

The Dangers of Silica Exposure

Many common construction work tasks generate harmful levels of respirable crystalline silica dust if proper controls are not followed. When silica dust builds up in your lungs, you are at risk of developing a serious lung disease called *silicosis*, which can lead to death. *Silicosis* is not curable, but **it is preventable**. The more you know about silica dust, the better prepared you will be to adequately protect yourself.

**What is Respirable Crystalline Silica?**

Crystalline silica is a common mineral found in many naturally occurring and man-made materials used at construction sites. Silica is the basic component of sand and rock. Some common silica-containing materials within the deep foundation industry include:

* Concrete, cement
* Rock of numerous types, sand, some fill dirt
* Asphalt containing rock or stone

You may be exposed to silica when working with or around these materials.

**Are you exposed to silica dust?**

*If you do one of the following activities, you are at risk of breathing silica dust:*

* Drilling of or through rock, concrete, or asphalt with a vehicle mounted drill rig
* Crushing, loading, hauling, and dumping of rock
* Sawing, hammering, drilling, grinding, and chipping of concrete with handheld powered tools such as jackhammers or chipping guns.
* Abrasive blasting and hydro blasting of concrete
* Clean-up activities such as dry sweeping or pressurized air blowing of concrete or sand dust
* Excavation, and earth moving of soils with high silica content
* Mixing cement grout
* Application of shotcrete

***Remember, just because you can’t see dust particles, doesn’t mean there isn’t silica in the air. Silica particles can hang around for an entire work shift without being visible to the naked eye.***

**What is Silicosis and how is it prevented?**

*Silicosis is a type of lung disease* that occurs when silica dust is inhaled. The dust contains tiny shrapnel like particles of crystallized silica that cause tiny tears in your lung tissue, resulting in patches of scar tissue when the tear is repaired by your body. This scarring limits your lung function overtime, worsening with each exposure and eventually limiting your ability to breathe. Some who have been exposed to silica in high concentrations experience symptoms in a few weeks, or gradually get symptoms with smaller exposures over 4-10 years.

Monitoring your lung function is important when you are routinely exposed to silica, even when protected. Talk to your employer about your silica exposure and routine medical monitoring for your lungs.

*The key to silicosis prevention* is to prevent the dust from getting into the workplace air. Your supervisor will give you information on which controls are needed to suppress the silica dust for your work and for limiting your exposure. If you are unsure if you are properly protected, it is your responsibility to ask!

**Control Methods/Best Practices**

Common methods and best practices for eliminating or reducing exposure are a combination of dust suppression, erecting barriers, and PPE. Some examples of dust suppression include:

Continuous water spray or misting of generated dust particles during drilling

Dust collection devices mounted to drill rigs and grout mixers

Water injection through the drill steel

PPE including eye, face and skin protection and appropriate respirators. As with any hazard, PPE should be your last line of defense in protecting yourself.

**Questions to Generate Discussion**

* What are some of your common work tasks that generate silica?
* What kind of products and materials do you use that contain silica?
* What is the best method for dust suppression on your project?
* What types of respiratory protection do you think are best suited and practical for your work task?