

Carpenter/Joiner

HAZARDS AND RISKS

The biggest respiratory ill health risk to woodworkers comes from inhaling wood dust. Carpentry, joinery and shop fitting work typically involves cutting, shaping and fixing timber and wood pieces using saws, planes, chisels and other power and hand tools, all of which generate wood dust, as do tasks such as sweeping and cleaning. These workers can also be at risk through inhaling solvents and isocyanates from adhesives, paints, stains and varnishes that are used to fix and treat wood products.

Wood dust

Wood can be in many forms such as softwood and hardwood, and wood-based products such as MDF and chipboard. Exposure to all types of wood can lead to the development of asthma, which is a serious, debilitating, and sometimes life-limiting condition, and can also trigger asthma attacks in existing asthma sufferers. Hardwood dusts are listed as carcinogenic and can cause a rare form of nasal cancer. More rarely, there is an increased risk of developing hypersensitivity pneumonitis (a disease which can cause progressive lung damage) when working with some specific woods (e.g. western red cedar, iroko, ramin, oak or mahogany). Exposure to any type of wood dust can also cause irritation, allergic rhinitis (runny nose) and impaired lung function. Wood dust exposure may also cause dermatitis. The dermatitis risk is high for softwoods.

Resins, solvents & isocyanates

Inhaling solvents can lead to irritation, dizziness and drowsiness. Exposure to isocyanates can cause allergic rhinitis and asthma. These workers can also be at risk through inhaling solvents and isocyanates from adhesives, paints, stains and varnishes that are used to fix and treat wood products. Resins within the MDF may include urea-formaldehyde. Due to the potential health risks associated with formaldehyde from consumer articles, the European Union (EU) has implemented a Restriction on the use of formaldehyde under the Registration, Evaluation, Authorisation, and Restriction of Chemicals (REACH) Regulation. The restriction on formaldehyde under the REACH regulation has implications for businesses that manufacture or import products that may release formaldehyde. These businesses must ensure that their products comply with the emission limit set out in Annex XVII of the Regulation. This may require changes to the manufacturing process or the use of MDF.

CONTROL OPTIONS

Elimination/prevention

- Use pre-cut materials, to eliminate the need to cut wood on site, wherever possible.
- Use fewer toxic materials/substances, e.g. avoid high risk woods (such as Western Red Cedar).
- Use solvent-free products.
- Purchase 'no added formaldehyde' MDF board or low-emission MDF board if practicable to do so. Formaldehyde is classified as a carcinogen.

Engineering controls

- Use powered hand tools that feature integrated dust extraction or "on tool" dust extraction.
- Use local exhaust ventilation (LEV) for bench or semi-permanent machines; stand-alone dust collectors can be considered for occasional use.
- Use dustless cleaning methods e.g. H or M class ATEX-approved vacuum cleaner (with HEPA filter) and anti-static hoses.

Safe working methods

- Ensure good general ventilation to the work area; work outdoors if feasible.
- Set up dedicated work areas with restricted access to other workers.
- Clean up regularly and ensure vacuuming or wet cleaning; avoid dry sweeping or use of compressed air to remove dust from clothing.
- Minimise dust release e.g. through damping down of work areas.
- Use roller/brush application of coatings rather than spraying if feasible.

PPE

- Respiratory protective equipment (RPE) may be required to supplement the control measures described above. RPE must be worn if, for example, LEV cannot be used when operating power saws or machines, or hand sawing is carried out in enclosed or poorly ventilated areas.
- An FFP3 will give no protection against gases and vapours, a combination filter would be required to give adequate protection if such substances are involved.
- Any RPE worn should be properly fit tested.
- All staff required to use RPE should be subject to face fit testing to ensure the RPE selected provides each individual with the anticipated level of protection.
- Also, a fit check must be performed before each use

Preferred control methods

- Outdoor hand sawing; on-tool dust extraction; LEV for machinery in dedicated work areas and use of industrial vacuum cleaners fitted with the correct HEPA filter.

MANAGING THE RISK

Training & Communication

Supervision, maintenance and testing of controls and air monitoring are all vital aspects of managing the risk, in addition to health surveillance which can be a requirement in certain circumstances.

Air monitoring

Air monitoring is a specialist activity. It may be needed as part of a chemical risk assessment, as a periodic check on control effectiveness and to assess compliance with relevant OELVs, or where there has been a failure in a control (for example if a worker reports respiratory symptoms). A qualified occupational hygienist can ensure it is carried out in a way that provides meaningful and helpful results.

To obtain the most accurate and up-to-date information, it is recommended to visit the Health and Safety Authority's (HSA) website or contact the HSA directly. The website will have the up to date versions of the current code of practice, guidelines, and regulations.

<https://www.hsa.ie>

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OCCUPATIONAL EXPOSURE LIMIT VALUES (OELVs) AND EXPOSURE LIMITS

Agent or substance	Control/Exposure Limit	Comments
Hardwood Dust	2 mg/m ³ (8-hr reference period)	Capable of causing cancer. Capable of causing occupational asthma. If hardwood dusts are mixed with other wood dusts, this OELV for hard woods shall apply to all the wood dusts present in that mixture.
Softwood Dust	5 mg/m ³ (8-hr reference period)	Capable of causing occupational asthma. If softwood dusts are mixed with hardwood dusts, the OEL for hardwood dusts shall apply to all the wood dusts present in that mixture.
Other substances: The following are example OELs of hazardous substances associated with woodwork such as within varnishes or paints:		Adhesives, paints and paint strippers, varnishes and wood preservatives may all contain substances which have OELVs; refer to Safety Data Sheets (SDSs) in order to identify the component substances present.
Isocyanates	0.02 mg/m ³ (8-hr reference period)	Capable of causing occupational asthma.
Acetone	1210 mg/m ³ (8-hr reference period)	
Toluene	50 ppm (8-hr reference period, 100 ppm (15-min ref period)	
Formaldehyde	0.3 ppm (8-hr reference period), 0.6 ppm (15-min ref period)	Capable of causing occupational cancer. Formaldehyde - BOELV, Carc 1B, Sens, Limit value 0.5 ppm for the healthcare, funeral and embalming sectors until 11 July 2024.

Further information:

[Safety, Health and Welfare at Work \(Chemical Agents\) Regulations 2001 to 2021](#)

[Safety, Health and Welfare at Work \(Carcinogens, Mutagens and Reprotoxic substances\) Regulations 2024](#)

[Control of Chemical Agents: Your Steps to chemical safety. A guide for small business.](#)

[Guidelines on Occupational Asthma - Health and Safety Authority \(hsa.ie\)](#)

[Guidelines on Occupational Dermatitis - Health and Safety Authority \(hsa.ie\)](#)

[A Guide to Respiratory Protective Equipment – Health and Safety Authority \(hsa.ie\)](#)