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Frequently Asked Questions on the OSHA Standard on Respirable Crystalline Silica

On March 25, 2016, the Occupational Safety and Health Administration of the U.S. Department of Labor published a [final rule](#) which requires construction employers to limit worker exposure to silica and to take other steps to protect workers. Construction employers must comply with all requirements of the standard by June 23, 2017, except requirements for laboratory evaluation of exposure samples, which begin on June 23, 2018.

This *Frequently Asked Questions* is intended to give ASA members a greater understanding of OSHA's final rule on respirable crystalline silica.

Why is OSHA issuing this rule now?

According to OSHA, its previous permissible exposure limits (PELs) for silica are outdated, inconsistent and do not adequately protect worker health. The previous PELs were based on studies from the 1960s and earlier that did not reflect more recent scientific evidence showing that low-level exposures to silica cause serious health effects, including lung cancer. Previous construction and shipyard PELs were based on an old method of measuring worker exposures to silica that is not used today. Those previous limits are inconsistent, allowing permissible levels for construction and shipyards to be more than twice as high as levels in general industry.

There is evidence of a decline of silicosis cases in recent years. Why is the rule necessary if the silicosis problem in the U.S. seems to be going away?

Silicosis deaths have declined in recent years. Yet according to OSHA, from 2005 through 2014, silicosis was listed as the underlying or a contributing cause of death on over 1,100 death certificates in the United States. OSHA also reports that most deaths from silicosis go undiagnosed and unreported. Thus, those numbers of silicosis deaths do not include additional deaths from other silica-related diseases such as chronic obstructive pulmonary disease, lung cancer and kidney disease. While the number of silicosis cases has declined over the past several decades, OSHA reports that it is still a very serious workplace health problem. Indeed, according to OSHA, more workers died from silicosis in 2014 than in fires, or from being caught in or crushed by collapsing materials, such as in trench and structure collapses.

What is crystalline silica?

Crystalline silica is a common mineral found in many naturally occurring materials and used at construction sites. Respirable silica is generated by high-energy operations like cutting, sawing, grinding, drilling and crushing stone, rock, concrete, brick, block and mortar. Activities such as abrasive blasting with sand; sawing brick or concrete; sanding or drilling into concrete walls; grinding mortar; and cutting or crushing stone generate respirable dust.

How will OSHA's crystalline silica rule protect workers' health?

The new rule requires that employers use engineering controls, such as ventilation and wet methods for cutting and sawing crystalline silica-containing materials, to reduce workers' exposure to silica dust. Once the full effects of the rule are realized, OSHA expects it to prevent 600 deaths a year from silica-related diseases and to prevent more than 900 new cases of silicosis each year.

How many workplaces and workers will be affected by the rule?

Approximately 676,000 workplaces will be affected, including in construction and in general industry and maritime. According to OSHA, about 2.3 million workers are exposed to respirable crystalline silica in their workplaces. The majority of these workers, about 2 million, are in the construction industry.

What is the new permissible exposure limit (PEL)?

The PEL limits worker exposures to 50 micrograms of respirable crystalline silica per cubic meter of air ($\mu\text{g}/\text{m}^3$), averaged over an eight-hour day. This level is the same for all workplaces covered by the standard (general industry/maritime and construction), and is roughly 50 percent of the previous PEL for general industry, and roughly 20 percent of the previous PEL for construction and shipyards.

How can silica exposures be controlled to keep exposure at or below the PEL?

Under the new OSHA rule, employers must use engineering controls and work practices as the primary way keep exposures at or below the PEL.

Engineering controls include wetting down work operations or using local exhaust ventilation (such as vacuums) to keep silica-containing dust out of the air and out of workers' lungs. Another control method that may work well is enclosing an operation ("process isolation").

Examples of work practices to control silica exposures include wetting down dust before sweeping it up or using the water flow rate recommended by the manufacturer for a tool with water controls.

Respirators are only allowed when engineering and work practice controls cannot maintain exposures at or below the PEL.

For construction, the standard includes Table 1, a list of common construction tasks along with exposure control methods and work practices that work well for those tasks and can be used to comply with the requirements of the standard.

Why can't silica-exposed workers just wear respirators all the time?

Respirators are not as protective as engineering controls, and they aren't always as practical either. Unless respirators are selected for each worker, individually fitted and periodically refitted, and regularly maintained, and unless filters and other parts are replaced as necessary, workers will continue to be exposed to silica. In many cases, workers using only respirators would also have to wear more extensive and expensive protection. Even when respirators are selected, fitted, and maintained correctly, they must be worn consistently and correctly by workers to be effective. Respirators can also be uncomfortable, especially in hot weather, and cannot be used by some workers.

