



# JUST HOW DANGEROUS IS SILICA EXPOSURE IN TUNNELLING?

**1 in 10 tunnel workers in Australia could be exposed to hazardous silica dust in their lifetime.**

A study from Kate Cole, Renne Carey and Tim Driscoll found that around 10% of underground tunnel workers in Queensland could develop silicosis in their lifetime, due to exposure in their working day, caused by breaking up large amounts of silica-containing rock with heavy machinery, ineffective dust control measures or a lack of proper ventilation in tunnels.

Whilst this study focuses on the risk to workers specifically in Queensland, the risk is much further widespread for all underground construction workers, in all areas of Australia and even worldwide. It called for further investigation into the reliability of air monitoring tests conducted and work being done to ensure workers are as well protected from silica dust as they can be.





## An investigation into air monitoring in tunnelling

The study was conducted to not only examine in more detail what tunnel workers were exposed to on a regular basis during activities, but to gain valuable data to make effective change for future risk. Parliamentary data taken from tunnel projects between 2007 and 2013 was used to determine the effectiveness of air monitoring tests in Queensland tunnels.

The study determined that out of around 2,000 workers involved in Queensland tunnel projects, 200 to 300 (10% to 15%) workers would be at risk of developing silicosis over their lifetime, caused by exposure to silica dust in tunnel work. A harrowing statistic but made worse by the limited data and lack of effective information available from the study.

The authors of the study determined “we had limited information on workplace conditions in the specific projects, so we made a number of assumptions based on publicly available information and our own experience.” The air monitoring tests referenced in the study provided information on current health and risk but failed to demonstrate how to effectively reduce future risk.

### So, what's the solution for implementing effective change for the future and reducing the statistics?

#### Real-time monitoring for effective change

With limited information on workplace conditions in the specific projects, small amounts of regular data and the inability to see data trends and predict future risk, the air monitoring tests undertaken from this study simply didn't give enough information. It's one thing to know 1 in 10 tunnel workers are at risk of silicosis, but how do we turn this into 0 in 10 tunnel workers?

Real-time 'air' monitoring for silica exposure in tunnelling offers instant, live data throughout a working shift to know the exact levels workers are exposed to, in-line with alarms for pre-set legislative or local exposure limits. Not only does this ensure workers are never overexposed to dangerous silica levels, but it allows the workforce to see overall trends in silica dust levels.



LIVE DATA ANALYTICS



SHIFT-LONG MONITORING



TREND VISIBILITY



EXPOSURE LIMIT ALARMS

Regular data sets allow workers to see exactly when silica levels were highest and deduce what's occurring at that time to implement effective control measures. This also allows the decision makers within workforces to work in-line with the Hierarchies of Control, systematically, to implement the most suitable control measures to their tunnel and track the effectiveness of this control measure.



## What does all this mean?

From the study, 1 in 10 tunnel workers in Queensland are at risk of developing silicosis and similar lung diseases. This is likely to be a risk, further a-field, not just in Queensland or Australia, but worldwide. However, there are effective measures which can be implemented to reduce further and future risk of silica exposure.

In tunnelling, where silica dust can be produced by a number of different activities like drilling or excavation, and also due to the lack of regular airflow and ventilation, knowing where and when exposure is occurring is difficult without real-time data. The ability to see real-time silica dust data helps to understand future risk introduce effective measures and reduce these statistics.



**1 in 10 WORKERS AT RISK**



**SILICOSIS RISKS**



**SILICA DUST SOURCES**



**REAL-TIME EXPOSURE DATA**



**It's time we gave workers information about the presence of silica dust in their workplace. Immediately and all of the time.**

**Visit [trolex.com/air-xs](https://trolex.com/air-xs) for more.**

## How can real-time silica monitoring support with your workplace safety?

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