

USING REAL-TIME SILICA MONITORING TO COMBAT OCCUPATIONAL SILICOSIS



THE DANGERS OF OCCUPATIONAL SILICOSIS.

It's estimated between 40 to 50 million workers worldwide are exposed to harmful silica dust in the workplace. 600,000 of those workers are located in Australia and 700,000 work in the UK.

Exposure to silicosis is a growing concern for workers in a variety of industries including construction, quarrying and tunnelling with concerns also growing over current methodologies used for monitoring respirable crystalline silica (RCS) in the workplace.

Current methods of monitoring for RCS in the workplace, such as gravimetric sampling, can take up to 4 weeks to return data meaning dangerous levels of RCS are often discovered too late, by which time the damage is already be done. The full process which requires collection, processing and laboratory analysis of the sample, is both time-consuming and costly for businesses, meaning it not only effects business operations poorly but more importantly puts all workers at risk of exposure.

Real-time monitoring offers a solution to this seemingly ever-growing issue.

As with most things in society now, real-time data provides necessary information at times we need it the most. You wouldn't be able to survive if your fire alarm didn't alert you in real-time and most

people depend on real-time data for financial, health and security reasons every single day of their lives. Real-time dust monitoring for industries with high dust exposure is no different.

The AIR XS Silica Monitor, that detects RCS content as a percentage over total dust monitored, uses Optical Refraction Technology (ORT).

In this way, AIR XS shines a laser through each RCS particle, causing a refraction of the light which is captured on several sensors. This means unlike other particle monitors on the market, our real-time silica monitor doesn't just count particles in your workplace but is able to detect and distinguish RCS in real time.



ADVOCATING FOR REAL-TIME SOLUTIONS.

In 2019, Joanna McNeill was diagnosed with silicosis. Joanna worked in an administration office at a rock quarrying site before her diagnosis.

Despite the office being located around 100 metres away from the quarry and displaying almost no symptoms at the time of her diagnosis, Joanna was shocked to learn she had contracted silicosis at the age of just 36.

Joanna would often leave her office every day covered in a layer of silica dust which had travelled over 90 metres from the quarry to her office regardless of the fact she never directly produced RCS or came into contact with it at the source

Nevertheless, this would inevitably lead to her diagnosis of silicosis.

"I worked in a portable cabin that had holes in the ground. We had a cleaner to go through it, but the dust was so thick that you couldn't even clean it"

Joanna said, highlighting just how vociferous RCS can be.

"I believe that companies need to enforce the risk of silica. I know for fact that people still don't know what they're working with. There's so many people who probably don't even know they have silicosis."

RCS is so small in size that workers often do not know they are breathing it in, by which time it's too late to prevent the risk of silicosis.

"It definitely needs to be monitored and to be documented. And that's not just for workers, that's also for the neighbourhoods that are around these mining sites," Joanna said.

Workers across the world have been exposed to harmful silica dust for a number of years now.

Former stonemason and construction worker Gordon Sommerville, advocating for the necessity of real-time alerts and data in response to RCS exposure, shared his experience of working around RCS and living with silicosis last year:

"My job involved everything from stone carving and restoration to structural alteration works and demolition to new build projects. No matter what type of work I was carrying out or who I was working for, daily dust was involved, lots of it"

"I think education on all dust-related matters is very important and should be a requirement for any employee on entering a dusty occupation. Still to this day there is a severe lack of awareness of the dangers of dust and the many diseases it can cause."

"A measurement device in any enclosed environment such as a stone cutting yard, etc. is a perfect example of where monitoring equipment could prevent so many illnesses, by simply providing real-time air quality information."



Joanna McNeil advocating for real-time fixed and personal dust and silica monitoring.

It isn't just victims of silicosis advocating for the use of real-time monitoring of RCS.

In 2022, the All-Party Parliamentary Group on Respiratory Health re-released their report on silica dust in the workplace, titled "Improving Silicosis Outcomes in the UK" after being made aware of new technology to monitor for RCS content in real time.

The report is clear that governing bodies should act with more urgency to look into the possibility of real-time monitoring for health and safety benefits of workers exposed to RCS.

"By providing warnings in real-time either through local alarms or via networked systems, real time monitoring provides an immediate, actionable incentive to respond instantly to the hazard.

We see advances in real time technology as the inevitable future for the industry and we urge the HSE to look into this in more detail."

Improving Silicosis Outcomes in the UK



REAL-TIME SOLUTIONS.

AIR XS, provides accurate and reliable readings of RCS content in whatever environment RCS is being produced, all in real time. AIR XS can be used to alert workers when they are exposed to dangerous levels of RCS, but also allows workplaces to make actionable changes to their processes thanks to live and historical dust data to prevent future exposure, as well as the capacity to work in-line with the Hierarchy of Controls to further protect workers' health and keep them safe in hazardous environments.

For more information on the benefits of real-time RCS monitoring with AIR XS, including its accuracy measured against traditional gravimetric sampling methods, [click here](#).

Or you can request a demonstration with one of our experts or approved local distributors, [here](#).



[Trolex AIR XS](#)