U.S. Department of Labor

Assistant Secretary for
Occupational Safety and Health
Washington, D.C. 20210

September 22, 2023

Dear Employer:

The Occupational Safety and Health Administration (OSHA) is planning a new inspection initiative that will focus on conducting enhanced enforcement and compliance assistance efforts in the engineered stone fabrication and installation industries. A primary goal of this initiative will be to prioritize OSHA inspection activities in workplaces where workers are typically exposed to high levels of silica, and to identify hazards and ensure prompt abatement. Based on recent studies of silicosis cases and fatalities, and a review of prior OSHA inspection history, OSHA has identified several industry sectors where exposures occur to high concentrations of respirable silica dust when working with engineered stone. The OSHA Initiative memorandum will soon be posted on OSHA's web page at https://www.osha.gov/enforcementmemos.

The planned inspection initiative will serve as a supplement to the National Emphasis Program for Respirable Crystalline Silica (Silica NEP) (see https://www.osha.gov/enforcement/directives/cpl-03-00-023), which became effective on February 4, 2020. Workers involved in manufacturing, finishing, and installing natural and manufactured (i.e., man-made, engineered, or cultured) stone countertops are at risk of significant crystalline silica dust exposure and of developing silicosis, an incurable, progressively disabling and sometimes fatal lung disease, as well as work-related asthma. Recent studies have demonstrated the dangers of exposure to silica dust from engineered stone in particular. [1,2,3] In 2019, the Centers for Disease Control and Prevention (CDC) published a study in Morbidity and Mortality Weekly Report (MMWR), where eighteen cases of silicosis, including two fatalities, were reported among engineered stone fabrication workers in four states. Several patients also had autoimmune disease and latent tuberculosis infection. And most recently JAMA Network published a study on its Internal Medicine page on Silicosis Among Immigrant Engineered Stone (Quartz) Countertop Fabrication Workers in California, July 24, 2023, where 52 male patients were diagnosed with advanced disease (progressive massive fibrosis). Of the cases, 10 were fatal and 11 were referred for lung transplants.

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[1] Rose C, Heinzerling A, Patel K, et al. Severe Silicosis in Engineered Stone Fabrication Workers — California, Colorado, Texas, and Washington, 2017–2019. MMWR Morb Mortal Wkly Rep 2019;68:813–818. https://www.cdc.gov/mmwr/volumes/68/wr/mm6838a1.htm.

[2] Fazio, J. C., Gandhi, S. A., Flattery, J., Heinzerling, A., Kamangar, N., Afif, N., Cummings, K. J., & Harrison, R. J. (2023). Silicosis Among Immigrant Engineered Stone (Quartz) Countertop Fabrication Workers in California. JAMA internal medicine, e233295. Advance online publication. https://doi.org/10.1001/jamainternmed.2023.3295.

[3] Tustin AW, Kundu - Orwa S, Lodwick J, Cannon DL, McCarthy RB. An outbreak of work - related asthma and silicosis at a US countertop manufacturing and fabrication facility. Am J Ind Med. 2022;65(1):12-19.

Hazards related to silica can often be mitigated with simple and effective dust controls in most engineered stone fabrication and installation operations. As an employer of workers facing these hazards, you have the legal obligation to implement effective controls and comply with the respirable crystalline silica standards for general industry and/or construction (29 CFR § 1910.1053 and 29 CFR § 1926.1153), as applicable. This includes adherence to the applicable permissible exposure limit which is set at 50 micrograms per cubic meter of air as an 8-hour time-weighted average (TWA) for general industry and construction. To assist you in your effort to keep workers safe and reduce the prevalence of silicosis, I am providing you with the enclosed Fact Sheets (General Industry and Maritime Fact Sheet and Construction Fact Sheet) containing information on dust control methods and safer work practices that can be used during engineered stone manufacturing, finishing and installation operations (*see also* OSHA and NIOSH Hazard Alert at: https://www.osha.gov/sites/ default /files/publications/OSHA3768.pdf).

Control methods for countertop manufacturing and finishing operations include, but are not limited to, the following:

- Using water spraying systems and remote-controlled tools at the impact site where a saw or grinder generates dust.
- Using large bridge or gantry-like saws that use water sprays and are remote-controlled for dust control and cooling.
- Using hand-held angle grinders modified to deliver water to the point of contact with the stone.
- Using wet-edge milling machines or stone routers in place of dry grinders in shops. These provide a clean edge profile with a diamond wheel.
- Using hand tools (e.g., drills, masonry saws, grinders) equipped with a shroud and a vacuum with a high efficiency particulate air (HEPA)-filter when wet methods are not practicable.
- Installing Local Exhaust Ventilation (LEV) systems at fixed locations to capture dust at its point of origin.
- Using a combination of both water and ventilation controls, if necessary.
- Replacing water and air filters as needed to control dust.
- Adjusting water flow as necessary to control dust and following manufacturers' recommendations for water flow rates.
- Pre-washing stone slabs prior to cutting.
- In high exposure areas, such as where cutting or polishing work generates silica dust, providing HEPA filtered vacuums for cleaning worker clothes and water for hand, face, and hair cleaning.

