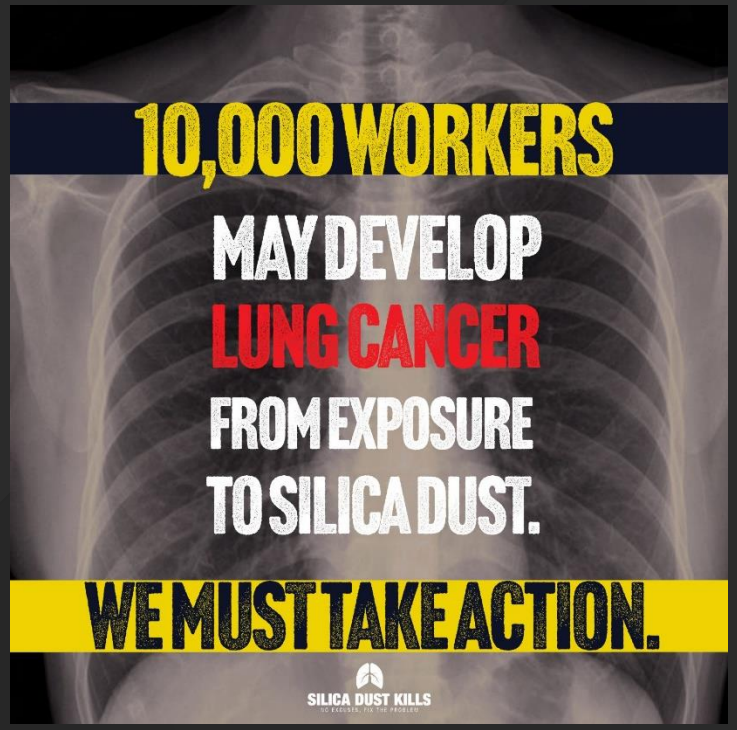
Respirable Crystalline Silica Hazards in the Workplace.

Are We Winning the Battle?

Can we do more as safety and health professionals and employers?



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Biography

- B.S. 1984, Safety & Health, Northern Illinois University
- Thirty seven years experience with gas/vapor detection instrumentation and respiratory safety products.
- Safety Engineer for Deep Tunnel Project
- Regional Manager for Draeger Corporation
- Vice President/ Technical Applications Sales Manager AFC International Inc.

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The good old days!!

1986 Deep Tunnel construction in the Chicagoland area.

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STATISTICS: GENERAL

- NIH - Silicosis is the most common chronic occupational lung disease in the world. Globally, between 40 to 50 million workers are exposed to silica dust. More than 5 million of these workers are in the U.S.
- In 2016 the CDC estimated there were 1.7-2.3 million workers exposed to respirable crystalline silica (RCS) in the US every year.
- 450,000 deaths are recorded each year in the U.S. from dust-related diseases contracted after exposure in the workplace, and silica dust is likely to be a contributing factor in many of these deaths.* This is not surprising when you consider that asbestos is in fact just one of the many forms of silica.**
- Institution of Occupational Safety and Health (IOSH) reports that only 15% of employers surveyed believe workers fully understand the risks of silica dust, and that 56.6% reported workers had no awareness of the risks.

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*WHO/ILO: Almost 2 million people die from work-related causes each year

**https://industrialhygienepub.com/industrial-hygiene-in-the-workplace/using-technology-for-silica-dust-detection/ Glyn Pierce-Jones

Silica the Hazard. What is it?

- Silicon (Si) is the second most common element in the Earths crust (oxygen is the most common, silica (SiO2) is formed from silicon and oxygen atoms.

- Silica is a natural substance found in varying amounts in most rocks, sand and clay. For example, sandstone contains more than 70% silica, whereas granite might contain 15-30%. Silica is also a major constituent of construction materials such as bricks, tiles, concrete and mortar.

- Respirable crystalline silica (RCS) are very small particles at least 100 times smaller than ordinary sand you might find on beaches and playgrounds

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Type of Stone	Percentage of Silica
Sandstone, gritstone, quartzite	more than 70%
Concrete, mortar	25% to 70%
Shale	40% to 60%
China Stone	up to 50%
Slate	up to 40%
Brick	up to 30%
Granite	up to 30%
Ironstone	up to 15%
Basalt, dolerite	up to 5%
Limestone, chalk, marble	up to 2% (but these can contain silica layers)

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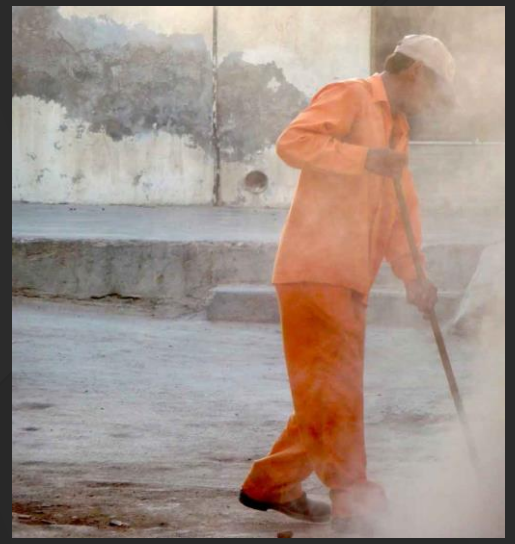
OSHA - Silica is created when cutting, sawing, grinding, drilling, and crushing stone, rock, concrete, brick, block, and mortar. Activities such as abrasive blasting with sand; sawing brick or concrete; sanding or drilling into concrete walls; grinding mortar; manufacturing brick, concrete blocks, stone countertops, or ceramic products; and cutting or crushing stone result in worker exposures to respirable crystalline silica dust. Industrial sand used in certain operations, such as foundry work and hydraulic fracturing (fracking), is also a source of respirable crystalline silica exposure. About 2.3 million people in the U.S. are exposed to silica at work.



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When you see dust in the air, there's a lot more that's invisible and respirable!

Remember this when we look at the OSHA Standard.

