# Preventing Silicosis Meeting Kit




## THE ISSUE

Silicosis is a form of occupational lung disease caused by the inhalation of silica dust. The inhalation of this dust causes damage and scarring to the tissue in the lungs.

Common industries and operation where crystalline silica are found include construction and glass products, concrete products, and foundries, cut stone products, railroad track maintenance, abrasive blasting. Occupational exposure to respirable crystalline silica occurs when cutting, sawing, drilling, and crushing of concrete, brick, ceramic tiles, rock, and stone products.

**THE DANGER AND HARM CAUSED BY SILICIOSIS ? Health Effects of Crystalline Silica Exposure**

Silicosis is an incurable lung disease caused by inhalation of dust that contains free crystalline silica.

When workers inhale crystalline silica, the lung tissue reacts by developing fibrotic nodules and scarring around the trapped silica particles. This fibrotic condition of the lung is called silicosis. If the nodules grow too large, breathing becomes difficult and death may result. Silicosis victims are also at high risk of developing active tuberculosis. A worker?s lungs may react more severely to silica sand that has been freshly fractured (sawed, hammered, or treated in a way that produces airborne dust).

**Types of Silicosis. Workers May Develop the Following Silicosis**

- Chronic silicosis, which usually occurs after 10 or more years of exposure to crystalline silica at relatively low concentrations.
- Accelerated silicosis, which results from exposure to high concentrations of crystalline silica and develops 5 to 10 years after the initial exposure.
- Acute silicosis, which occurs where exposure concentrations are the highest and can cause symptoms to develop within a few weeks to 4 or 5 years after the initial exposure.

**Symptoms of Silicosis**

- Shortness of breath
- Fatigue; loss of appetite
- Chest pain; dry, non-productive cough

- Respiratory failure, which may eventually lead to death

Workers who smoke have a higher chance of experiencing the adverse health effects of silica.

**Potential For Exposure During Construction.**

Concrete and masonry products contain silica sand and rock containing silica. Construction workers may be easily exposed to respirable crystalline silica during activities such as the following:

- Chipping, hammering, and drilling of rock.
- Crushing, loading, hauling, and dumping of rock.
- Abrasive blasting using silica sand as the abrasive.
- Sawing, hammering, grinding, and chipping of concrete or masonry.
- Demolition of concrete structures.
- Dry sweeping or pressurized air blowing of concrete, rock, or sand dust.

## SILICOSIS PROTECTION

The key to preventing silicosis is to keep dust out of the air. Methods to control respirable crystalline silica:

- Use the dust collection systems available for many types of dust-generating equipment. When purchasing equipment, look for dust controls. Use local exhaust ventilation to prevent dust from being released into the air. Always use the dust control system, and keep it well maintained.
- During rock drilling, use water through the drill stem to reduce the amount of dust in the air, or use a drill with a dust collection system. Use drills that have a positive-pressure cab with air conditioning and filtered air supply to isolate the driller from the dust.
- When sawing concrete or masonry, use saws that provide water to the blade.
- Use good work practices to minimize exposures and to prevent nearby workers from being exposed. For example, remove dust from equipment with a water hose rather than with compressed air. Use vacuums with high-efficiency particulate air (HEPA) filters or use wet sweeping instead of dry sweeping.
- Use abrasives containing less than 1% crystalline silica during abrasive blasting to prevent quartz dust from being released in the air.

## BEST RECOMMENDATIONS TO PREVENT SILICOSIS

1. Recognize when silica dust may be generated and plan to eliminate or control the dust at the source.
2. Do not use silica sand or other substances containing more than 1% crystalline silica as abrasive blasting materials. Substitute less hazardous materials.
3. Use engineering controls and containment methods such as blast-cleaning machines and cabinets, wet drilling, or wet sawing of silica-containing materials to control the hazard and protect adjacent workers.
4. Routinely maintain dust control systems to keep them in good working order.
5. Practice good personal hygiene to avoid unnecessary exposure to worksite contaminants such as lead.
6. Wear disposable or washable protective clothes at the worksite.
7. Shower (if possible) and change into clean clothes before leaving the worksite to prevent contamination.
8. Conduct air monitoring to measure worker exposures and ensure controls protect workers.

9. Use adequate respiratory protection when source controls cannot keep silica exposures below the NIOSH REL.
10. Provide periodic medical examinations for workers exposed to respirable crystalline silica.
11. Post warning signs to mark the boundaries of work areas contaminated with respirable crystalline silica.
12. Train workers about health effects of respirable crystalline silica.

## FINAL WORD

The key to preventing silicosis is to minimize the amount of silica-containing dust in the air and to avoid breathing silica-containing dust. There is no cure for the disease once it develops, but it can be prevented.