

OSHA's Proposed Crystalline Silica Rule: Overview

Workers who inhale very small crystalline silica particles are at increased risk of developing serious silica-related diseases. These tiny particles (known as “respirable” particles) can penetrate deep into workers’ lungs and cause silicosis, an incurable and sometimes fatal lung disease. Crystalline silica exposure also puts workers at risk for developing lung cancer, other potentially debilitating respiratory diseases such as chronic obstructive pulmonary disease (COPD), and kidney disease.

To improve worker protection, OSHA is proposing two new crystalline silica standards: one for general industry and maritime, and the other for construction. The proposals are based on extensive review of scientific evidence, current industry consensus standards, and OSHA’s outreach, including stakeholder meetings, conferences, and meetings with employer and employee organizations.

OSHA encourages the public to participate in this rulemaking. Information on submitting comments on the proposed rule and participating in public hearings can be found at www.osha.gov/silica. Your input will help OSHA develop a final rule that adequately protects workers, is feasible for employers, and is based on the best available evidence.

Why is OSHA proposing a crystalline silica rule?

OSHA’s current permissible exposure limits (PELs) for crystalline silica were adopted in 1971 and have not been updated since that time. They do not adequately protect workers; they are outdated, inconsistent and hard to understand.

- Strong evidence shows that current PELs do not adequately protect worker health. The current PELs are based on research from the 1960s and earlier and do not reflect more recent scientific evidence. For example, since the current PELs were adopted, the U.S. National Toxicology Program, the International Agency for Research on Cancer, and the National Institute for Occupational Safety and Health have all identified respirable crystalline silica as a human carcinogen.
- The current PELs are formulas that are difficult for many employers to understand; the PELs for construction and shipyards are based on a method for measuring worker exposures that has not been commonly used for more than 40 years.

- The current PELs for construction and shipyard workers allow them to be exposed to risks that are over twice as high as for workers in general industry. The proposed rule would provide consistent levels of protection for workers in all sectors covered by the rule.

How will the proposed rule protect workers?

The proposed rule is expected to prevent thousands of deaths from silicosis, lung cancer, other respiratory diseases, and kidney disease. OSHA estimates that the proposed rule will save nearly 700 lives and prevent 1,600 new cases of silicosis per year once the full effects of the rule are realized.

“In the absence of effective specific treatment for silica-related diseases, the only approach remains primary prevention, i.e., control of exposure to respirable silica.”

Official Statement of the American Thoracic Society on the Adverse Effects of Crystalline Silica Exposure

Who would be affected by the proposed rule?

About 2.2 million workers are exposed to respirable crystalline silica in their workplaces. The majority of these workers, about 1.85 million, are in the construction industry. Exposures occur when workers cut, grind, crush, or drill silica-containing materials such as concrete, masonry, tile, and rock. About 320,000 workers are exposed in general industry operations such as brick, concrete, and pottery manufacturing, as well as operations using sand products, such as foundry work and hydraulic fracturing (fracking) of oil and gas wells. Workers are also exposed during sandblasting in general industry and maritime workplaces.

What would the proposed rule require?

Workers' exposures would be limited to a new PEL of 50 micrograms of respirable crystalline silica per cubic meter of air ($\mu\text{g}/\text{m}^3$), averaged over an 8-hour day. The new PEL would be the same in all industries covered by the rule.

The proposed rule also includes provisions for measuring how much silica workers are exposed to, limiting workers' access to areas where silica exposures are high, using effective methods for reducing exposures, providing medical exams to workers with high silica exposures, and training for workers about silica-related hazards and how to limit exposure. These provisions are similar to industry consensus standards that many responsible employers have been using for years, and the technology to better protect workers is already widely available.

Lowering silica exposure can generally be accomplished by using common dust control methods, such as wetting down work operations to keep silica-containing dust from getting into the air, enclosing an operation ("process isolation"), or using a vacuum to collect dust at the point where it is created before workers can inhale it.



A worker using a grinder with an attached vacuum dust collection system. The vacuum pulls dust through the hose, where it is captured by filters. (Photo courtesy of the University of Washington)



A worker cutting concrete block using a handheld saw that applies water to the blade. The water reduces the amount of silica-containing dust that gets in the air.

What economic effects are expected?

The proposed rule is estimated to provide average net benefits of about \$2.8 to \$4.7 billion annually over the next 60 years. It is expected to result in annual costs of about \$1,242 for the average workplace covered by the rule. The annual cost to a firm with fewer than twenty employees would be less, averaging about \$550. The proposed rule is expected to have no discernible impact on total U.S. employment.

How can I learn more about the proposed rule?

Visit OSHA's Silica Rulemaking webpage at www.osha.gov/silica.

This is one in a series of informational fact sheets highlighting OSHA programs, policies or standards. It does not impose any new compliance requirements. For a comprehensive list of compliance requirements of OSHA standards or regulations, refer to Title 29 of the Code of Federal Regulations. This information will be made available to sensory-impaired individuals upon request. The voice phone is (202) 693-1999; teletypewriter (TTY) number: (877) 889-5627.

For assistance, contact us. We can help. It's confidential.



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