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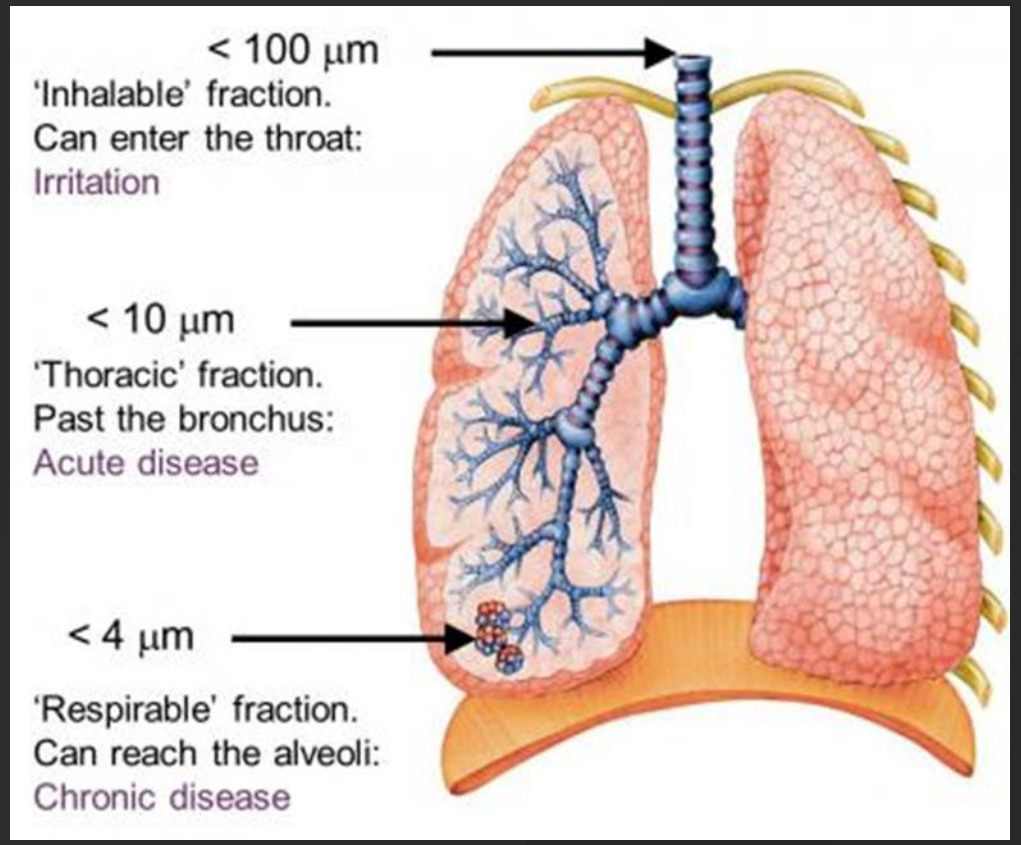
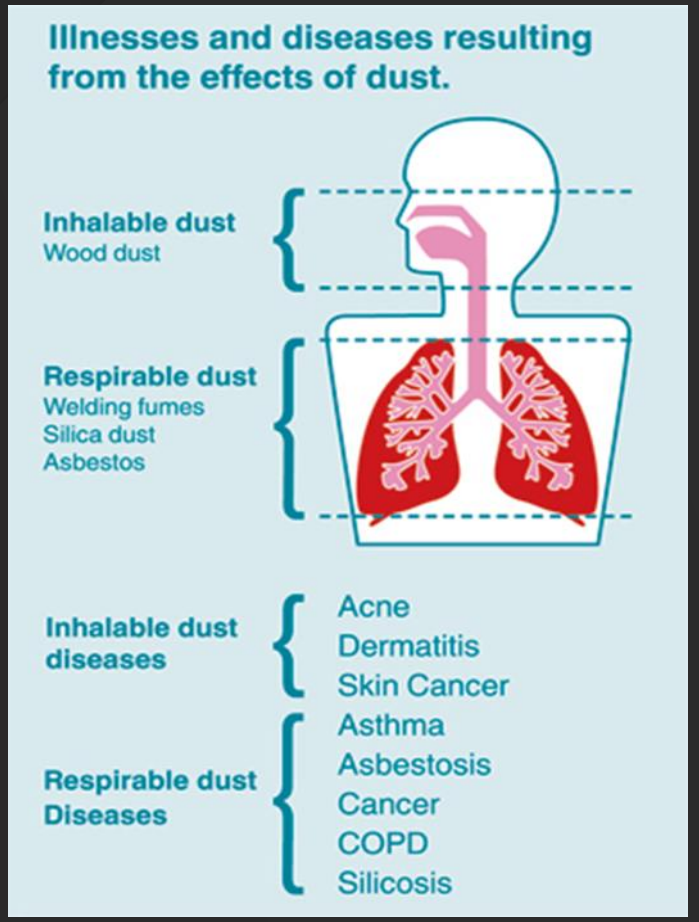
Some of this dust is fine enough to get deep into your lungs. The fine dust is known as respirable crystalline silica (RCS) and is too fine to see with the naked eye. It is commonly called silica or silica dust. < 4.25 um (PM4.25, PM2.5, PM1)





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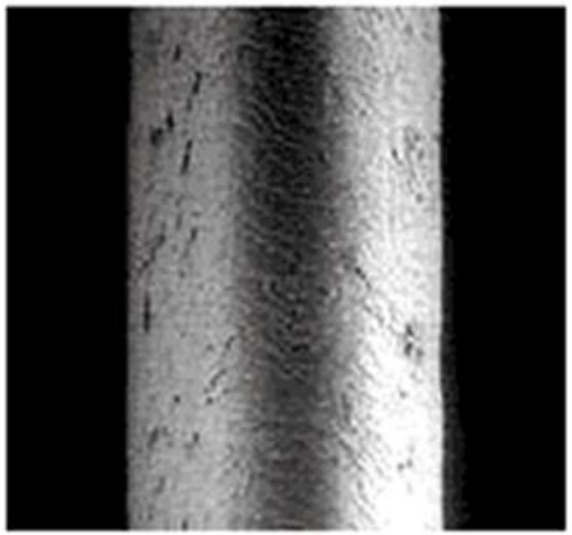
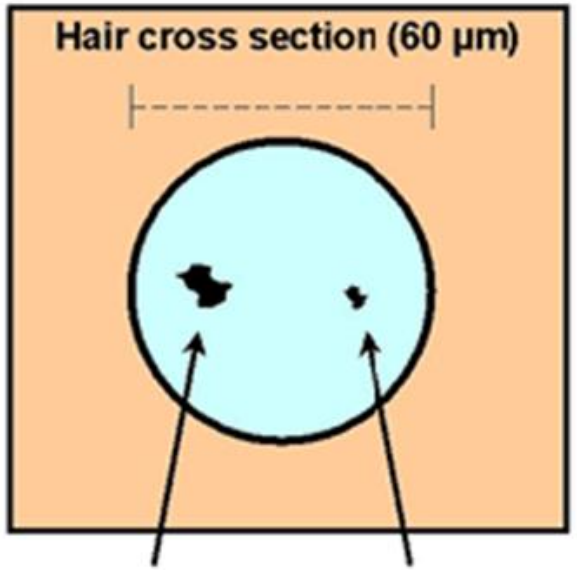
HOW SMALL IS PM?



