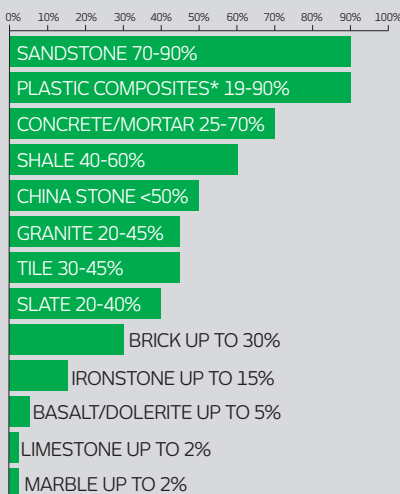


Silica Dust: The Facts, The Risks & How To Protect Yourself

Silica Dust: The Facts

- Silica dust is the 2nd highest cause of occupational cancer deaths, after asbestos
- Harmful silica dust particles are created when working with stone, rock, concrete, brick, mortar, plaster and industrial sand
- Silica dust particles are 100 times smaller than a grain of sand
- Overexposure can lead to silicosis, tuberculosis, kidney disease, chronic obstructive pulmonary disease and arthritis

The Numbers: Materials Containing Silica



The Cancer Council estimates that 587,000 Australian workers were exposed to silica dust in 2011 – with 5,758 expected to develop cancer as a result. With Australian silicosis cases currently on the rise, these shocking figures are increasing.



What is Silica Dust?

Crystalline silica is a material found naturally in the earth's crust. It is found in sand, stone, rocks, concrete, bricks and mortar. The dust from crystalline silica is generated during work operations that significantly disturb any of these materials, such as cutting, sawing, sanding and drilling.

Silica dust particles are over 100 times smaller than a particle of beach sand, meaning you won't even be aware of inhaling them. And due to their microscopic size, the body's natural defences can't stop them from penetrating deep into the lungs with potentially fatal consequences.

In 2019, ABC News reported that an audit of Queensland's manufacturing stone industry revealed 98 workers had developed silicosis. At the time of reporting, 15 of those cases were terminal.

Sources of Silica Dust in Construction

- Demolition
- Cutting or grinding
- Sanding
- Drilling
- Abrasive blasting
- Stonemasonry
- Buffing
- Polishing and tunnelling

Workplace Exposure Standards (WES) for Silica Dust

"A WES represents the concentration of an airborne hazardous chemical within a worker's breathing zone that should not cause adverse health effects or undue harm. Compliance with the WES is required under Commonwealth, state and territory WHS laws."
(Safe Work Australia)

A health-based review of the current scientific evidence for silica dust showed that the WES should be reduced to prevent adverse health effects in workers, such as silicosis and lung cancer.

The WES for silica dust has halved from an eight-hour time weighted average of 0.1 mg/m³ to 0.05 mg/m³. The reduced silica dust WES was implemented in most jurisdictions from 1 July 2020. For further information, please contact your state or territory work health and safety regulator.

What are the health effects of over exposure to Silica dust?

With continuous exposure to silica dust, its build-up over time can lead to fatal cancers, diseases and severe chronic illnesses, including:

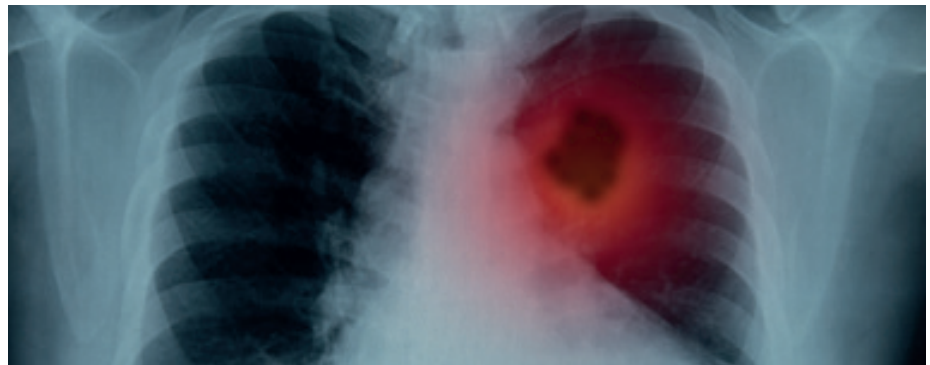
Silicosis: A form of occupational lung disease caused by inhaling large amounts of crystalline silica dust over a long period of time. This continuous build-up leads to areas of hardened and scarred lung tissue which results in the lungs being unable to function effectively.