What is Table 1: "Specified Exposure Control Methods When Working with Materials Containing Crystalline Silica"?

Table 1 is a compliance option for construction employers. Table 1 identifies 18 common construction tasks that generate high exposures to respirable crystalline silica and for each task, specifies engineering controls, work practices and respiratory protection that effectively protect workers. Employers who fully and properly implement the engineering controls, work practices and respiratory protection specified for a task on Table 1 are not required to measure respirable crystalline silica exposures to verify that levels are at or below the PEL for workers engaged in the Table 1 task.

What are the 18 construction tasks covered by Table 1?

- Stationary masonry saws.
- Handheld power saws (any blade diameter).
- Handheld power saws for cutting fiber-cement board (with blade diameter of 8 inches or less).
- Walk-behind saws.
- Drivable saws.
- Rig-mounted core saws or drills.
- Handheld and stand-mounted drills (including impact and rotary hammer drills).
- Dowel drilling rigs for concrete.
- Vehicle-mounted drilling rigs for rock and concrete.
- Jackhammers and handheld powered chipping tools.
- Handheld grinders for mortar removal (i.e., tuckpointing).
- Handheld grinders for uses other than mortar removal.
- Walk-behind milling machines and floor grinders.
- Small drivable milling machines (less than half-lane).
- Large drivable milling machines (half-large and larger).
- Crushing machines.
- Heavy equipment and utility vehicles used to abrade or fracture silica-containing materials (e.g., hoe-ramming, rock ripping) or used during demolition activities involving silica-containing materials.

- Heavy equipment and utility vehicles for tasks such as grading and excavating but not including demolishing, abrading or fracturing silica-containing materials.

Are the air sampling methods used to detect and measure silica reliable?

According to OSHA, worker exposures to silica at the new PEL and action level can be reliably measured using existing sampling and analytical methods. To improve reliability of silica measurements, employers must ensure that their silica samples are analyzed by laboratories that meet the qualifications and use methods specified in the standard.

Why are construction employers required to implement engineering and work practice controls a year before laboratories are required to meet specifications for analyzing air samples?

There are approximately 40 laboratories in the U.S. that already meet the sample analysis requirements in the final rule. OSHA believes that demand for laboratory analysis of construction industry samples is likely to be modest because the agency expects most construction employers to implement the specified exposure control measures in Table 1. Employers choosing to use Table 1 will not be required to conduct exposure assessments. Construction employers that do not implement Table 1 will need to perform air monitoring, but they will be able to obtain reliable measurements of their employees' exposures from one of the 40 laboratories that currently meet OSHA standards.

What is the purpose of medical surveillance?

The purpose of medical surveillance is, when reasonably possible, to:

- Identify adverse health effects associated with respirable crystalline silica exposure so that appropriate actions can be taken.
- Determine if an employee has any condition, such as a lung disease, that might make him or her more sensitive to respirable crystalline silica exposure.
- Determine the employee's fitness to use respirators.

In response to the information gained through medical surveillance, employees can take actions to improve their health, such as making job choices to reduce exposures, wearing a respirator for extra protection, or making personal lifestyle or health decisions, such as quitting smoking or getting flu shots.

Why are the results of medical surveillance only given to the worker and not the employer?

The employer receives the physician or other licensed health care professional's recommended limitations on respirator use, which is vitally important information that the employer needs to protect the worker because those who are not fit to wear a respirator but wear one can be at risk of sudden incapacitation or death.

According to OSHA, other findings of the medical examination are only given to the employee because many employees and physicians testified that if employers received the results of the examination, many employees would not participate in medical surveillance because they feared discrimination or retaliation. Further, OSHA says that

employers do not need medical findings because they should base employee protections on exposure levels and how well controls are working. On the other hand, employees need the results of medical examinations to manage their health.

When must employers comply with the standard for construction?

Construction employers are required to comply with all obligations of the standard (except methods of sample analysis) by June 23, 2017. Construction employers are required to comply with methods of sample analysis by June 23, 2018.

Will states with OSHA-approved programs adopt the standards?

Yes. States with OSHA-approved state plans have six months to adopt standards that are at least as effective as federal OSHA standards. Many state plans adopt standards identical to OSHA, but some state plans may have different or more stringent requirements.