Human Hair
(60 µm diameter)



PM10
(10 µm)

PM2.5
(2.5 µm)

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Silica in the lungs

Silicosis

- The 3 common types of silicosis are:
  - chronic silicosis — exposure to silica dust for more than 10 years
  - accelerated silicosis — exposure to silica dust for 3 to 10 years
  - acute silicosis — develops within weeks or months of exposure to silica dust

- All 3 types affect you in the same way. The difference is how long it takes for problems to develop.

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Acute Silicosis – Hawks Nest Tunnel

- The Union Carbide and Carbon Corp. began constructing the 3-mile tunnel in the spring of 1930
- According to Union Carbide documents, 80 percent of the workers became ill, died or walked off the job after six months.

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Silicosis

- Exposure to RCS over a long period can cause fibrosis (hardening or scarring) of the lung tissue with a consequent loss of lung function.
- Sufferers are likely to have severe shortness of breath and may find it difficult or impossible to walk even short distances or up stairs.
- The effect continues to develop after exposure has stopped and is irreversible.
- Sufferers usually become house- or bed-bound and often die prematurely due to heart failure.
- Acute silicosis is a rare complication of short-term exposure to very large amounts of silica. This condition is life-threatening and associated with very significant clinical consequences.

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Global Death Rates from Silicosis 1990 & 2019

Table 1

The number of deaths and crude mortality rates due to silicosis in 1990 and 2019, and changes from 1990 to 2019

Item	1990		2019		Change 1990–2019	
	Number	Rate, per 100,000	Number	Rate, per 100,000	Number	Rate, per 100,000
Global	15,106.77 (10,913.17, 18,493.90)	0.28 (0.20, 0.35)	12,886.69 (10,826.98, 16,160.92)	0.17 (0.14, 0.21)	− 0.15 (− 0.34, 0.27)	0.41 (− 0.54, − 0.12)

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ALLEN LAW GROUP
INJURY ATTORNEYS

10 OF AUGUST, 2021 POSTED BY DON ASHER

Employer Responsibility for Fatal Worker Death from Silicosis, Lung Cancer, Tuberculosis, and COPD with Upward Trend in Silica Use

The risk of a serious or deadly exposure to silica is a known and recognized hazard to workers in a variety of industries here in Indiana and Illinois, in addition to the obvious danger facing miners in the silica mines found in our part of the country. About an hour southwest of Chicago on Interstate 80 is the largest silica mine in North America, as U.S. Silica's operations in Ottawa, Illinois, mine the St. Peter Sandstone Formation. In fact, the Hoosier State is home to nine (9) different silica mining operations, while the State of Illinois has sixteen (16) different silica production facilities.

> *There is a growing danger facing workers from silica (also known as "silica sand" or "quartz sand") for both miners and those who are not earning a living in a local silica mine.*

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Nothing new!!

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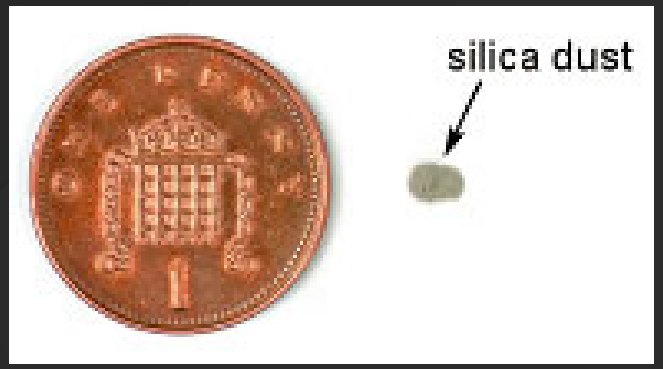
Respirable crystalline silica (RCS)

In the US, RCS exposure has a workplace exposure limit (PEL), which contains exposure below a set limit, preventing excessive exposure. The PEL for RCS is 50 ug/m3 expressed as an 8-hour time-weighted average (TWA) and an action level of 25ug/m3. This is a very, very, small amount! At these levels, they can be invisible to the naked eye.

Remember this when we get to the OSHA Standard



OSHA PEL
50 ug/m3 = 0.05 mg/m3

Action Level
25 ug/m3 = 0.025 mg/m3

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The Silica Standard from OSHA has been in place since June 23, 2018

Construction	1926.1153 - Respirable crystalline silica
General Industry	1910.1053 - Respirable crystalline silica.

1926.1153(c)(1)
For each employee engaged in a task identified on Table 1, the employer shall fully and properly implement the engineering controls, work practices, and respiratory protection specified for the task on Table 1, unless the employer assesses and limits the exposure of the employee to respirable crystalline silica in accordance with paragraph (d) of this section.

Employers can choose to follow Table 1 or go to section D and monitor to prove they are below the action levels. Most employers chose to follow Table 1. They chose the easy button!! And why not? No air monitoring/sampling needed if you follow Table 1.

Employers who fully and properly implement the engineering controls, work practices, and respiratory protection specified for a task on Table 1 are not required to measure respirable crystalline silica exposures to verify that levels are at or below the PEL for workers engaged in the Table 1 task.

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Table 1—Specified Exposure Control Methods When Working With Materials Containing Crystalline Silica

Equipment/task	Engineering and work practice control methods	Required respiratory protection and minimum assigned protection factor (APF)	
		≤ 4 hours/shift	>4 hours/shift
(i) Stationary masonry saws	Use saw equipped with integrated water delivery system that continuously feeds water to the blade Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions	None	None
(ii) Handheld power saws (any blade diameter)	Use saw equipped with integrated water delivery system that continuously feeds water to the blade Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions:		
	-When used outdoors	None	APF 10
	-When used indoors or in an enclosed area	APF 10	APF 10
(iii) Handheld power saws for cutting fiber-cement board (with blade diameter of 8 inches or less)	For tasks performed outdoors only: Use saw equipped with commercially available dust collection system Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency	None	None
(iv) Walk-behind saws	Use saw equipped with integrated water delivery system that continuously feeds water to the blade Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions:		
	-When used outdoors	None	None
	-When used indoors or in an enclosed area	APF 10	APF 10
(v) Drivable saws	For tasks performed outdoors only:		
	Use saw equipped with integrated water delivery system that	None	None

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1926.1153(c)(2)
When implementing the control measures specified in Table 1, each employer shall:

1926.1153(c)(2)(i)
For tasks performed indoors or in enclosed areas, provide a means of exhaust as needed to minimize the accumulation of visible airborne dust;

1926.1153(c)(2)(ii)
For tasks performed using wet methods, apply water at flow rates sufficient to minimize release of visible dust;

1926.1153(c)(2)(iii)
For measures implemented that include an enclosed cab or booth, ensure that the enclosed cab or booth:

1926.1153(c)(2)(iii)(A)
Is maintained as free as practicable from settled dust;

1926.1153(c)(2)(iii)(B)
Has door seals and closing mechanisms that work properly;

1926.1153(c)(2)(iii)(C)
Has gaskets and seals that are in good condition and working properly;

1926.1153(c)(2)(iii)(D)
Is under positive pressure maintained through continuous delivery of fresh air;

1926.1153(c)(2)(iii)(E)
Has intake air that is filtered through a filter that is 95% efficient in the 0.3-10.0 µm range (*e.g.*, MERV-16 or better); and

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1926.1153(d)

Alternative exposure control methods. For tasks not listed in Table 1, or where the employer does not fully and properly implement the engineering controls, work practices, and respiratory protection described in Table 1:

1926.1153(d)(1)

Permissible exposure limit (PEL). The employer shall ensure that no employee is exposed to an airborne concentration of respirable crystalline silica in excess of 50 µg/m^3, calculated as an 8-hour TWA.

