Toolbox Talk

Silica in Construction

This toolbox talk can be delivered by construction site supervisors and provides safety advice for workers who may encounter silica dust on the job.

A person conducting a business or undertaking (PCBU) has the responsibility to ensure the safety of workers, including consulting with workers, and providing the appropriate safety systems and equipment on site.

Planning for safety, using safe work method statements (SWMS), holding toolbox talks, and providing personal protective equipment and appropriate tools that controls the risk, helps prevent workers from being exposed to silica dust.

PCBUs must train workers in safe work procedures, provide the appropriate information, training and supervision, and undertake air monitoring as required.

SafeWork NSW inspectors may issue "stop work" prohibition notices for activities that generate uncontrolled silica dust. On-the-spot fines of up to $3,600 may also be issued to those placing workers lives at risk by not adequately protecting them from silica dust. Do the right thing or face a fine!

Note on respiratory protective equipment (RPE)

- For some jobs that create a lot of silica dust e.g. angle griding concrete or if working in enclosed spaces, RPE must be used together with other higher order controls, such as on tool dust extraction or wet cutting
- Face masks are referred to as "respirators" in this toolbox talk
- Respirators are generally either disposable (to be discarded after use) or reusable (with a replaceable particulate filter)
- Respirators used to protect workers from dust must be rated P2 or better
- Surgical masks are not suitable to protect workers from hazardous dusts

Include these workers in your talk

- Sub-contractors
- Labourers
- Employees
- Labour hire workers
- Trade supervisors

Preparing for the talk

- Ask your workers to bring along their P2 (or better) respirator so they can fit test it
- Find a quiet area, free from loud noise, so that your workers can hear you
- Have a pen and notebook to write down any safety suggestions from workers
- Show workers where to find more information about silica on the SafeWork NSW website: https://www.safework.nsw.gov.au/hazards-a-z/hazardous-chemical/priority-chemicals/ crystalline-silica
- Print out the SafeWork NSW Crystalline silica general fact sheet and/or Silica Safety in Construction Checklist and Dust in Construction poster to hand out to workers - or send them the web links.
- Consider showing workers the SafeWork NSW 'Drilling in Construction' video and send workers the links to the full suite of videos aimed at keeping tradies safe from silica on the job

NSW GOVERNMENT

The facts

Read out to workers

Silica is found in most stone, rock, sand, gravel and clay. The most common form is quartz. Silica can also be found in bricks, tiles, and concrete materials, and is 100 times smaller than a grain of sand.

You can be breathing it in without even knowing it, and putting yourself at risk.

Breathing in silica dust over a long time can cause lung cancer and silicosis which can kill you.

Silica dust can be found on nearly all construction sites.

It is most dangerous when found in the dust that is generated when you're cutting, grinding, or drilling products or materials containing silica that has the potential to cause harm when breathed in.

Exposure to harmful silica dust is preventable.

Exercise 1 - Can you spot the hazard on your site?

Ask your workers

Can you take a look around and point out any products or materials on this site that contain silica?

Possible answers

- ☐ Tiles
- ☐ Bricks
- ☐ Blocks
- ☐ Stone
- ☐ Mortar
- ☐ Grout
- ☐ Pavers
- ☐ Sand
- ☐ Earth when excavating
- ☐ Artificial stone

Ask your workers

When would you be most at risk when working with these products or materials?

Possible answer

When doing anything that could create dust, such as cutting or grinding, excavation, during demolition, during site clean-up (sweeping/blowing).

Ask your workers

What are some other ways you can find out if products contain silica?

Possible answer

Look at the labels on pallets of building products or the manufacturers Safety Data Sheet (SDS) which lists what is in the product.

How to protect yourself

Read out to workers

The best way of protecting yourself and others from silica exposure on site is to:

1. eliminate or minimise the dust being produced when you are working with these products
2. use an exclusion zone to keep other workers away
3. use the right respiratory protective equipment.

Ask your workers

How can you eliminate or minimise airborne silica dust being generated when working on the job site?

Possible answers

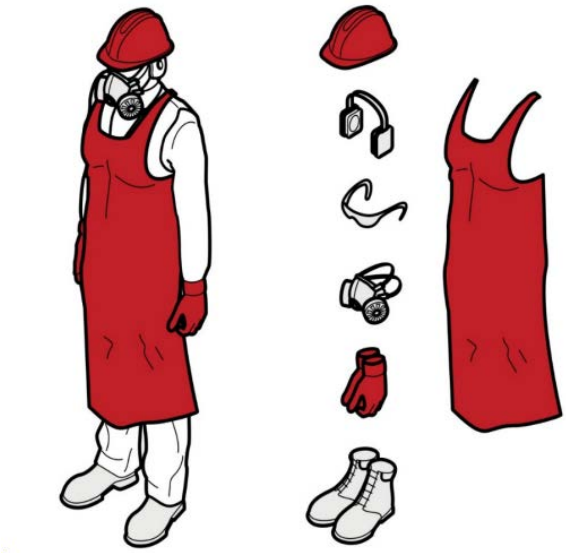
- ☐ Use products or materials that do not contain silica
- ☐ Use wet cutting or on-tool dust extraction at the source
- ☐ Use H or M class vacuums or water when cleaning up and as part of housekeeping to prevent dust accumulation.

Ask your workers

Where dust is naturally occurring, such as general site dust or when excavating, how can you protect yourself from silica exposure?

Possible answers

- ☐ Use water to reduce airborne silica dust
- ☐ Use an exclusion zone to keep workers away
- ☐ Make sure earthmoving machinery cabs are correctly sealed and equipped with an air filtration system
- ☐ Avoid eating and drinking in areas where there may be silica dust
- ☐ Wear the appropriate RPE – e.g. a P2 respirator (or mask).



