Regulatory Compliance

Silica Standard Facts

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OSHA's Respirable Crystalline Silica standard for general industry and maritime requires employers to limit worker exposures to respirable crystalline silica and to take other steps to protect workers.

Among other things, the standard requires employers to:

- Assess employee exposures to silica if it may be at or above an action level of 25 $\mu g/m^3$ (micrograms of silica per cubic meter of air), averaged over an 8-hour day;
- Protect workers from respirable crystalline silica exposures above the permissible exposure limit (PEL) of 50 $\mu g/m^3$, averaged over an 8-hour day;
- Limit workers' access to areas where they could be exposed above the PEL;
- Use dust controls to protect workers from silica exposures above the PEL;
- Provide respirators to workers when dust controls cannot limit exposures to the PEL;
- Use housekeeping methods that do not create airborne dust, if feasible;
- Establish and implement a written exposure control plan that identifies tasks that involve exposure and methods used to protect workers;
- Offer medical exams — including chest X-rays and lung function tests — every three years for workers exposed at or above the action level for 30 or more days per year;
- Train workers on work operations that result in silica exposure and ways to limit exposure; and
- Keep records of exposure measurements, objective data, and medical exams.

General industry and maritime employers must comply with all requirements of the standard by **June 23, 2018**, except for the following:

Medical surveillance must be offered to employees who will be exposed at or above the action level for 30 or more days a year starting on **June 23, 2020**. (Medical surveillance must be offered to employees who will be exposed above the PEL for 30 or more days a year starting on June 23, 2018.)

Hydraulic fracturing operations in the oil and gas industry must implement engineering controls to limit exposures to the new PEL by **June 23, 2021.**

Source: ***https://www.osha.gov/dsg/topics/silicacrystalline/gi_maritime.html***

Read more about the change in the OSHA Silica Standard here:

OSHA's Silica Exposure Enforcement: Are You Ready?

Crystalline silica is a common mineral found in the earth's crust. Materials like sand, stone, concrete and mortar contain crystalline silica. It is also used to make products such as glass, pottery, ceramics, bricks and artificial stone.

Respirable crystalline silica — very small particles at least 100 times smaller than ordinary sand you might find on beaches and playgrounds — is created when 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; manufacturing brick, concrete blocks, stone countertops, or ceramic products; and cutting or crushing stone result in worker exposures to respirable crystalline silica dust. Industrial sand used in certain operations, such as foundry work and hydraulic fracturing (fracking), is also a source of respirable crystalline silica exposure. About 2.3 million people in the U.S. are exposed to silica at work.

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
    - Breathing crystalline silica dust can cause silicosis, which in severe cases can be disabling, or even fatal. When silica dust enters the lungs, it causes the formation of scar tissue, which makes it difficult for the lungs to take in oxygen. There is no cure for silicosis.
    - Silicosis typically occurs after 15–20 years of occupational exposure to respirable crystalline silica. Symptoms 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. In the later stages, the worker may experience fatigue, extreme shortness of breath, chest pain, or respiratory failure.
    - Because silicosis affects the immune system, exposure to silica increases the risk of lung infections, such as tuberculosis. In addition, smoking causes lung damage and adds to the damage caused by breathing silica dust.
    - In rare instances, individuals exposed to very high concentrations of respirable crystalline silica can develop typical silicosis symptoms as well as fever and weight loss within weeks instead of years. In these cases, medical evaluation should be performed as soon as possible.
- Lung cancer
    - Exposure to respirable crystalline silica increases the risk of developing lung cancer. Lung cancer is a disease where abnormal cells grow uncontrollably into tumors, interfering with lung function. The abnormal cancer cells can also travel ("metastasize") and cause damage to other parts of the body. Most cases are not curable.
- Chronic obstructive pulmonary disease (COPD)
    - Exposure to respirable crystalline silica increases the risk of other lung diseases, primarily COPD, which includes emphysema and chronic bronchitis. The main symptom of COPD is shortness of breath due to difficulty breathing air into the lungs. COPD is not usually reversible and may worsen over time.
- Kidney disease
    - Studies of workers exposed to respirable crystalline silica have found that these workers are at increased risk of developing kidney disease. For instance, kidney failure has been observed among workers with high silica exposure, such as in abrasive blasters who also were suffering from silicosis.

To better protect workers exposed to respirable crystalline silica, OSHA has issued two new respirable crystalline silica standards: one for construction, and the other for general industry and maritime. OSHA will begin enforcing most provisions of the standard for construction on **September 23, 2017**, and will begin enforcing most provisions of the standard for general industry and maritime on **June 23, 2018.**

Source: ***https://www.osha.gov/dsg/topics/silicacrystalline/***

Information compiled from previously featured content on OSHA's website.