1926.1153(d)(2)

Exposure assessment-

1926.1153(d)(2)(i)

General. The employer shall assess the exposure of each employee who is or may reasonably be expected to be exposed to respirable crystalline silica at or above the action level in accordance with either the performance option in paragraph (d)(2)(ii) or the scheduled monitoring option in paragraph (d)(2)(iii) of this section.

1926.1153(d)(2)(ii)

Performance option. The employer shall assess the 8-hour TWA exposure for each employee on the basis of any combination of air monitoring data or objective data sufficient to accurately characterize employee exposures to respirable crystalline silica.

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Analytical Exposure Monitoring/Sampling

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1926.1153(d)(2)(iii)(A)

The employer shall perform initial monitoring to assess the 8-hour TWA exposure for each employee on the basis of one or more personal breathing zone air samples that reflect the exposures of employees on each shift, for each job classification, in each work area. Where several employees perform the same tasks on the same shift and in the same work area, the employer may sample a representative fraction of these employees in order to meet this requirement. In representative sampling, the employer shall sample the employee(s) who are expected to have the highest exposure to respirable crystalline silica.

1926.1153(d)(2)(iii)(B)

If initial monitoring indicates that employee exposures are below the action level, the employer may discontinue monitoring for those employees whose exposures are represented by such monitoring.

1926.1153(d)(2)(iii)(C)

Where the most recent exposure monitoring indicates that employee exposures are at or above the action level but at or below the PEL, the employer shall repeat such monitoring within six months of the most recent monitoring.

1926.1153(d)(2)(iii)(D)

Where the most recent exposure monitoring indicates that employee exposures are above the PEL, the employer shall repeat such monitoring within three months of the most recent monitoring.

1926.1153(d)(2)(iii)(E)

Where the most recent (non-initial) exposure monitoring indicates that employee exposures are below the action level, the employer shall repeat such monitoring within six months of the most recent monitoring until two consecutive measurements, taken seven or more days apart, are below the action level, at which time the employer may discontinue monitoring for those employees whose exposures are represented by such monitoring, except as otherwise provided in paragraph (d)(2)(iv) of this section.

1926.1153(d)(2)(iv)

Reassessment of exposures. The employer shall reassess exposures whenever a change in the production, process, control equipment, personnel, or work practices may reasonably be expected to result in new or additional exposures at or above the action level, or when the employer has any reason to believe that new or additional exposures at or above the action level have occurred.

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1926.1153(d)(2)(vi)(A)

Within five working days after completing an exposure assessment in accordance with paragraph (d)(2) of this section, the employer shall individually notify each affected employee in writing of the results of that assessment or post the results in an appropriate location accessible to all affected employees.

1926.1153(d)(2)(vi)(B)

Whenever an exposure assessment indicates that employee exposure is above the PEL, the employer shall describe in the written notification the corrective action being taken to reduce employee exposure to or below the PEL.

1926.1153(d)(3)(i)

Engineering and work practice controls. The employer shall use engineering and work practice controls to reduce and maintain employee exposure to respirable crystalline silica to or below the PEL, unless the employer can demonstrate that such controls are not feasible. Wherever such feasible engineering and work practice controls are not sufficient to reduce employee exposure to or below the PEL, the employer shall nonetheless use them to reduce employee exposure to the lowest feasible level and shall supplement them with the use of respiratory protection that complies with the requirements of paragraph (e) of this section.

1926.1153(d)(3)(ii)

Abrasive blasting. In addition to the requirements of paragraph (d)(3)(i) of this section, the employer shall comply with other OSHA standards, when applicable, such as 29 CFR 1926.57 (Ventilation), where abrasive blasting is conducted using crystalline silica-containing blasting agents, or where abrasive blasting is conducted on substrates that contain crystalline silica.

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1926.1153(e)(1)(ii)

For tasks not listed in Table 1, or where the employer does not fully and properly implement the engineering controls, work practices, and respiratory protection described in Table 1:

1926.1153(e)(1)(ii)(A)

Where exposures exceed the PEL during periods necessary to install or implement feasible engineering and work practice controls;

1926.1153(e)(1)(ii)(B)

Where exposures exceed the PEL during tasks, such as certain maintenance and repair tasks, for which engineering and work practice controls are not feasible; and

1926.1153(e)(1)(ii)(C)

During tasks for which an employer has implemented all feasible engineering and work practice controls and such controls are not sufficient to reduce exposures to or below the PEL.

1926.1153(f)(1)

The employer shall not allow dry sweeping or dry brushing where such activity could contribute to employee exposure to respirable crystalline silica unless wet sweeping, HEPA-filtered vacuuming or other methods that minimize the likelihood of exposure are not feasible.

1926.1153(f)(2)

The employer shall not allow compressed air to be used to clean clothing or surfaces where such activity could contribute to employee exposure to respirable crystalline silica unless:

1926.1153(f)(2)(i)

The compressed air is used in conjunction with a ventilation system that effectively captures the dust cloud created by the compressed air; or

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Then there's this.

OSHA emphasis program to target silica hazards in cut stone, stone products manufacturing industry

April 26, 2022 No Comments

CRYSTALLINE SILICA | CRYSTALLINE SILICA DUST | OSHA | OSHA EMPHASIS PROGRAMS | SILICA | SILICOSIS | STONE FABRICATION WORKERS

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* https://www.safetyandhealthmagazine.com/articles/22532-osha-emphasis-program-to-target-silica-hazards-in-cut-stone-stone-products-manufacturing-industry

“In the past 10 years, the cut stone and stone products manufacturing industry has had the highest documented overexposures to respirable crystalline silica in the region,” OSHA says in a press release, adding that 30% of the overexposures in Region 8 were in the cut stone and stone products industry.*

The OSHA Standard has been in place since 2018

* https://www.safetyandhealthmagazine.com/articles/22532-osha-emphasis-program-to-target-silica-hazards-in-cut-stone-stone-products-manufacturing-industry

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The OSHA Silica standard is a good standard, and a great first step in the proper direction.

However!!

