



Crystalline silica: The **new** asbestos

Touted as the ‘new asbestos’, respirable crystalline silica is the leading cause of silicosis, the most common occupational lung disease in the world.

Words: **Kelly Oversby**

Silica, also known as silicon dioxide (SiO₂), is naturally forming and can be found in well over 90 per cent of the earth’s crust and almost 40 per cent of all common minerals, making it a prevalent compound in any workplace environment where there is airborne dust. Crystalline silica is a form of silica.

Industries at risk of exposure include, but are not limited to, quarrying, mining, mineral processing, slate working, stone crushing and dressing, foundry work, brick and tile making, some refractory processes, construction work (including work with stone, concrete, brick and some insulation boards), tunnelling, building restoration, and pottery and ceramics.

Awareness of the risks that silica dust poses to Australian workers has grown over the past 50 years, and recently it was recommended that silicosis caused by silica be placed on each jurisdiction’s deemed diseases list for workers compensation.

However, a recent WorkSafe New Zealand commissioned study suggests that construction workers in that country are being exposed to silica dust levels that exceed national and international standards, begging the question: Is Australia doing enough to protect its workers from long-term damage?

Effects of silica dust

Silica dust is an inhalation hazard. When workers are exposed to very large

quantities of silica dust they can develop a disease called acute silicosis. As the name implies, it comes on quite rapidly and, if the exposure has been very great, usually the worker dies within a short time.

More typically, however, exposure to silica dust takes place over a long period, so it can take up to 30–40 years before the symptoms become very problematic.

Reports suggest more than 23 million workers are exposed to crystalline silica in China, more than 10 million in India, more than three million in Europe, and 1.7 million in the US. It’s not known how many workers are exposed in Australia.

Other diseases that derive from silica exposure are autoimmune diseases such as rheumatoid arthritis and Sjögren’s syndrome.

However, according to health and safety consultant Dr Peggy Trompf, linking the diseases to silica exposure is one of the biggest issues.

“Unless the treating doctor has knowledge of the exposure to silica, and the cause and effect of the exposure,

very often the link won’t be made,” she says. “And if the worker is not aware of the link, they won’t bring it to the doctor’s attention.”

Trompf says an Australian study team has estimated that, by 2090, cancer caused by silica exposure will be the key workplace health issue, making it a real ‘sleeper’ issue.

“The construction industry is one area where there is considerable exposure to silica dust, but that’s not to say there are other industries affected by it,” Trompf says.

“Construction is a whole different ball game from mining, which is highly controlled and regulated, as often construction workers operate independently and in silos.”

Trompf says the pressures in the construction industry to complete the job on time and on budget are also significant factors, and given the construction industry is largely made up of subcontractors, there is variability among them in the attention to health and safety they undertake. ▶

“THE CONSTRUCTION INDUSTRY IS ONE AREA WHERE THERE IS CONSIDERABLE EXPOSURE TO SILICA DUST.”



In Australia employers are expected to adhere to national exposure standards for crystalline silica, which were revised from 0.2mg/m³ to 0.1mg/m³ in 2005.

However, according to Trompf, the Americans and the Europeans don't believe this level is low enough and are currently considering lowering their own national exposure levels even further. "The Americans and the Europeans are taking it very seriously," Trompf says.

She adds: "I would prefer to see more air monitoring conducted as a matter of course on construction sites to get a baseline of what the exposures are, because in my experience we don't know.

"Educating the workforce and employers about the dangers of silica exposure and the health effects of the materials they're working with certainly needs attention, and that in itself might hopefully lead to better awareness and implementation of more suitable control measures."

Education is key

Brad Parker, national assistant secretary of the CFMEU, also believes silica is a sleeper issue and more needs to be done to protect workers. Having lost his father to silicosis, Parker is well aware of the health implications and devastating results of exposure to silica dust.

"Much more can be done [about silica exposure], but unfortunately there's a common perception that there is always dust on sites and that's just the way it is," Parker says.

"There needs to be a large industry campaign—a tripartite crystalline silica awareness campaign aimed at employers, employees and the medical profession—because we need to significantly raise the level of understanding regarding the health implications."

Parker says workers need to feel free of persecution so they can raise the issue with their health and safety

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SILICA IS A SLEEPER ISSUE BUT THERE'S A COMMON PERCEPTION THAT THERE IS ALWAYS DUST ON SITES AND THAT'S JUST THE WAY IT IS.



representatives, safety committee and safety managers on site.

“If all else fails, call in the union,” he advises, “because we know through the experience of years of inactivity in the asbestos area that there was an exacerbation of deaths. This must not be allowed to be repeated by exposure to crystalline silica.”

Prevention is paramount

Given the symptoms of chronic silicosis can take up to 40 years to present, and the prognosis is almost certainly fatal, prevention is paramount.

Graham Powe, managing director of Safety Equipment Australia, says it's always better to offer the best protection you can, rather than a graduated one, as safe levels of exposure can and do change over time.

“We see over the years that the supposed safe working levels for different vapours, gases and substances are dropping, so what might be safe exposure working levels today might not be the same in 20 years' time,” Powe explains.

It's not good enough to wear a respirator 98 per cent of the time—it must be worn at all times, Powe says. In addition, filters must be checked and changed regularly, respirators must be maintained and, most importantly, workers must be trained in the proper use of the equipment.

“If people don't know why they have to wear a respirator or what the effects of not wearing it are, it's pointless,” Powe says.

“If you take the respirator off for just two minutes in an hour, the protection factor can drop enormously because the mathematics of the protection factor that the respirator gives you doesn't work like that,” he adds.

“Those two minutes of not wearing the respirator can have a big effect on your daily dose and your health.

“There is a new ISO standard due out in 2016/17 that will test respirators fit for task, but until then we have to work with the current standards we have.”

Master Builders Australia was contacted for comment but had not responded by press time.