



SAFETY UNLIMITED, INC.

Weekly Safety Meeting

Dangers of Silica Dust

There has been much discussion about silica dust in the past few years. OSHA has issued a regulation to help protect workers from overexposure to this dust. It has been largely unregulated in the past and because of this, many workers have been faced with overexposure.

The CDC reports that an estimated 1.7 million U.S. workers are exposed to silica dust on the job. OSHA issued its final rule for silica dust on June 23, 2016, but employers have between a year and five years to be fully compliant with the standard depending on the industry.

The construction industry had to be fully compliant with the standard by September of 2017, general industry/ maritime had until June of 2018, and hydraulic fracturing in the oil and gas industry has a compliance date of June 2021.

Crystalline silica is an important industrial material found abundantly in the earth's crust. Quartz, the most common form of silica, is a component of sand, stone, rock, concrete, brick, block, and mortar. Materials containing quartz are found in a wide variety of workplaces.

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

Silica Dust Exposure:

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

Silica-related Diseases:

Workers who inhale these very small crystalline silica particles are at increased risk of developing serious silica-related diseases, including:

- Silicosis, an incurable lung disease that can lead to disability and death;
- Lung cancer;
- Chronic obstructive pulmonary disease (COPD); and
- Kidney disease.

Symptoms of Silicosis:

Silicosis is classified into three types: chronic/classic, accelerated, and acute.

Chronic/classic silicosis, the most common, occurs after 15-20 years of moderate to low exposures to respirable crystalline silica.

Symptoms associated with chronic silicosis may or may not be obvious: therefore, workers need to have a chest x-ray to determine if there is lung damage.

As the disease progresses, the worker may experience shortness of breath upon exercising and have clinical signs of poor oxygen/carbon dioxide exchange. In the later stages, the worker may experience fatigue, extreme shortness of breath, chest pain, or respiratory failure.

Accelerated silicosis can occur after 5-10 years of high exposures to respirable crystalline silica. Symptoms include severe shortness of breath, weakness, and weight loss. The onset of symptoms takes longer than in acute silicosis.

Acute silicosis occurs after a few months or as long as two years following exposures to extremely high concentrations of respirable crystalline silica. Symptoms of acute silicosis include severely disabling shortness of breath, weakness, and weight loss, which often leads to death.

Reducing Exposure to Silica Dust:

- Eliminate the source of the dust whether that is through engineering controls or a change in work processes.
- Use collection or vacuum systems to collect dust at the point of operation to avoid suspended dust in the air.
- Use wet methods when cutting or breaking any concrete or similar materials.
- Use water as a means of suppression for the dust on roadways or in work areas.
- Stay out of areas where silica dust levels are high and avoid being downwind from these areas.
- Use proper respirators when engineering controls are not enough to protect you.

Appropriate Protection:

- Keep awareness high, which is the key to preventing silicosis. Recognize when silica dust may be generated and plan ahead to eliminate or control the dust at the source.
- Use proper respiratory protection when point of operation controls cannot keep exposures below the recommended exposure limit.
- Use Type CE pressure-demand, or positive-pressure, abrasive-blasting respirators when sandblasting.
- Wear only a N95 NIOSH-certified respirator, if respirator protection is required. Do not alter the respirator. Do not wear a tight-fitting respirator with a beard or mustache that prevents a good seal between the respirator and the face.
- Always use dust control systems when they are available and keep them well maintained.
- Be aware that high silica concentrations can occur inside and outside enclosed areas during operations such as concrete or masonry sawing or abrasive blasting.
- Do not eat, drink, or smoke in areas where sandblasting is being done, or where silica dust is being generated.
- Wear disposable or washable over-garments at the work site.
- Wash your hands and face before eating, drinking, or smoking and vacuum (don't blow) dust from your clothing.
- Shower if possible and change into clean clothes before leaving the job site to prevent contamination of cars, homes, and other work areas.
- Summary:

It is important to understand the hazards that silica dust creates for the workers who are exposed to it. While the regulation for silica dust is new, the hazards and health consequences have been known for decades. Use engineering controls and other effective safeguards to reduce the amount of this dust in the air to reduce overexposure.

IF IT'S SILICA...IT'S NOT JUST DUST!!

Safety Meeting Sign-In Sheet

<i>Supervisor:</i>	<i>Subject:</i>
<i>Location:</i>	<i>Date:</i>
<i>Conducted By:</i>	<i>Trainer Signature:</i>

Name (print clearly)	Signature	Comments / Safety Concerns / Training Requests