In my opinion as a safety professional, I don't think it goes far enough. There are too many holes in the Table 1 standard and even in the monitoring/sampling section of the "Alternative Exposure and Control" section.

- **Too many subjective decisions. Look at all the highlighted parts of Table 1.**
- **How do we know there is no silica if we can't see it? Is a little silica okay?**
- **How do we know the water flow rate of the tool is proper? Has the tool been maintained properly?**
- **Are the filters efficient. Are they being checked daily to make sure they are proper?**
- **Conditions change everyday especially in construction.**
- **Venting silica away from to workers to where? Adjoining work areas, public areas?**
- **Water creates slurries. What happens when they dry up. Transient dust is created again.**
- **How do we know if we meet the APF of a respirator when we are not measuring/monitoring the air?**
- **Too long of a time delay to get lab sample data back. Workers are already expose for a few weeks.**
- **Conditions and work events on the day of sampling can be different.**

As safety professionals is it our job to simply follow the OSHA regulations? Or are we to provide the safest workplace possible? We can do better.

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How do we know that the dust control system is working properly?

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How do we know that the dust ventilation system is effective?

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How do we know if the N95 respirator is meeting the respiratory standard when we don’t know what the concentration is because we are not required to monitor?

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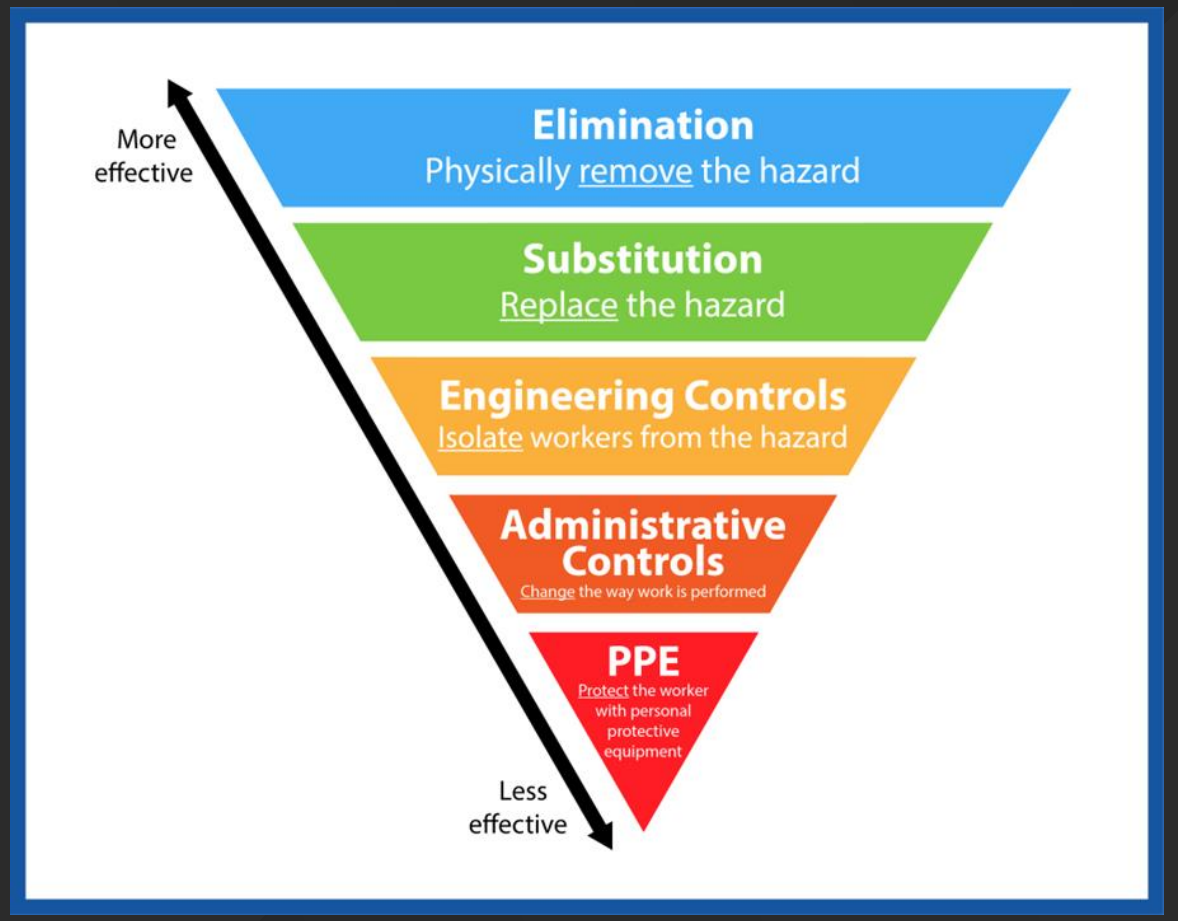
Hierarchy of Controls



If we are not measuring (monitoring), how can we follow the Hierarchy of control?

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Workplace Dust Silicosis:

Real Time Monitoring

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New Technology is here to help the day-to-day activities and fill the holes in the Silica standard to lessen the exposure to RCS.

Real time monitoring

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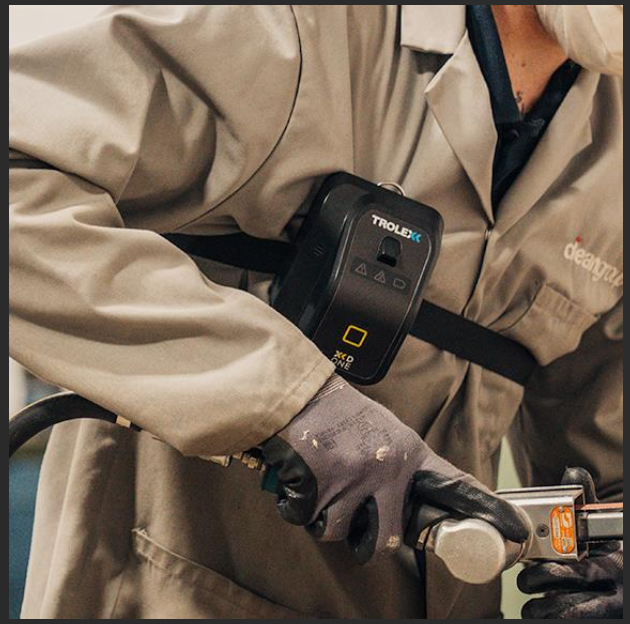
Real Time Monitoring

Personal air monitors that can detect and log total dusts have been around for a while. They are usually complicated to use, expensive, and not very robust. However, Trolex, has come out with a new series of personal dust monitors that not only data log PM1, PM2.5, PM, 4.25, PM 10, but will alarm and notify the worker when threshold levels of dusts have been reached.



