

## Topic: Silica Exposure

### What is silica?

Silica is the second most common mineral on earth and makes up nearly all of what we call sand and rock. Silica exists in many forms - one of these, crystalline silica (including quartz), is the most abundant and poses the greatest concern for human health.

Some common materials that contain silica include:

- Rock and sand
- Topsoil and fill
- Concrete, cement, and mortar
- Masonry, brick, and tile
- Granite, sandstone, and slate
- Asphalt (containing rock and stone)
- Fibrous-cement board containing silica

Silica is so common that many workplace activities that create dust can expose workers to airborne silica.

### What is the risk?

Crystalline silica dust can cause a disabling, sometimes fatal disease called silicosis. The fine particles are deposited in the lungs, causing thickening and scarring of the lung tissue. The scar tissue restricts the lungs' ability to extract oxygen from the air. This damage is permanent, but symptoms of the disease may not appear for many years.

Initially, workers with silicosis may have no symptoms; however, as the disease progresses, a worker may experience:

- Shortness of breath
- Severe cough
- Weakness

These symptoms can worsen over time and lead to death.

### Are you exposed to silica dust?

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

- Chipping, sawing, grinding, hammering, and drilling of rock, concrete, asphalt, or masonry
- Crushing, loading, hauling, and dumping rock
- Sawing, hammering, drilling, grinding, chipping concrete or masonry structures
- Demolition of concrete or masonry structures
- Power cutting or dressing stone
- Façade renovation, including tuckpoint work
- Abrasive blasting and hydroblasting of concrete
- Clean-up activities such as dry sweeping or pressurized air blowing of concrete or sand dust
- Tunneling, excavation, and earth moving of soils with high silica content

### How is silica disease prevented?

The key to prevention is to prevent the dust from getting into the workplace air. As silica is only dangerous in dry form if breathed into the lungs, wet cutting, grinding and drilling are the preferred method of preventing exposure.

If wet cutting, grinding and drilling are not possible, the use of local exhaust ventilation is required. Air discharge from the ventilation system must not be recirculated into the work area.

The use of respirators to prevent exposure is not acceptable as a primary control when other control measures are available.

See the BCMSA website for an example of an exposure control plan for silica.



*Worker grinding concrete using local exhaust ventilation*



*Worker cutting concrete using water for dust control*



*Worker drilling concrete inside an enclosure equipped with a "negative air" unit*