

Occupational Lung Disease - Silicosis



Occupational lung diseases are conditions of the respiratory system caused by workplace exposure to dusts, gases, fumes, vapours, mists and microorganisms.

What is silicosis?

Silicosis is a lung disease caused by breathing in respirable crystalline silica which is a common mineral found in sand, concrete, glass, quartz and other types of rock. It is a type of pulmonary fibrosis.

There are three types of silicosis.

Acute silicosis can develop after a short-term exposure to very high levels of silica dust, for example, less than one year and after a few weeks, and causes severe inflammation and an outpouring of protein into the lung.

Accelerated silicosis can develop after exposures of 3 to 10 years to moderate to high levels of silica dust and causes inflammation, protein in the lung and scarring of the lung (fibrotic nodules)

Chronic silicosis can develop after long term exposure (over 10 years) to lower levels of silica dust and causes fibrotic nodules and shortness of breath. It can include progressive massive fibrosis where the fibrotic nodules in the lung aggregate.

What causes silicosis?

When materials that contain silica are cut, drilled or ground without appropriate controls, dust particles enter the air. Silica particles less than 10 microns (so-called respirable crystalline silica) can be inhaled deep into the lungs. These particles can be invisible and less than 1/5 of the diameter of a human hair. Over time, exposure to silica particles causes scarring in the lungs which can affect breathing.

Who is at risk of silicosis?

Silicosis affects workers exposed to respirable crystalline silica dust in the construction and mining industries, and those working with engineered stone industries.

What other diseases can respirable crystalline silica cause?

In addition to silicosis, exposure to respirable crystalline silica is also associated with workers developing:

- chronic bronchitis
- emphysema
- lung cancer
- kidney damage, and/or
- scleroderma
 - a disease of the connective tissue of the body resulting in the formation of scar tissue in the skin, joints and other organs of the body.



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What must you do as a person conducting a business or undertaking (PCBU)?

Under the model WHS laws, amongst other things, as a PCBU you have duties to:

- identify the hazard (silica dust)
- control the risk of exposure to silica dust
- ensure the workplace exposure standard for crystalline silica is not exceeded
- conduct air monitoring if you are not certain the airborne concentration of respirable crystalline silica exceeds the exposure standard
- provide health monitoring for workers who have been exposed or are at risk of exposure to respirable crystalline silica.

The workplace exposure standard for respirable crystalline silica (silica dust) that must not be exceeded is 0.05 mg/m³ (eight-hour time weighted average). This means that workers and others **must not be exposed to levels of silica dust greater than 0.05 mg/m³** over an eight-hour working day, for a five day working week.

PCBUs must keep worker exposure to silica dust as low as reasonably practicable. Air monitoring must be conducted if there is any uncertainty that the workplace exposure standard is being exceeded or to find out if there is a risk to a worker's health.

Under the model WHS Regulations, PCBUs have specific duties to eliminate the risks to health and safety so far as is reasonably practicable. If it is not reasonably practicable to do so, PCBUs must minimise those risks so far as is reasonably practicable. **This includes the risks of diseases caused by hazardous chemicals like respirable crystalline silica dust.** Contact your local WHS regulator to find out the regulations in your state and territory.

References:

<https://www.svglunghealth.com.au/conditions/silicosis>

<https://www.safeworkaustralia.gov.au/silica>

Further information:

Further information on the duties of PCBUs involved in processing engineered stone can be found in The model Code of Practice: Managing the risks of respirable crystalline silica from engineered stone in the workplace working with engineered stone. For further information on the duties of PCBUs to manage the risks to health and safety when using, handling, generating and storing other silica containing materials please refer to the national [Guide for working with Silica and Silica containing products](#).