XD One has a range from 0.35µm – 40µm (PM1, PM2.5, PM4.25, PM10 and TSP

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Think of it like gas detection gas monitors. Nowadays, they provide real-time detection of hazardous gases and vapors. We use them all the time for confined space entry and hazardous chemical/fuel storage and production areas. They keep us safe letting workers know immediately that there is a safety issue. However, back in the day, they didn't exist. All we had were detector tubes. We had to periodically break tubes and sample for hazardous gases. There was no immediate alarm device.

The times have changed!!

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The AIR XS from Trolex is the first and only real-time, direct reading instrument for Respirable Crystalline Silica, (RCS).

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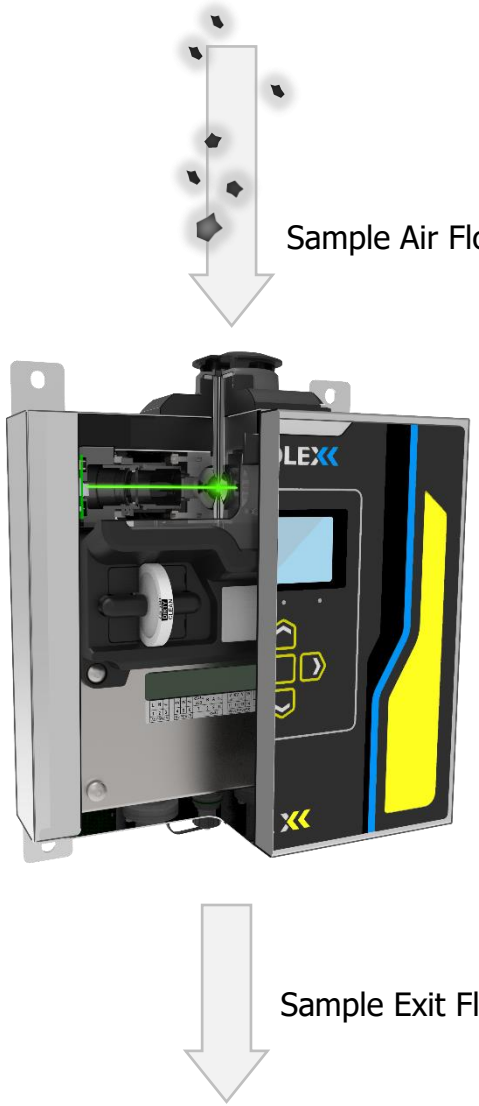
Real-Time RCS Detection

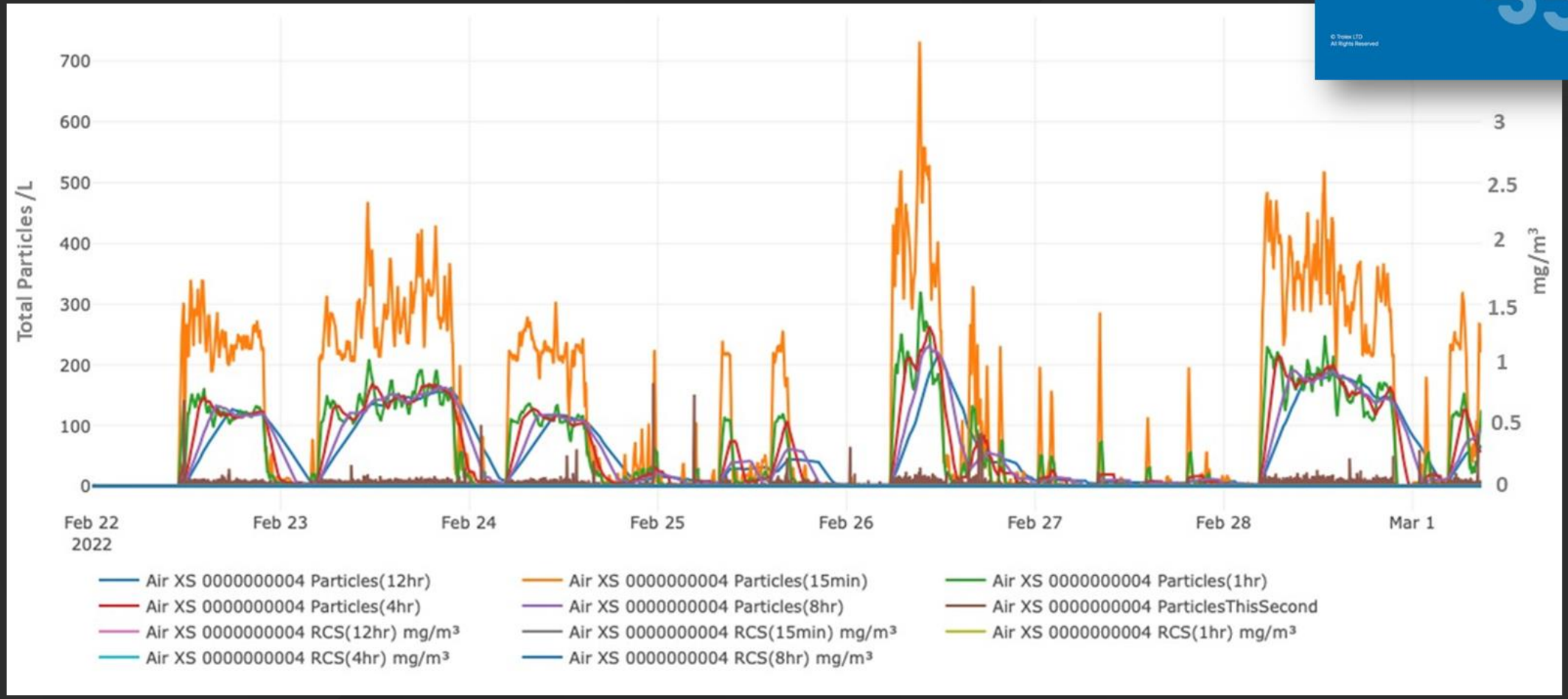
The Method



From the sampled airflow the Air XS Sensor determines the following to support the identification of RCS particles

- Airflow Per Litre (Dynamic)
- ~10,000 triggers per second
- Particle count per second
- Particle Density
- Positive RCS count over general dust
- RCS content in mg/m^3

