



Silica – Permissible Exposure Limit (PEL)

What Is Respirable Crystalline Silica?

Crystalline silica is a common mineral that is found in materials such as stone, artificial stone, and sand. When workers cut, grind, or drill materials that contain crystalline silica, or use industrial sand, they can be exposed to very small silica dust particles. These tiny particles (known as “respirable” particles) can travel deep into workers’ lungs and cause silicosis, an incurable and sometimes deadly lung disease. Respirable crystalline silica also causes lung cancer, other potentially debilitating respiratory diseases such as chronic obstructive pulmonary disease, and kidney disease. In most cases, these diseases occur after years of exposure to respirable crystalline silica.

What are the exposure limits?)

- **Action level** is 25 µg/m³ (micrograms of silica per cubic meter of air), averaged over an 8-hour day
- **Permissible Exposure Limit (PEL)** is 50 µg/m³, averaged over an 8-hour day.

What Does the Standard Require?

- Determine the amount of silica that workers are exposed to if it is, or may reasonably be expected to be, at or above the *action level*;
- Protect workers from respirable crystalline silica exposures above the *permissible exposure limit (PEL)*;
- Construction employers can either use a control method laid out in Table 1 of the construction standard, or they can measure workers’ exposure to silica and independently decide which dust controls work best to limit exposures in their workplaces to the permissible exposure limit (PEL).
- Limit access to areas where workers could be exposed above the *PEL*;
- Use dust controls and safer work methods to protect workers from silica exposures above the *PEL*;
- Provide respirators to workers when dust controls and safer work methods cannot limit exposures to the *PEL*;
- Establish and implement a written exposure control plan that identifies tasks that involve exposure and methods used to protect workers;
- Restrict housekeeping practices that expose workers to silica, such as use of compressed air without a ventilation system to capture the dust and dry sweeping, where effective, safe alternatives are available;
- Offer medical exams—including chest X-rays and lung function tests—every three years to workers exposed at or above the *action level* for 30 or more days per year;



- Train workers on the health effects of silica exposure, workplace tasks that can expose them to silica, and ways to limit exposure; and
- Keep records of workers' silica exposure and medical exams.

SAFETY REMINDER

About two million construction workers are exposed to respirable crystalline silica in over 600,000 workplaces.