Control methods for countertop installation operations include, but are not limited to, the following:

- Performing as much work as possible under controlled manufacturing conditions (*i.e.*, using LEV) instead of at an enclosed, unventilated installation site, or performing work outdoors or in well-ventilated areas to reduce dust exposure.

- Using other dust suppression methods (*e.g.*, LEV) during operations where wet methods for dust control may not be practicable, such as on or near finished cabinets, walls, and floors.
- Using grinding and drilling tools equipped with dust shrouds coupled with LEV and a HEPA filter. Controls can be either tool mounted (drills) or attached to a vacuum system.
- Using a HEPA-filtered vacuum to clean up dust as soon as practicable.

Dust controls and work practices provide the best protection for workers and must generally be implemented first, before respiratory protection is used. However, you must provide workers with respirators, and ensure their use, whenever required by the applicable respirable crystalline silica standard.

I am calling on you today to prevent these needless incurable illnesses and deaths. Further information about silica, including the Small Entity Compliance Guides for General Industry (https://www.osha.gov/sites/default/ files/publications/OSHA3911.pdf) and Construction (https://www.osha.gov/sites/default/ files/publications/OSHA3902.pdf), may be found on the OSHA Silica Safety and Health Topics Page (https://www.osha.gov/silica-crystalline).

OSHA State Consultation Programs are available to assist small employers in complying with OSHA standards (https://www.osha.gov/consultation). If you have further questions, please contact your local OSHA Area Office or your State Consultation Program. More information is available at www.osha.gov. OSHA appreciates your interest in occupational safety and health.

Sincerely,

Douglas L. Parker

Enclosures

OSHA® FactSheet

CONTROL SILICA DUST
Breathe Easier

OSHA's Respirable Crystalline Silica Standard for Construction

Workers who are exposed to respirable crystalline silica dust are at increased risk of developing serious silica-related diseases. OSHA's standard requires employers to take steps to protect workers from exposure to respirable crystalline silica.

What is Respirable Crystalline Silica?

Crystalline silica is a common mineral that is found in construction materials such as sand, stone, concrete, brick, and mortar. When workers cut, grind, drill, or crush materials that contain crystalline silica, very small dust particles are created. 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.

How are Construction Workers Exposed to Respirable Crystalline Silica?

Exposure to respirable crystalline silica can occur during common construction tasks, such as using masonry saws, grinders, drills, jackhammers and handheld powered chipping tools; operating vehicle-mounted drilling rigs; milling; operating crushing machines; using heavy equipment for demolition or certain other tasks; and during abrasive blasting and tunneling operations. About two million construction workers are exposed to respirable crystalline silica in over 600,000 workplaces.

What Does the Standard Require?

The standard (29 CFR 1926.1153) requires employers to limit worker exposures to respirable crystalline silica and to take other steps to protect workers. 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).

What is Table 1?

Table 1 matches 18 common construction tasks with effective dust control methods, such as using water to keep dust from getting into the air or using a vacuum dust collection system to capture dust. In some operations, respirators may also be needed. Employers who follow Table 1 correctly are not required to measure workers' exposure to silica from those tasks and are not subject to the PEL.

Table 1 Example: Handheld Power Saws

If workers are sawing silica-containing materials, they can use a saw with a built-in system that applies water to the saw blade. The water limits the amount of respirable crystalline silica that gets into the air.

Table 1: Specified Exposure Control Methods When Working With Materials Containing Crystalline Silica

Equipment/ Task	Engineering and Work Practice Control Methods	Required Respiratory Protection and Minimum Assigned Protection Factor (APF)	
		≤ 4 hrs/ shift	> 4 hrs/ shift
Handheld power saws (any blade diameter)	Use saw equipped with integrated water delivery system that continuously feeds water to the blade. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.		
	• When used outdoors.	None	APF 10
	• When used indoors or in an enclosed area.	APF 10	APF 10

Excerpt from Table 1 in 29 CFR 1926.1153

In this example, if a worker uses the saw outdoors for four hours or less per day, no respirator would be needed. If a worker uses the saw for more than four

hours per day or any time indoors, he or she would need to use a respirator with an assigned protection factor (APF) of at least 10, such as a NIOSH-certified filtering facepiece respirator that covers the nose and mouth (sometimes referred to as a dust mask). See the respiratory protection standard (29 CFR 1910.134) for information on APFs.