Real time monitoring



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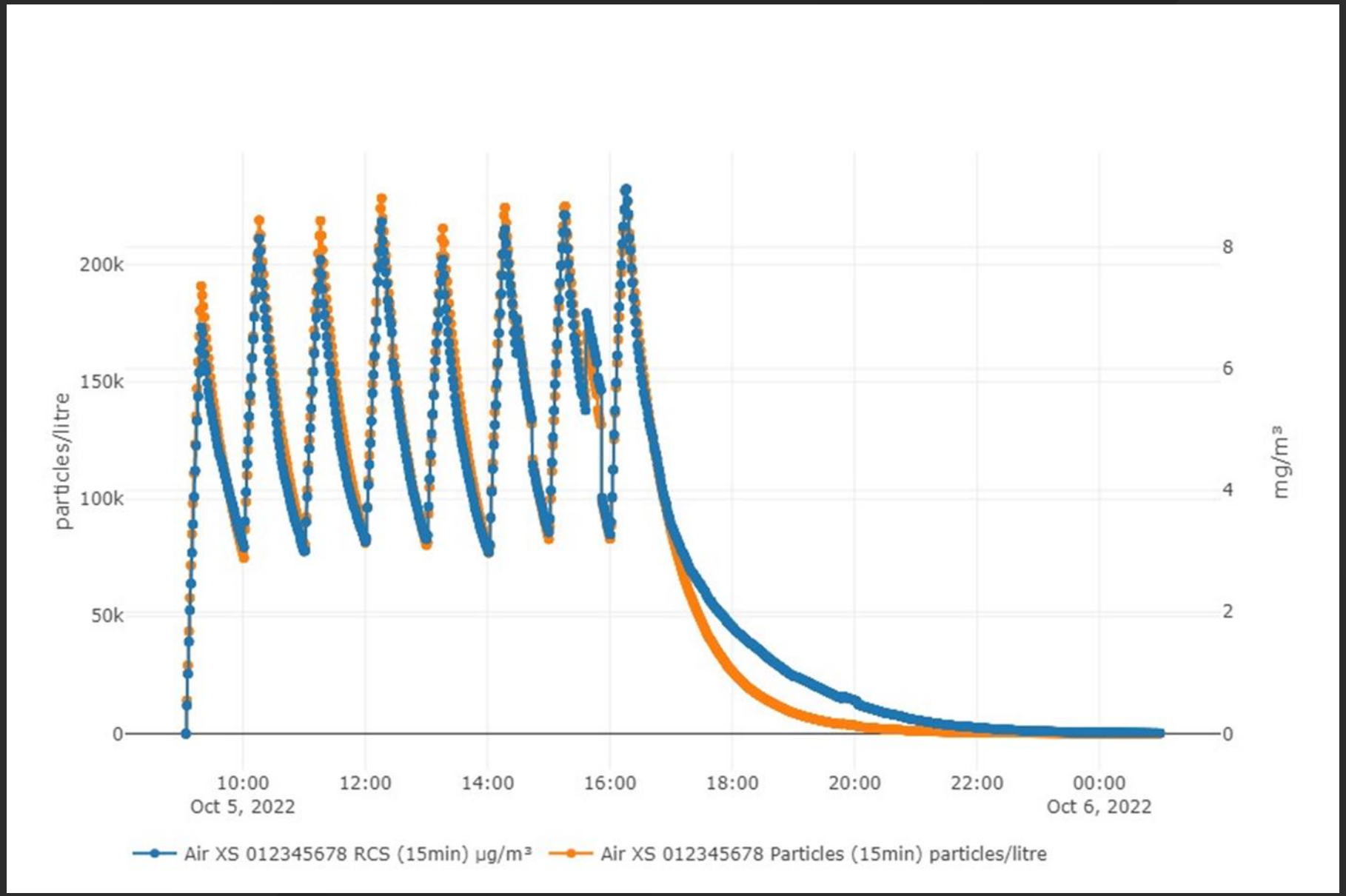
200k
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50k
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particles/litre
8
6
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0
mg/m³
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Oct 5, 2022
12:00
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18:00
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00:00
Oct 6, 2022
Air XS 012345678 RCS (15min) µg/m³
Air XS 012345678 Particles (15min) particles/litre

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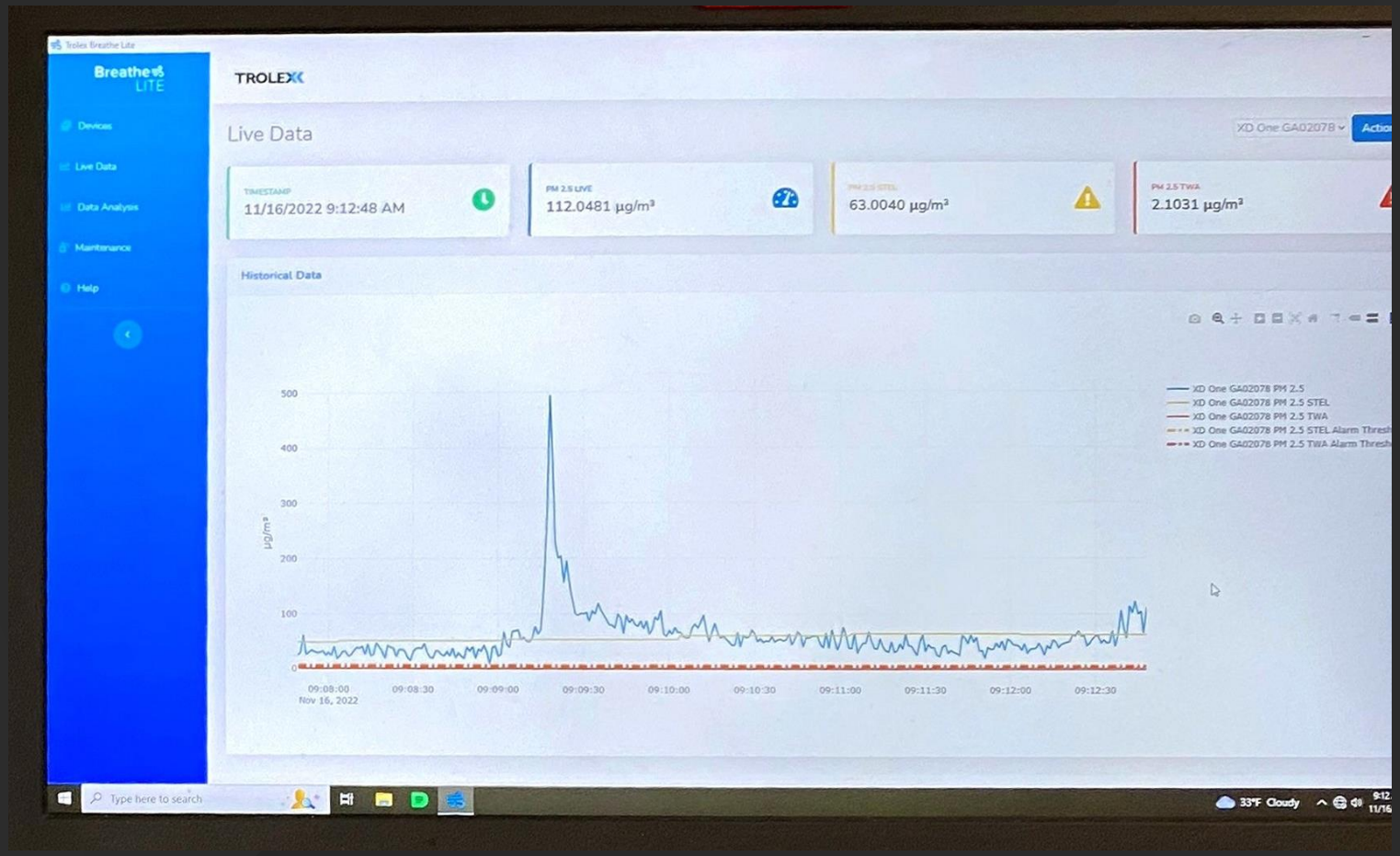
The real-time monitoring give you the ability to see when an event took place. Unlike the analytical method that only gives you the complete 8hr. average. Seeing when an event took place will help change work practices and/or controls.



