

# WHY SILICA DUST COULD BE THE NEW ASBESTOS

## SIMILARITY OF MATERIALS

Asbestos...once hailed as the “magic mineral”, now conjures images of extreme toxicity and the potential for correlating diseases. Crystalline silica, often referred to as quartz, is a common mineral quickly becoming the “new asbestos.” It is found in many materials used in construction sites, including soil, sand, concrete, stone, masonry, rock, granite, and landscaping supplies.

Respirable crystalline silica are tiny particles of dust (typically at least 100 times smaller than ordinary sand found on beaches or playgrounds) generated by high-energy operations, like cutting, sawing, grinding, drilling, sand blasting and crushing stone, rock, concrete, brick, block and mortar.

## WHAT ARE THE RISKS?

According to the Occupational Safety and Health Administration (OSHA), about 2.3 million people in the United States are exposed to silica at work. Even a small amount of airborne silica dust can create a health hazard. Workers who inhale these very small crystalline silica particles are at increased risk of developing serious silica-related diseases, including:

- **Silicosis**, which in serious cases can be disabling or even fatal, is caused by silica dust entering the lungs. The dust causes scar tissue to form, making it difficult for the lungs to take in oxygen. This disease has no cure, yet is 100 percent preventable.
- **Lung cancer**
- **Chronic obstructive pulmonary disease (COPD)**
- **Kidney disease**

## OSHA'S NEW STANDARDS FOR RESPIRABLE CRYSTALLINE SILICA

OSHA's first silica standard was issued in 1971, and was updated on September 23, 2017. The new standard requires employers to take more stringent steps to protect workers from exposure to respirable crystalline silica. There are two standards: one for the construction industry, and the other for general industry and maritime. After a 30-day grace period, OSHA started enforcing the construction standard on October 23, 2017 and is expected to begin enforcing the standards for general industry and maritime on June 23, 2018.

# HOW DO NEW STANDARDS AFFECT EMPLOYERS?

These new standards place stricter limitations on the amount of dust to which workers or tradespeople working around the material can be exposed during an eight-hour shift. Previous rules allowed for exposure levels of 250 micrograms of silica per cubic meter of air. The new standard (29 CFR 196.1153) reduces the permissible exposure limit (PEL) to only 50 micrograms per cubic meter.

Employers have two options for compliance. They can either:

1. Use a control method laid out in Table 1 of the construction standard (see below), or
2. Use an alternative exposure control method that works best in their workplace.

Table 1 is the easiest way to ensure adequate worker protection and compliance with the new rule. Table 1 matches 18 common construction tasks with effective dust control methods. Table 1 also details the types of respiratory protection required. Most of the controls in Table 1 involve using tools and equipment with integrated water delivery systems that keep control dust, or tools equipped with shrouds and dust collection systems to capture silica dust.

Employers who chose this option are not required to measure exposure to silica from those tasks and are not subjected to the PEL. The primary advantage to this option is avoiding the requirement to establish a scheduled air-monitoring program or to prove that the alternative control methods are reducing exposure below the PEL.

**Complete Table 1 requirements** can be found at: <https://www.osha.gov/silica/SilicaConstructionRegText.pdf>

Employers who do not implement the control methods on Table 1 must:

1. Determine the amount of silica to which workers are exposed.
2. Protect workers from exposure above the PEL of 50 micrograms per cubic meter averaged out over an eight-hour day.
3. Implement dust controls and safer work methods.
4. Provide respirators to workers when controls and safer work methods cannot limit exposure.

## FURTHER REQUIREMENTS FOR CONTRACTORS

In addition to the two options for exposure control compliance, all employers are also required to:

1. Develop a written silica exposure control plan.
2. Designate a specific person to implement the plan.
3. Adjust company housekeeping practices to maximize control of silica dust.
4. Provide medical exams every three years to employees who are exposed to a level of silica requiring the use of a respirator for 30 days or more each year. Respirators must be fit tested, and to wear one, workers need to be in good physical shape and have their lung capacity evaluated. These exams, consequently, must include lung-function tests and chest x-rays.
5. Train workers on health effects of silica exposure, the tasks that expose them to silica and ways to limit exposure.
6. Keep records of workers' exposure and medical exams.

For additional information on the OSHA silica standard, visit: [www.osha.gov/silica/](http://www.osha.gov/silica/)

# COMPLIANCE AND PENALTIES

According to OSHA, the new rule will prevent more than 900 cases of silicosis annually. OSHA is now testing the PEL on job sites and levying fines for non-compliance. Below are the penalty amounts, current as of January 2, 2018.

Controlling exposure to silica dust is crucial to ensuring the health of those working with this material. For more information on silica dust or Burton Construction's Compliance Methods, please contact **Joseph Spanjer** at [jspanjer@burtonconstruction.com](mailto:jspanjer@burtonconstruction.com)

TYPE OF VIOLATION	PENALTY
Serious Other-Than-Serious Posting Requirements	\$12,934 per violation
Failure to Abate	\$12,934 per day beyond the abatement date
Willful or Repeated	\$129,336 per violation

Any construction worker who performs one or more of the following tasks **with** any of the materials listed below is at risk of being exposed to hazardous levels.

TASK
Abrasive blasting
Bushhammering
Cutting/sawing
Demolishing/disturbing
Drilling
Earthmoving
Grinding
Jackhammering
Milling
Mixing
Polishing
Roofing
Sacking/patching
Sanding
Scabbling
Scarifying
Scraping
Sweeping/cleaning up

CONSTRUCTION MATERIAL	
Asphalt (for paving)	Stone (including: granite, limestone, quartzite, sandstone, shale, slate, cultured, etc.)
Brick	
Cement	Stucco/EIFS
Concrete	Terrazzo
Concrete block	Tile (clay, ceramic, concrete, etc.)
Drywall	
Fiber cement products	
Grout	
Gunite/shotcrete	
Mortar	
Paints containing silica	
Plaster	
Refractory mortar/castables	
Refractory units	
Rock	
Roofing tiles & pavers	
Sand	
Soil (fill dirt and top soil)	

