



**WORKERS HEALTH CENTRE**  
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# Health And Safety Fact Sheet

## Silica Dust and Silicosis

Building and construction workers working with engineered stone, sandstone, granite and engaged in the cutting, drilling, polishing or sanding are at high risk of developing *silicosis*, a serious lung disease caused by the accumulation of silica dust in the lungs. The scarring of the lungs causes stiffening, which will obstruct breathing and cause shortness of breath. This can lead to incurable lung disease and lung cancer.

### What is silica dust?

Silica is the main component in sand and in rocks like sandstone and granite. Many workplaces are not aware that common building products such as clay bricks, concrete, tiles and fibro cement products contain silica. Over the last two decades there has been a high uptake in the use of high silica content engineered stone products, especially for kitchen and bathroom bench tops. Silica dust is usually created when such building products, sandstone or rocks are cut, drilled or worked on in a way that creates fine particles of silica in the air. It is breathing in this crystalline form of silica that causes silicosis.

### Who is affected?

Silicosis is **not** a naturally occurring disease. Its development is directly associated with workplace exposure to silica dust. Workers who are most at risk include those engaged in tunneling and excavation work, road building, demolition work and explosive blasting work, as well as those cutting slate & granite, glass manufacturing, brickmaking and some manufacturing processes. Workers engaged with engineered stone products for kitchen and bathrooms are at high risk.

### Health effects of silica dust

The symptoms of silicosis include:

- shortness of breath
- severe cough
- weakness.

These symptoms may not appear for many years after breathing in RCS. That is why it is so important to eliminate or minimise exposure to RCS in the workplace as much as is reasonably practicable. The most common form of silicosis develops after long exposure to relatively low concentrations. For some workers exposed to high levels of RCS exposure only needs to be 5 years.

Once the disease has begun, it will continue to

progress even if the worker is removed from further exposure. There is no medical treatment for silicosis. People with silicosis are also at greater risk of developing lung cancer. In 1996 the International Agency for Research on Cancer classified crystalline silica dust as a human carcinogen (Group 1).

The size of the silica particles is important in causing the disease. Larger particles are usually prevented from reaching the lung's small air sacs. It is the smaller particles (less than five thousandths of a millimeter) that are the most dangerous.

### How is silicosis detected?

The disease is difficult to detect in the early stages because of the absence of symptoms. Frequent dry coughing, shortness of breath, wheezing and increasing tiredness are possible early indicators.

### Health Monitoring:

The PCBU (Person Conducting the Business or Undertaking) should establish a monitoring program which must include the following:

- demographic, medical and occupational history
- records of personal exposure
- standardised respiratory questionnaire.
- standardised respiratory function test
- chest X-ray full size PA view.
- High-resolution computed tomography (HRCT)

### How to control silica dust at work

The only effective protection against silicosis is to prevent silica dust in the air entering the lungs. Under their obligations in the *Work Health and Safety Act 2011*, PCBUs must take measures to ensure that workers are not exposed to silica dust. **It is essential that workers are trained in how to use risk control measures and of the dangers of silica dust.**

## PCBUs in NSW must comply with the SafeWork Code of Practice:

"Managing the risks of respirable crystalline silica from engineered stone in the workplace" see:

<https://www.safework.nsw.gov.au/resource-library/list-of-all-codes-of-practice/codes-of-practice/engineered-stone-code-of-practice>

The code details several control measures that must be complied with in respect to Engineered Stone which should also be applied to other situations involving exposure to Silica see:

<https://www.safework.nsw.gov.au/resource-library/hazardous-chemicals/crystalline-silica/crystalline-silica-general-fact-sheet>

A PCBU are required to establish a silica dust control plan which should include but is not limited to the following:

## Substitution

Where possible, less toxic substances should be substituted for silica:

- The National Dust Diseases Taskforce has recommended a ban on the use of high silica content engineered stone which is a fashion item. There are many alternative products for bench tops.
- Olivine and zircon sand should be used in moulds and cores in foundries.
- Metallic shot, slag products or grit should be used for abrasive blasting. (It is now illegal to use sand for abrasive blasting).
- Alumina should be substituted for flint in china placing in pottery.
- In some building work, silica dust problems can be eliminated by using pre-built materials for plumbing and wiring.

## Engineering Controls

Tools causing dust, for example, grinders and saws, should be fitted with dust extraction devices. Dusty processes should be fully enclosed and have an exhaust hood attached. Where this is not possible, a local ventilation system with hoses fitted as close as possible to the head of cutting tools.

Use tools fitted with a water attachment to suppress dust, for example, on power saws, jack-picks and scabbling picks. Spraying with water in processes such as grinding or drilling can reduce the amount of dust by as much as 75%.

## Isolation

Isolation is a way to separate the workers from silica dust. It is an effective control measure that can also be used in combination with engineering controls to reduce the number of workers potentially exposed to silica dust.

## Good Housekeeping

Daily vacuuming and wet sweeping of floors and machinery to remove settled dust is particularly important. Work clothing should be vacuumed before removal. Under no circumstances should dry sweeping take place. Posters and signs warning of the presence of free silica should be prominently displayed.

## Respiratory Protective Equipment (RPE)

RPE should be utilised in in combination with, and to supplement higher level control measures. PCBUs have a responsibility to ensure that:

- the RPE is suitable having regard to the nature of the work and hazards associated with the work.
- the RPE is a suitable size and fit and reasonably comfortable for the worker who is to use and wear it.
- the RPE is maintained, repaired, or replaced so that it continues to minimise risk to the worker who uses it, including by ensuring it is clean and hygienic and in good working order, and
- the RPE is worn by the worker, so far as is reasonably practicable.
- the RPE is fit tested, regularly fit checked and training is provided in accordance with the code.

RPE may be unsuitable for use with a beard, and in these cases, an air supplied respirator with a hood, or a helmet and visor could be used.

Dust levels in the air should be monitored by an independent competent person. The WHS Regulations mandate that **no worker to be exposed to higher than Workplace exposure standard of 0.05 mgm/m<sup>3</sup>**. However, exposure levels in settings like construction sites are highly variable and air sampling alone is not enough to indicate the health risks from airborne silicosis.

## Useful Links

<https://www.australianunions.org.au/action/deadly-dust/>

<https://www.safeworkaustralia.gov.au/safety-topic/hazards/crystalline-silica-and-silicosis/choosing-and-implementing-control-measures-silica-dust>

[https://www.worksafe.qld.gov.au/\\_data/assets/pdf\\_file/0025/106486/rcs-construction-manufacturing-construction-elements-cop-2022.pdf](https://www.worksafe.qld.gov.au/_data/assets/pdf_file/0025/106486/rcs-construction-manufacturing-construction-elements-cop-2022.pdf)

## For further information and advice contact the Workers Health Centre

Industrial Health and Research Foundation - ABN 50 804 045 194 Third Floor, 20 Wentworth Street Parramatta NSW2150

(02) 9749 7666 admin@workershealth.com.au www.workershealth.com.au

WHC acknowledges support in the production of this Factsheet, from the ACTU

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