

August 2025

WHEN THE DUST SETTLES – THE SERIOUS HEALTH RISKS OF SILICA

Background

According to OSHA, approximately 2.3 million employees in the U.S. are exposed to respirable crystalline silica on the job. CIRMA's municipal employees may encounter silica hazards across a wide range of departments, including public works, water and sewer, and fire. Respirable crystalline silica refers to microscopic particles that are at least 100 times finer than ordinary sand found on beaches or playgrounds and are released during activities such as cutting, sawing, grinding, drilling, and similar tasks.

Both prolonged and acute exposures present serious health risks, which is why OSHA regulates silica as a significant occupational hazard under its silica standard (OSHA CFR 1910.1053).

Exposure to respirable crystalline silica in the lungs may result in:

- Silicosis (irreversible lung disease)
- Chronic Obstructive Pulmonary Disease (COPD)
- Lung cancer
- Kidney Disease

Job activities leading to respirable silica exposure:

- Chipping
- Drilling
- Sanding
- Cutting
- Fracking
- Crushing
- Sawing
- Grinding
- Blasting

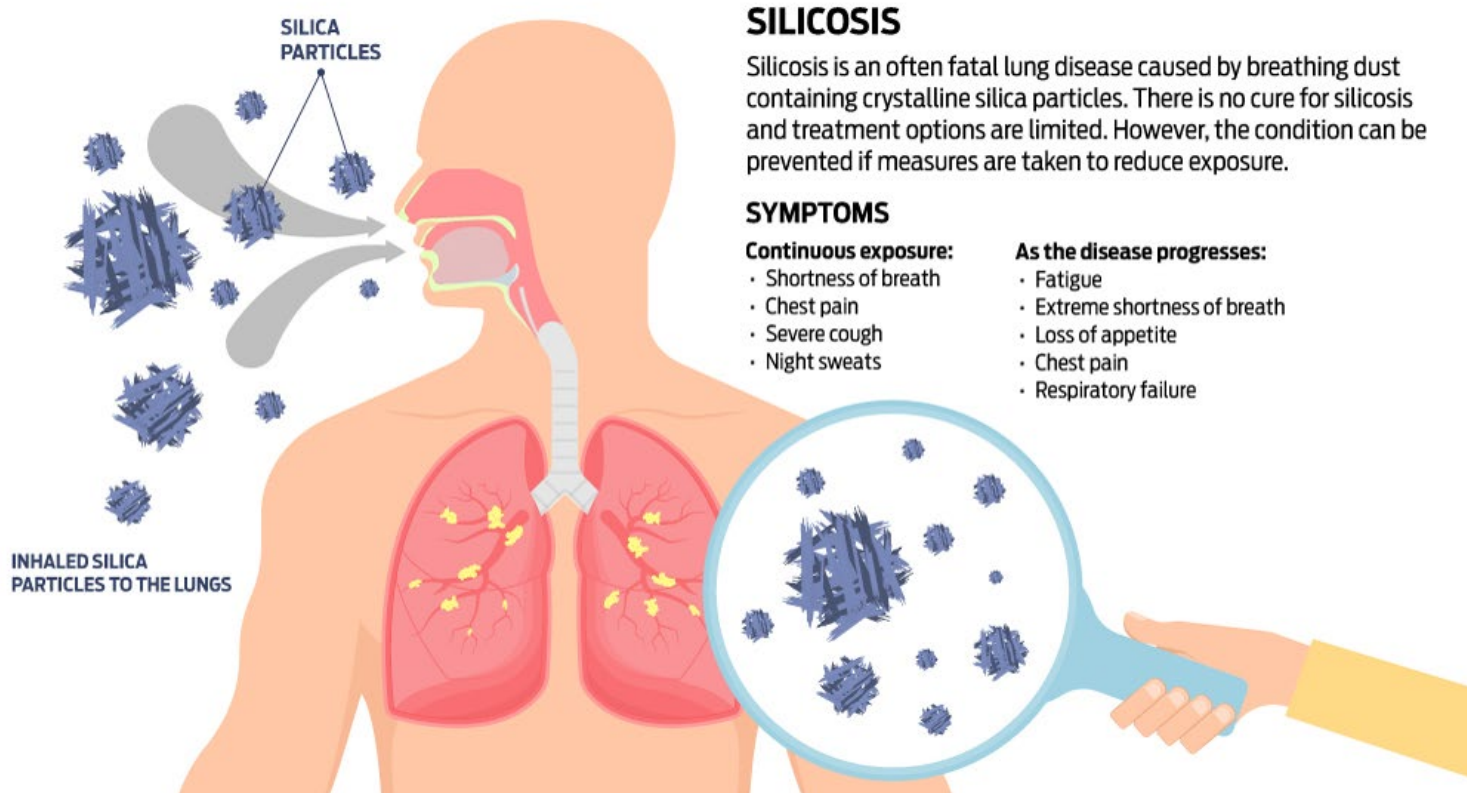


Image Credit: <https://www.jaybro.com.au/blog/post/silicosis-a-silent-killer-in-the-workplace-what-you-need-to-know-to-protect-yourself.html>