Chronic obstructive pulmonary disease (COPD): The collective term of a group of lung diseases where the lungs become inflamed, damaged and narrowed. The result is an inability to breathe easily making day-to-day activities a challenge.

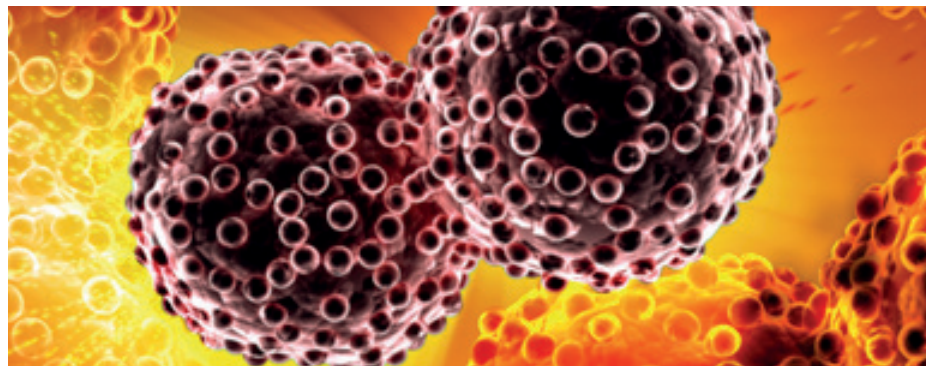
Tuberculosis: A disease of the lungs with symptoms including a persistent cough, fatigue, loss of appetite and fever. If left untreated, tuberculosis can kill.

Kidney disease & Rheumatoid arthritis: Continuously inhaling silica dust can cause renal diseases, and studies also link skin exposure to silica dust particles with the development of autoimmune disorders such as SLE, rheumatoid arthritis and scleroderma.

Lung cancer: Exposure to silica dust can cause lung cancer, which is the 2nd highest cause of occupational deaths within the construction industry. The International Agency for Research on Cancer (IARC) notes: "Crystalline silica in the form of quartz or cristobalite dust is carcinogenic to humans (Group 1)."



X-ray image of patient lungs to lung tumour.



Lung Cancer. Lung cancer cells.

Employers Responsibilities

Employers have a legal duty to take all practicable steps possible to ensure that the health of their workers is protected by removing, isolating or reducing silica dust in the workplace.

Ensure workers are doing the job correctly and that they're trained in the following areas:

- Dust risks and how this can harm their health
- Dust controls and how to check that they are working
- How to maintain and clean equipment
- What RPE should be used and how to look after each piece
- What to do if something goes wrong

How can RVT help?

RVT's free site assessments quickly identify what control measures are needed for every individual situation, and tailored solutions are recommended.

Controlling the harmful effects of Silica dust

To protect workers from the harmful effects of silica dust, there are three key control methods to apply:

1. Assess the risks

When assessing the risk of exposure to silica dust, it's important to consider these four points:

Type of task: If machinery such as sanders, grinders and grit blasters is to be used, more dust will be generated.

Work environment: In small spaces, dust will build up much quicker than when working outside. Whilst both environments are deadly, control methods may vary.

Time involved: If the task is complex or large, the length of time that dust will be generated increases, as does worker-exposure.

Frequency: For repetitive tasks, dust is continually being produced and for those workers carrying out the same activity regularly, the risk grows.

2. Implement control measures

First, look to see if there's a way to stop or minimise the risk of dust by considering:

- Silica-free abrasives
- Less powerful machinery
- Different methods of work

If dust is still likely to be created, put effective control measures in place:

1. Extraction and filtration units: Use an extraction system close to the source suitable for the size of work area it needs to cover, and with sufficient power for the levels of dust being generated. Establish negative air pressure to draw dust to the extraction and introduce fresh air. And when appropriate use containment tents to limit spread of dust.

2. Water: Using water to dampen down the work area before, during and after the dust-generating task can be an effective way to reduce harmful dust particles from permeating the air. But for this method to work, sufficient water at the right levels must be used for the duration of the task.

3. Respiratory protective equipment (RPE): In addition to the extraction and water control methods detailed above, RPE should also be provided and used correctly. When working in an environment where dust is present, the assigned protection factor (APF) is a minimum of 20.

3. Review the controls

Monitoring of the control methods applied must be carried out regularly. Here's a checklist of points to cover:

Are there procedures in place to ensure the work is being carried out correctly?

Are the control measures effective – is there still a lot of dust in the air?

Have you involved all site personnel to help identify problems and find solutions?

Is the equipment being properly maintained?