

Working with engineered stone

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Fatal health risks when working with some types of stone

Working with engineered stone exposes employees to crystalline silica dust. If the dust is not managed properly, this can have serious health effects.

Engineered stone, sometimes also called reconstituted stone, is commonly used in kitchen benchtops. It is manufactured composite stone that contains at least 80 per cent crystalline silica.

To find out how much crystalline silica is in a product, check the safety data sheet or other information from the supplier.

Health risks

When you do things like cut, grind or abrasively polish products that contain crystalline silica, it releases dust containing respirable crystalline silica. The dust may not be visible. Breathing in this dust is likely to cause deadly diseases, such as:

- silicosis
- lung cancer
- kidney disease
- autoimmune disease.

You don't have to be exposed to silica dust for a long time to develop silicosis. You can develop the disease after a short period of very high exposure.

Silicosis is on the increase and it can be fatal. People working in benchtop fabrication are particularly at risk.

Employers must control exposure

Employers must control the risks of employee exposure to respirable crystalline silica dust. When determining what control measure to use, employers must apply the hierarchy of control. Employers must first determine if the risk of exposure to crystalline silica dust can be eliminated. Where the risk of exposure can't be eliminated, it must be reduced as far as is reasonably practicable, using one or more of these controls:

- substitution (for example substituting high silica content engineered stone products with others that have a lower silica content)
- isolation
- engineering controls (see below).

If the risk of exposure still remains, administrative controls must be used to reduce the risk so far as is reasonably practicable. If a risk remains, personal protective equipment must be used.

Required controls when using a power tool to cut, grind or polish engineered stone

By law, you must use certain controls when cutting, grinding or polishing engineered stone with a power tool. Dry processing generates dust with very high levels of crystalline silica, and anyone who has done this will have been exposed.

Employers, self-employed persons or persons who control or manage a workplace must ensure power tools are not used for cutting, grinding or abrasively polishing engineered stone unless the tools:

- have an integrated water delivery system that supplies a continuous feed of water (on-tool water suppression), or

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- are fitted with extraction attached to a HEPA filtered dust class H vacuum cleaner (or similar system that captures the dust generated).

If these controls are not reasonably practicable, employers must control the use of power tools through local exhaust ventilation (LEV).

On-tool water suppression is the most effective way to reduce exposure. WorkSafe views this control as reasonably practicable in all but very rare situations. Sometimes you may need to use both water suppression and LEV to reduce the dust enough.

Employees must be provided with RPE

Employers, self-employed persons and persons who manage or control a workplace must provide the person who is cutting, grinding or polishing engineered stone with respiratory protective equipment (RPE) that:

- is designed to protect the wearer from the inhalation of airborne contaminants entering the nose, mouth and lungs, and
- complies with AS/NZS 1716 – *Respiratory protective devices*.

Check the product information to make sure RPE is AS/NZS 1716 compliant. If you're not sure, ask your supplier or contact the manufacturer.

Respirators need to have at least a P2 filter and be facial fit tested for each person. Where facial hair interferes with the fit of the respirator, a powered respirator that does not rely on a facial seal needs to be used.

RPE needs to be selected, used and maintained in accordance with AS/NZS 1715 – *Selection, use and maintenance of respiratory protective equipment*. Employers must provide employees with information, instruction and training in RPE use and maintenance.

Note: Respiratory protection is not mandated when fully automated cutting, grinding or polishing systems are used, as long as employee exposure levels are below the exposure standard. If there is any uncertainty about whether the exposure standard is, or may be exceeded, atmospheric (personal) monitoring of employees must be undertaken.

There are consequences for employers who don't control the risks of dry processing. If WorkSafe inspectors observe cutting, polishing or grinding without the required controls in place, they will issue enforcement notices or take other action. Failing to control risks of dry processing may be a criminal offence.

Maintaining risk controls

Controls must be properly designed, installed, used and maintained so they remain effective in reducing exposure to crystalline silica dust. For example:

- RPE needs to be properly fitted and maintained
- integrated water delivery systems need to be set up to minimise the spread of water spray or mist
- extraction systems need to be regularly cleaned and maintained
- water slurry needs to be promptly collected and not allowed to dry out in work areas where people may be exposed to dust
- all controls need to be used and maintained according to the manufacturer's instructions.

Reduce dust during installation

Wherever possible, eliminate cutting at the installation site. If you can't eliminate cutting at the installation site, use the controls listed above.

Housekeeping

Make sure clean up and housekeeping processes don't generate dust in the air. Do not use compressed air for cleaning areas or personal cleaning.

Managing crystalline silica waste

Employers must control the risk of exposure to crystalline silica dust during waste management and disposal. For example, when wet slurry is collected, or dust captured by an extraction system is ready for disposal, it needs to be contained and handled in a way that minimises the release of dust. Containers of waste contaminated by silica dust must be identified, for example by a label that clearly states 'silica dust'.

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Exposure standard

Safe Work Australia publishes exposure standards for airborne contaminants in the workplace. The exposure standard for respirable crystalline silica dust (listed under Quartz (respirable dust)) is 0.1 mg/m³ as a TWA (time-weighted average) airborne concentration over 8 hours.

This standard is being reviewed. Until the review is complete, WorkSafe Victoria recommends that employees are not exposed to levels above 0.02 mg/m³ as a TWA.

Air monitoring

By law, employers must carry out air monitoring if:

- they are not sure if their employees are exposed to levels of silica dust that are above the exposure standard, or
- they can't work out if there's a risk to employee health without air monitoring.

Employers should carry out regular air monitoring to check whether controls are adequate.

Health monitoring

By law, employers must provide health monitoring if exposure to crystalline silica is likely to affect employee health. Employers should carry out health monitoring in all stone benchtop fabrication workplaces, unless air monitoring data shows that exposure is less than 0.02 mg/m³ as a TWA.

Employees must use controls provided

Employees must cooperate with their employer's efforts to control risks, for example by using RPE provided to them when they undertake any activity that exposes them to dust. They must also take reasonable care for their own health and safety and that of others who may be affected by what they do, or what they don't do.

Further information

Contact the WorkSafe Victoria Advisory Service on **1800 136 089** or go to **[worksafe.vic.gov.au](https://www.worksafe.vic.gov.au)**.

For information in your own language call TIS National on 131 450.

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