“What were you doing at 8:00 am?”

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Real-Time RCS and Total dust advantages

- Helps meet the OSHA Standard more effectively.
- No long delay for results. Helps in-between the lab method sampling every three months.
- Provides immediate measured dust suppression, extraction, ventilation and control measure data, i.e., are the controls working.
- Real-time identification of high-risk for changing and site-specific work tasks
- Immediate alarm and notification to workers that thresholds have been exceeded
- Improved field-based evidence to support best practices
- Supporting the selection and usage of the right type of RPE
- Optimizing process methods and equipment to reduce exposure
- 24/7 protection of the work area and surrounding public space.

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Questions?

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https://www.facebook.com/GasDetectionInstruments
https://www.linkedin.com/in/jim-seneczko-45279a7/
https://www.youtube.com/channel/UCbzpJq5KwzaHsBQ3snXU5Pg

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READING LIST

https://www.blf.org.uk/taskforce/data-tracker/occupational-lung-disease/occupational-lung-disease

https://press.hse.gov.uk/2022/04/01/hse-inspections-target-woodworking-businesses-to-tackle-occupational-lung-disease/

https://bandce.co.uk/wp-content/uploads/2020/03/BCE-APPG-silica-next-asbestos-report.pdf

Iosh Construction Dust: An Industry Survey Wigston: IOSH (2014))

Statistic (source: T. Sato, T. Shimosato and D. M. Klinman Silicosis and lung cancer: current perspectives Lung Cancer: Targets and Therapy Vol 9 (2018))

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REFERENCES

Statistic (source: Gibb, A., Drake, C. and Jones, W. (2018) Costs of occupational ill-health in construction. Loughborough University/ICE)

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The Air One can be used as an area monitor or can be installed in the cab of a vehicle to constantly alert employees of increasing levels of silica/total dust inside the work area.

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Table 1 is a flexible compliance option that effectively protects workers from silica exposures. It identifies 18 common construction tasks that generate high exposures to respirable crystalline silica and for each task, specifies engineering controls, work practices, and respiratory protection that effectively protect workers.
OSHA developed Table 1 in response to stakeholders in the construction industry, who indicated the need for guidance and a standard that is different than a standard for general industry. Among the concerns of construction industry stakeholders were the impracticality of exposure monitoring based on short duration of task and constantly changing conditions, such as weather, job sites and materials.

Yes, worker exposures to silica at the new PEL and action level can be reliably measured using existing sampling and analytical methods. Moreover, to improve reliability of silica measurements, employers must ensure that their silica samples are analyzed by laboratories that meet the qualifications and use methods specified in Appendix A of the standard.

OSHA has carefully reviewed the available science and expert testimony contained in the rulemaking record on the ability of modern sampling and analytical methods to reliably measure respirable crystalline silica at the new PEL and action level.
Published OSHA, NIOSH, and MSHA methods for analyzing respirable crystalline silica are able to measure concentrations at the new PEL and action level with acceptable precision, based on analyses of quality control samples and on studies conducted when those methods were developed in the 1970s.
There are high-flow dust samplers now available that can collect more airborne dust, and more silica, than other samplers commonly used. Collecting more dust means that laboratories can measure the amount of silica in the dust with greater precision.

There are approximately 40 laboratories in the U.S. that already meet the sample analysis requirements in the final rule. Demand for laboratory analysis of construction industry samples is likely to be modest because OSHA expects most construction employers to implement the specified exposure control measures in Table 1; therefore they will not be required to conduct exposure assessments. The small portion of construction employers that do not implement Table 1 will need to perform air monitoring, but they will be able to obtain reliable measurements of their employees' exposures from those laboratories. Employers in general industry and maritime, who are required to conduct exposure assessments, have an additional year to come into compliance.

The purpose of medical surveillance is, when reasonably possible, to:

Identify adverse health effects associated with respirable crystalline silica exposure so that appropriate actions can be taken.
Determine if an employee has any condition, such as a lung disease, that might make him or her more sensitive to respirable crystalline silica exposure,
Determine the employee's fitness to use respirators.
In response to the information gained through medical surveillance, employees can take actions to improve their health, such as making job choices to reduce exposures, wearing a respirator for extra protection, or making personal lifestyle or health decisions, such as quitting smoking or getting flu shots.

The employer receives the physician or other licensed health care professional's recommended limitations on respirator use, which is vitally important information that the employer needs to protect the worker because those who are not fit to wear a respirator but wear one can be at risk of sudden incapacitation or death.

Other findings of the medical examination are only given to the employee because many employees and physicians testified that if employers received the results of the examination, many employees would not participate in medical surveillance because they feared discrimination or retaliation.

Employers do not need medical findings because they should base employee protections on exposure levels and how well controls are working. On the other hand, employees need the results of medical examinations to manage their health.

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Self reported cases of lung problems

- Airborne materials from spray painting or manufacturing foam products (in 13% of cases)
- Dust from flour, grain/cereal, animal feed or straw (7% of cases)
- Airborne materials while welding, soldering, or cutting/grinding metals (10% of cases)
- Dust from stone, cement, brick or concrete (nearly 20% of cases)
- General work environment e.g. uncomfortable – hot/cold/damp/wet/dry/etc (20% of cases)

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Recent activities

- **Scottish Stonemason Awarded £3.5 Million For Silicosis After Workplace Exposure**
  - December 13, 2022
  - Scottish stonemason awarded £3.5 million for silicosis after workplace exposure - Trinitas Group

APPG Silicosis Report 10th Jan 2023

Lowering of exposure level to 0.05mg/m3
Awareness campaigns
Real time monitoring

(3) Health and Safety Executive: Videos | LinkedIn
December 20th 2022

I am only 37, but I have less than a year to live, thanks to this'

Silicosis: Pressure grows to ban engineered stone causing tradies premature death | news.com.au — Australia's leading news site
January 9th 2023

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