THE FACTS SILICA DUST

It is estimated that around 5 million workers in the European Union are exposed to crystalline silica. The majority of these people are either employed in the construction sector or in making products used in construction such as bricks, glass or cement. The people employed in these sectors are mostly in small companies – employing fewer than 10 people.

Silica is the biggest risk to construction workers after asbestos. As a very fine airborne dust, prolonged exposure can cause lung cancer and other serious respiratory diseases. Silica dust is classified as Group 1 carcinogen by the IARC, meaning they are seen as a definite cause of cancer in humans.

Where risks occur

Exposure to silica dust occurs in construction and many industries. Respiratory crystalline silica is generated in sectors where high-energy operations occur, like cutting, sawing, drilling and crushing stone, rock, concrete, brick, block and mortar; or when using industrial sand. Activities such as abrasive blasting with sand; sawing brick or concrete; sanding or drilling into concrete walls; grinding mortar; manufacturing brick, concrete blocks, or ceramic products; and cutting or crushing stone generates respirable dust. Or handling, mixing or shovelling dry materials that include silica.

Occupations that are exposed could be: abrasive blasting workers, brick, concrete or tile manufacturing operators, bricklayers, ceramics and pottery workers, concrete workers, crushing and grinding operators. The dust can also get airborne again when disturbed by vehicles or wind and expose other people at the construction site.

More about the substance

Silica is a natural substance found in varying amounts in most rocks, sand and clay. Silica is also a major constituent of construction materials such as brick, tile, drywall, stone, concrete, asphalt and mortar. Materials that contain crystalline silica are not hazardous unless they are disturbed, generating small-sized particles that can get in your lungs (“respirable crystalline silica”). For example, blasting, cutting, chipping, drilling and grinding materials that contain silica can result in silica dust that is hazardous.

How symptoms can affect you

When workers inhale crystalline silica, the lung tissue reacts by developing fibrotic nodules and scarring around the silica particles.

Exactly how silica dust causes lung cancer is unclear – the most likely cause is when the dust deposits in the lungs, its toxicity makes it difficult for the body’s natural defence cells to remove and so it stays there, causing persistent inflammation. This constant inflammation can damage the DNA in the lung cells and lead, in some people, to lung cancer.

The latency period between exposure and silica-related lung-cancer could be as long as 10-20 years.

What you can do

Perform proper exposure measurements so it is known when actions should be taken. Investigate if workers report early symptoms. Best solution is to control exposure, for example apply engineering controls such as wetting down work operations or using local exhaust ventilation (such as vacuums) to keep silica-containing dust out of the air. Respiratory protective equipment, designed to protect the wearer from inhaling harmful dusts, fumes, vapours or gases, should only be used as a last resort. However, for some jobs or work tasks respiratory protective equipment may be the only practicable solution.

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