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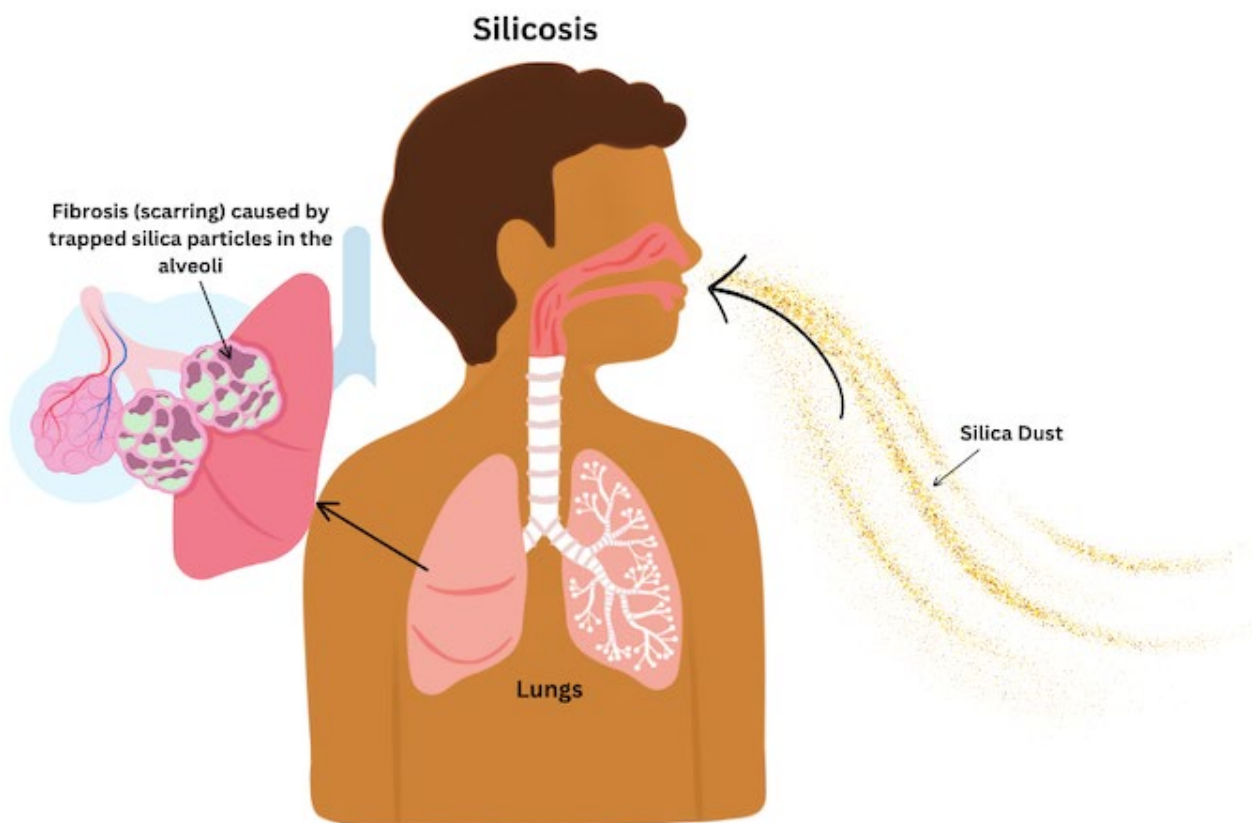


Image Credit: <http://publichealth.lacounty.gov/silicosis/>

Recommendations:

- Consider conducting job hazard assessments to identify tasks that generate silica within your workplace. CIRMA Risk Management offers a variety of resources on this topic, including online training available on the e-Learning platform, one-on-one consultative services, and a job hazard template to assist with implementation. These value-added resources are available by contacting your CIRMA Risk Management consultant.
- If employees are exposed to silica, ensure that your workplace complies with **OSHA 29 CFR 1910.1053** by limiting exposure to respirable crystalline silica and taking additional measures to protect employees¹.
- The standard requires employers to do the following:
 - Assess employee exposures to silica if it may be at or above an action level of 25 µg/m³ (micrograms of silica per cubic meter of air), averaged over an eight-hour day
 - Protect workers from respirable crystalline silica exposures above the permissible exposure limit (PEL) of 50 µg/m³, averaged over an eight-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

¹ <https://www.osha.gov/silica-crystalline/general-industry-maritime>

- 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
- Keep records of exposure measurements, objective data, and medical exams

For more information on this topic, please contact your CIRMA Risk Management Consultant.

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