Personal protective equipment

https://www.safeworkaustralia.gov.au/sites/default/files/2022-06/national_guide_for_working_with_silica_and_silica_containing_products_3_0_0.pdf

What you need to know about respirators

Read out to workers

Whilst you must eliminate or minimise silica dust on a worksite in the first instance, it is also critical to protect your lungs from any escaping dust by wearing suitable respiratory protective equipment (RPE).

The RPE you use must comply with Australian Standards, it must fit your face properly (so it is sealed, and be in good condition).

The two most common types of respirators you can use to protect against silica dust exposure are disposable and re-usable particulate filter respirators. Surgical masks are not suitable to protect workers from hazardous dusts.

P2 Disposable P2 respirator

Re-usable respirator

Surgical mask

Each time you put on a respirator you need to do a simple fit check, to help ensure it has an adequate seal around your nose and mouth.

Exercise 2 - how to do a fit check using a disposable respirator

Ask your workers

To pull out their respirators and follow the below steps.

Step 1 Inspect your respirator to make sure your respirator is free from damage and clean.

Step 2 If the mask is new, pre-stretch each strap. Cup respirator in hand, nose piece at fingertips and straps hanging below hand.

Step 3 Position respirator under chin, low on the nose. Holding respirator firmly in position, place top strap above and bottom strap below ears.

Step 4 Using both hands mould metal nose piece to shape of the nose. Pinching the nose with one hand may impair the facial seal.

Step 5 Pressure Fit Check – cup both hands over the respirator covering it completely. Inhale vigorously. A negative pressure should be felt. If you can feel air against your face inside the mask, it means there is a leak.

Step 6 Store your RPE in a sealable clean container so the inside is not exposed to dust or other chemicals.

Ask your workers

What are some of the ways you can make sure the respirator you buy fits your face, has a good seal for your face shape, and is appropriate for the type of work you're doing?

Possible answers

- ☐ Ask the RPE supplier or manufacturer if the respirator is right for the job, you are doing
- ☐ Get fit tested by a trained consultant (visit www.respfit.org.au/ to find a consultant near you)
- ☐ Be clean shaven so it can seal properly. If you have a beard, stubble, or facial hair, you should use a loose fitting hood or helmet type, powered air purifying respirator instead.

What could have been done differently?

This scenario has been adapted from a real-life illness reported to SafeWork NSW.

A bricklayer's story - Ajay

Read out to workers

Ajay[1] is 33 years old and has been a bricky and labourer in the construction industry for the last 15 years.

When Ajay was younger, he didn't know about the dangers of breathing in silica dust.

He started work when he was young and healthy, but now has a young family and works long hours to support his family.

Ajay has mostly worked with bricks and concrete, and was not aware that concrete and bricks contain silica.

Ajay was also not aware that sweeping up dry dust meant that he was breathing in silica, and he rarely used any type of respirator (or mask).

In recent times Ajay has been having trouble breathing.

A visit to his doctor resulted in him being sent for a chest x-ray. His results were assessed, and he was diagnosed with silicosis.

Show your workers the photo of Ajay.

Tell your workers

Here is a photo of Ajay. Ajay was 33 years old when he was diagnosed with terminal lung disease from exposure to silica dust.

Ask your workers

What should Ajay and/or his boss have done to minimise the risk of silica dust exposure?

Possible answers

- ☐ His boss should have explained to Ajay that silica dust is in bricks and mortar so that he knew to take precautions
- ☐ Used water when cutting bricks
- ☐ Worn a P2 respirator
- ☐ Used water when sweeping/cleaning up.

[1] Name changed to protect the privacy of the injured worker.

What equipment can I use?

Show your workers the photos of equipment designed to

1 Control dust via water (left) and
2 Capture dust with on-tool extraction via a vacuum (right).

What do we do now?

Read out to workers

There are so many ways where you can work more safely. Planning, preparation, and the right safety equipment can mean the difference between workers going home at the end of the day in good health or suffering an incurable and debilitating disease.

Safety is everyone's responsibility. Speak up on site about safety if you have any concerns.

Site supervisor notes:

After the talk

- Consider the answers workers provided during the talk to see if there are any improvements you can make to your safety systems around silica dust exposure.
- Make sure you communicate your silica dust exposure safety systems to current and new workers.
- Prepare for your next toolbox talk.

Where to get help

Contact SafeWork NSW on 13 10 50 or see safework.nsw.gov.au

Speak Up Save Lives is an anonymous way to raise safety concerns see speakup.safework.nsw.gov.au

Other resources

- Crystalline silica general fact sheet
- Crystalline silica technical fact sheet
- Silica Videos – controlled cutting of bricks and concrete using on-tool capture, controlled cutting of bricks and concrete using water, Demolition and Excavation, Drilling in Construction.
- Silicosis safety video – also available in Mandarin, Arabic and Vietnamese
- Code of Practice – managing risks of hazardous chemicals in the workplace
- Safety checklist for site supervisors and principal contractors – Silica safety in construction
- Poster about hazardous dust in the workplace - Dust in construction Poster
- SafeWork Australia - Health monitoring when you work with hazardous chemicals guide
- SafeWork Australia - Working with silica and silica containing products
- SafeWork Australia – Guide for tunnelling work

Record of Toolbox Talk

Business name

Date

Name of supervisor or presenter

Time

Workers present

Name	Signature	Name	Signature

Topics discussed

Comments/feedback

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