



“Let’s Talk Health”

Silica

DISCUSSION AID 

INTRODUCTION

This talk has been developed to assist the person facilitating the “Let’s talk health” week topic on silica. It provides pointers to get the conversation started and is not a full explanation of all health and safety requirements, related to this subject, and should not be relied upon as such.

Who can tell me what Crystalline silica is?

Crystalline silica is a natural substance found in stone, rocks, sand and clay, as well as products like bricks, tiles, concrete and some plastic composites. When these materials are worked on, for example by cutting or drilling, the crystalline silica is released as a very fine dust which can be breathed in. This dust is one of the oldest workplace hazards – and it still causes hundreds of thousands of deaths across the world every year.

What are the approximate crystalline silica content of different materials?

Approximate crystalline silica content of different materials	
Sandstone	70–90%
Concrete, mortar	25–70%
Tile	30–45%
Granite	20–45%, typically 30%
Slate	20–40%
Brick	Up to 30%
Limestone	2%
Marble	2%



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What activities/tasks could potentially expose you to silica dust?

Exposure to silica dust occurs in many industries. Common scenarios where people may be exposed include:

- breaking, crushing, grinding or milling silica-containing material such as concrete, aggregate or mortar.
- drilling, cutting, chiselling or sanding silica-containing material.
- dealing with cement.
- moving earth, eg excavating, mining, quarrying or tunnelling.
- abrasive blasting or sandblasting.
- laying, maintaining or replacing ballast.
- handling, mixing or shovelling dry materials that include silica.
- using silica, sand or silica-containing products in the manufacturing process of glass and other non-metallic mineral products.
- using sand as a moulding medium in foundries.
- using silica flour (a finely ground form of crystalline silica).
- dry sweeping up after a task where silica dust has been created.

Who could potentially be at risk?

Bricklayers, concrete workers, construction labourers, crushing and grinding operators, demolition workers, digger drivers, steelworkers, stonemasons, tunnel workers, utility employees involved in excavation work, welders, workers grinding, abrading, buffing or polishing.



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How does silica dust affect you?

Long-term exposure to silica dust can cause silicosis (an irreversible chronic respiratory illness), lung cancer and a number of other serious diseases, including a chronic obstructive pulmonary disease (COPD) such as emphysema. Silica dust is one of the most significant causes of work-related disease around the world.

Workplace exposure to silica is covered by what piece of legislation?

The Control of Substances Hazardous to Health Regulations.

What is the Workplace Exposure Limit for silica dust?

The Workplace Exposure Limit (WEL) (0.1 mg/m³ respirable dust, averaged over 8 hours).



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How can you protect yourself?

- The main aim should be to stop silica dust getting into the air in the first place. You may be able to select a process that avoids or cuts down the dust being released.
- Try to remove or substitute materials containing crystalline silica from the work process.
- If it's not possible to protect yourself from silica dust at the design stage or by changing processes or materials, then your first step is to monitor or assess the exposure and identify the jobs and tasks that need better controls.
- Select from a range of options available to control exposure to silica dust at work:
e.g. use engineering controls like enclosures or hoods and local exhaust ventilation to extract the contaminated air at the point it's produced, or to use water suppression on fixed machinery.
- Where work with hand-held power tools generates dust, for example on construction sites, the best strategies are to use localised ventilation on the tool or suppress the dust using water spray systems.
- Don't forget, in all situations, if it's not possible to adequately control airborne silica dust using engineering solutions, and air sampling data shows that there is still an unacceptable level of dust, then you should use personal respiratory protection. Personnel should wear FFP3 masks as a minimum and should be face-fit tested.
- Undertake health surveillance as required by your employer.