Alternative Exposure Control Methods

Employers who do not fully implement the control methods on Table 1 must:

- **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 of 25 µg/m³** (micrograms of silica per cubic meter of air), averaged over an 8-hour day;
- Protect workers from respirable crystalline silica exposures above the **PEL of 50 µg/m³**, averaged over an 8-hour day;
- Use **dust controls** and safer work methods to protect workers from silica exposures above the PEL; and
- Provide **respirators** to workers when dust controls and safer work methods cannot limit exposures to the PEL.

What Else Does the Standard Require?

Regardless of which exposure control method is used, all construction employers covered by the standard are required to:

- Establish and implement a **written exposure control plan** that identifies tasks that involve exposure and methods used to protect workers, including procedures to restrict access to work areas where high exposures may occur;
- Designate a **competent person** to implement the written exposure control plan;
- 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 for workers who are required by the standard to wear a respirator 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.

Applying water to the blade of a handheld power saw reduces the amount of dust created when cutting.

Additional Information

Additional information on OSHA's silica standard can be found at www.osha.gov/silica.

OSHA can provide compliance assistance through a variety of programs, including technical assistance about effective safety and health programs, workplace consultations, and training and education.

OSHA's On-Site Consultation Program offers free, confidential occupational safety and health services to small and medium-sized businesses in all states and several territories across the country, with priority given to high-hazard worksites. On-Site consultation services are separate from enforcement and do not result in penalties or citations. Consultants from state agencies or universities work with employers to identify workplace hazards, provide advice on compliance with OSHA standards, and assist in establishing and improving safety and health management systems. To locate the OSHA On-Site Consultation Program nearest you, call 1-800-321-OSHA or visit www.osha.gov/consultation.

How to Contact OSHA

Under the Occupational Safety and Health Act of 1970, employers are responsible for providing safe and healthful workplaces for their employees. OSHA's role is to ensure these conditions for America's working men and women by setting and enforcing standards, and providing training, education and assistance. For more information, visit www.osha.gov or call OSHA at 1-800-321-OSHA (6742), TTY 1-877-889-5627.

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OSHA® FactSheet

CONTROL SILICA DUST
Breathe Easier

OSHA's Respirable Crystalline Silica Standard for General Industry and Maritime

Workers who are exposed to respirable crystalline silica dust are at increased risk of developing serious silica-related diseases. OSHA's standard requires employers to take steps to protect workers from exposure to respirable crystalline silica.

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.

How Are Workers in General Industry and Maritime Exposed to Respirable Crystalline Silica?

Workers can be exposed to respirable crystalline silica during the:

- Manufacture of glass, pottery, ceramic, brick, concrete, asphalt roofing, jewelry, artificial stone, dental, porcelain, or structural clay products;
- Use of industrial sand in operations such as foundry work and hydraulic fracturing; and
- Use of sand for abrasive blasting (e.g., maritime operations).

What Does the Standard Require?

The standard for general industry and maritime (29 CFR 1910.1053) requires employers to:

- **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 of 25 µg/m³** (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 µg/m³**, averaged over an 8-hour day;
- **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.

A worker uses a stone grinder that applies water at the work surface to reduce silica dust levels in the air.

Examples—Dust Control Methods

Employers can protect workers from silica exposures by using dust controls such as:

- Wet methods that apply water at the point where silica dust is made;
- Local exhaust ventilation that removes silica dust at or near the point where it is made; and
- Enclosures that isolate the work process or the worker.

While grinding stone, a worker uses local exhaust ventilation to remove silica dust and reduce his exposure.

Photo: New Jersey Department of Health

While abrasive blasting dental castings, a worker uses an enclosure that isolates silica dust.

When Are Employers Required to Comply with the Standard?

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 dust controls to limit exposures to the new PEL by June 23, 2021.

Additional Information

Additional information on OSHA's silica standard can be found at www.osha.gov/silica. OSHA can provide compliance assistance through a variety of programs, including technical assistance about effective safety and health programs, workplace consultations, and training and education. OSHA's On-Site Consultation Program offers free, confidential occupational safety and health services to small and medium-sized businesses in all states and several territories across the country, with priority given to high-hazard worksites. On-Site consultation services are separate from enforcement and do not result in penalties or citations. Consultants from state agencies or universities work with employers to identify workplace hazards, provide advice on compliance with OSHA standards, and assist in establishing and improving safety and health management systems. To locate the OSHA On-Site Consultation Program nearest you, call 1-800-321-OSHA or visit www.osha.gov/consultation.

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