2 mg/m ³	2 ppm or 2.5 mg/m ³

For any concerns related to control measures at your workplace, or for more information on the control of air quality, contact:

- your workplace supervisor or management
- your workplace health and safety representative or union representative
- state and territory work health and safety regulators
- Safe Work Australia

For more information visit the useful websites listed on cancer.org.au/workcancer.

How do I assess and reduce my cancer risk?

Prevent wood dust and formaldehyde exposure by keeping the dust and gas out of the air. If you think you have been exposed to a cancer causing agent, it's important you speak with your doctor. To find out what you can do to create a workplace that supports healthy choices to help reduce cancer risk, contact a Cancer Council Nurse on 13 11 20 or visit cancer.org.au/workcancer.

1. Fritschi L. & Driscoll, T. Cancer due to occupation in Australia. *ANZJ Public Health* 2006;30(3):213-219
2. de Crespigny, F. National Hazard Exposure Worker Surveillance - Exposure to dust, gases, vapours, smoke and fumes and the provision of controls for these airborne hazards in Australian workplaces, 2010. Safe Work Australia

For more information call our Cancer Nurses on 13 11 20 cancerwa.asn.au

Table 3: Summary of exposure control measures for working with wood

Activity	Control
Construction, planning and design	Order the right size of wood products or have them cut to size off-site. Use Australian-made MDF products labelled low formaldehyde emission (LFE). A Safety Data Sheet should be requested before purchasing any pressed wood products. Use less toxic materials and substances (solvent-free products). Operate tools at lower power settings to minimise dust production.
Select the correct equipment	Use work processes that produce minimal dust (i.e. use a plane rather than a sander). Ensure tools have dust suppression features. Vehicles and machinery should have a dust collection system and an air conditioned cab with a filtered air supply. Filters should be cleaned and maintained regularly.
Use workshop ventilation	Work areas should be well ventilated. Have enclosures of hoods and local exhaust ventilation (LEV) to remove dust at the point it's produced.
Ensure tools have on-tool extraction	Use LEV that fits directly onto hand-held machines. They should be fitted with dust bags and used in well ventilated areas. This is the most effective way of controlling dust.
Use water suppression when possible	Water suppression should be used whenever possible; especially when LEV is not suitable. Water should be used through non-electric tools to wet dust down at the point of dust generation. Wetting the material is not enough. Ensure equipment and work areas are cleaned regularly with water.
Clean-up correctly	DO NOT 'clean up' with compressed air or by dry sweeping. Use roller/brush application of coatings rather than spraying. Use an H or M class industrial HEPA (high-efficiency particulate air) filter vacuum, which is cleaned and maintained regularly.
Reduce exposure using administrative controls	Ensure good general ventilation to the work area. Display warning signs if tasks create wood dust and/or formaldehyde. Rotate staff to limit the time they are exposed. Locate wood product work outdoors, away from other workers.
Know how to use your respiratory protective equipment (RPE) correctly	RPE should be used in combination with other controls. Workers should be face fit tested and trained in the use and maintenance of RPE. More important for those with facial hair. Use the AS/NZS 1715/1716 standards to choose the right RPE for the job; P1 or P2 replaceable filters or disposable half face-piece respirators when machining products. FFP3 is advisable if you are exposed to high levels of dust. Organic vapour filters will provide protection against formaldehyde vapours.
Wear the correct PPE	If possible, wear disposable clothing at work. Before you leave work, shower and change into clean clothes. Do not take dusty clothes home to wash.
Quit smoking	Inhalation of airborne particles from cigarette smoke, may reduce the lung's ability to clear dust, and increase the risk of contracting respiratory diseases associated with wood dust exposure.