

Purpose

This safety bulletin has been developed to provide information on Crystalline Silica dust and possible controls for managing it in the workplace. Crystalline Silica is now regulated under the Occupational Health and Safety Regulations 2017.

What is Crystalline Silica

Crystalline silica is a natural mineral found in construction materials such as concrete, bricks, tiles, mortar and engineered stone. Dust containing respirable crystalline silica particles is commonly called silica dust. Activities such as cutting, grinding, sanding, drilling, loading or demolishing products that contain silica can generate respirable particles of crystalline silica dust that are small enough to breathe into your lungs. This dust may not be visible.

The amount of crystalline silica in products can vary. Examples include:

- Engineered Stone: 80% to 95%
- Ceramic Tiles: 5% to 45%
- Autoclaved aerated concrete: 20% to 40%
- Concrete: less than 30%
- Brick: 5% to 10%
- Marble: less than 5%

If you're not sure if a product contains crystalline silica, check the safety data sheet (SDS) or other information from the supplier.

Health Risks

Crystalline silica dust can be harmful when it's inhaled into your lungs over a long period of time at low to moderate levels, or short periods at high levels. When crystalline silica dust is inhaled it can cause silicosis, a scarring of the lungs. Silicosis is a serious and incurable disease, with symptoms including shortness of breath, coughing, fatigue and weight loss. In severe cases, the damage caused to the lungs by silicosis can require a lung transplant or may lead to death. Breathing in silica dust can also cause other serious diseases, such as:

- Lung cancer
- Kidney Disease
- Autoimmune disease, such as scleroderma

Construction and demolition employees can be at risk of developing these diseases.

Controlling exposure risk

An employer must, so far as is reasonably practicable, eliminate the risk associated with exposure to crystalline silica in their workplace (for example by not using crystalline silica-containing products). However, when this is not achievable engineering controls, administration controls and PPE can be provided to reduce the risks.

Engineering Controls

On-tool water suppression

The tool is fitted with an integrated water delivery system that continuously supplies water and suppresses the dust generated. This control will only be effective if the resultant slurry is managed and cleaned up in a manner that does not generate dust. Slurry needs to be managed so it does not dry out.

On-tool dust extraction

On-tool dust extraction removes dust from the source as it is being produced. This type of unit is fitted directly onto the hand-held tool and is fully integrated to collect the dust. Integrated dust extraction devices are only recommended for hand held drills with low air and dust volumes.

When the unit is full, it must be emptied in a controlled manner that does not create airborne dust, for example using a Dust Class M or H vacuum.

Another type of on-tool dust extraction is a local exhaust ventilation (LEV) system which is made up of multiple parts including the tool, captor hood or shroud and Dust Class M or H vacuum.

Administration Controls

Control exposure to dust during clean up:

- Use a Dust Class M or H vacuum cleaner or wet methods to clean dusty floors or surfaces. Never use compressed air, dry sweeping or high-pressure water to clean up, as this is likely to generate airborne dust.
- All PPE should be cleaned after each use to ensure dust does not accumulate. For example, by using a low-pressure hose or wet rags to spray or wipe down hard hats and boots.
- Don't take dusty work clothes home to wash. Work clothes should not gather dust if exposure is appropriately controlled during the work (for example through engineering controls). However, if silica dust has settled on clothing, remove dust by using a Dust Class M or H vacuum. If this is not possible employers should provide a laundry service for dusty work clothes and PPE. If a commercial laundry is used, talk to them first about how they want to receive clothing (for example dampened, bagged and labelled).

Respiratory Protective Equipment (RPE)

When engineering controls don't adequately control risks of exposure to silica dust, employers must provide their employees with RPE. RPE needs to comply 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. RPE needs to have at least a P2 filter and be tested for each person to ensure it fits correctly. RPE that requires a facial seal, such as half-face respirators, should not be used by people with beards or even facial stubble. Where facial hair interferes with the fit of the RPE, a powered air purifying respirator (PAPR) 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.

Air Monitoring

Air (atmospheric) monitoring for crystalline silica dust must be carried out, by law, when dust is generated in the workplace and there is uncertainty about whether the exposure standard is or may be exceeded or to determine where there is a risk to employee health, and therefore health monitoring may be required.

Air monitoring and the interpretation of results (including comparison with the exposure standard) needs to be conducted by a competent person (such as an occupational hygienist) to determine employee exposure to crystalline silica. Results of air monitoring must be shared with employees who have been, or may have been, exposed. Where possible, air monitoring results should be shared with medical practitioners who are conducting health monitoring for employees.

Health Monitoring

Employers must provide health monitoring if exposure to crystalline silica is likely to have an adverse effect employees' health. This is particularly important where lower level control measures, such as RPE are relied on to reduce exposure.

Health monitoring is required for employees who are exposed to silica dust at levels likely to exceed the exposure standard.

For more information on Silica Dust please go: <https://www.worksafe.vic.gov.au/dust-containing-crystalline-silica-construction-work>