

HAZARD WARNING: SILICA DUST FROM COUNTERTOP FABRICATION

Crystalline silica is in engineered stone, quartz, granite, and other stone products. Cutting, grinding, chipping, sanding, drilling, and polishing these products can release hazardous levels of small silica particles into the air that workers breathe. Engineered stone has the most silica so it can produce higher levels of silica dust.

When small particles of silica get into the lungs, they can cause permanent scarring and trouble breathing. Silica dust can also cause lung cancer, kidney damage, and autoimmune disease. Initial symptoms of silicosis can include shortness of breath, cough, and fatigue.

Workers can die from silica dust exposure. Many cases of incurable and fatal lung problems from exposure to silica dust in stone fabrication workers have been reported around the world and in the United States, including several among relatively young workers in California.

Engineering controls and safer work practices provide the best protection for workers and must be used to reduce

silica exposures. Respiratory protection can provide additional protection if needed, or can be used as a temporary measure until other controls are put in place.

ENGINEERING CONTROLS

- Avoid work on dry stone.
- Use water spraying systems and remote-controlled tools.
- Modify hand-held angle grinders to deliver water to the point of contact with the stone.
- Replace dry grinders with wet-edge milling machines or stone routers in shops.
- Use a hose to add water to surfaces being worked when more wetting is needed.
- Operate hand tools equipped with a shroud and a vacuum with a high efficiency particulate air (HEPA) filter when wet methods are not possible.
- Install local exhaust ventilation systems to capture dust at its point of origin.
- Use local exhaust ventilation combined with wet methods to fully control dust, if needed.

STONE	% SILICA
Engineered Stone	> 93
Sandstone	70–90
Granite	10–45
Limestone	<3
Marble	<3

CASE REPORTS

FATALITIES IN CALIFORNIA

In 2019, the California Department of Public Health (CDPH) identified two fatalities from 2018 due to silicosis: Two employees who had worked at the same countertop fabrication shop died of silicosis. They worked for a few years doing fabrication tasks such as polishing, cutting, and grinding of stone surfaces. They were only 36 and 38 years old at the time they died. About 85% of their work was with engineered stone.



Wet methods and local exhaust ventilation can reduce dust exposures

WORK PRACTICES

- Use wet sweeping or HEPA-filtered vacuuming instead of dry sweeping or compressed air.
- Replace water and air filters and adjust water flow as needed to control dust.
- Pre-wash stone slabs prior to cutting.
- Implement regular and thorough housekeeping for water slurry and settled dust: for example, use an auto-scrubber to clean floors at shift end.
- Provide HEPA-filtered vacuums for cleaning worker clothes and water for hand, face, and hair cleaning.

RESPIRATOR USE

When engineering and work practice controls do not lower silica exposures so that they are at or below the permissible exposure limit (PEL), employers must provide workers with particulate respirators (See box below for info about the PEL). If respirators are required, the employer must have a respiratory protection program that meets the requirements of the Respiratory Protection Standard. This program must include proper respirator selection, medical evaluations, fit testing, and training.

HOW DO I KNOW IF SILICA LEVELS ARE TOO HIGH AT MY WORKPLACE?

The Cal/OSHA PEL for silica is 50 micrograms per cubic meter of air ($\mu\text{g}/\text{m}^3$) averaged over an 8-hour workday. This is the maximum level to which an employee may be exposed. However, employers must assess the exposure of employees who are or may reasonably be expected to be exposed to silica at or above the action level (AL) of $25 \mu\text{g}/\text{m}^3$. Fabrication work on countertop materials that contain high levels of silica, such as granite, sandstone, and engineered stone can create exposure levels at or above the AL. The only way you can be sure what the levels are would be to measure. See "RESOURCES" to find consultants to help you assess employee exposures.

EMPLOYERS MUST ENSURE THAT WORKERS ARE PROPERLY PROTECTED FROM EXPOSURE TO SILICA

Assess employee exposures to silica dust to assure they are not above the Cal/OSHA permissible exposure limit (see box below).

Minimize exposures through effective engineering controls and safe work practices.

Provide and ensure proper use of respirators when exposures remain above the PEL after implementation of engineering controls and safe work practices.

Send employees for initial and periodic medical screening if the respirable silica level is above $50 \mu\text{g}/\text{m}^3$ for 30 or more days a year (after June 23, 2020, this is required if at or above $25 \mu\text{g}/\text{m}^3$). Medical screening must include: a medical and work history, physical exam, chest x-ray, pulmonary function tests, and other tests ordered by the physician.

Train workers on the health hazards, workplace exposures, and ways used to protect them.

RESOURCES

If your company needs help measuring silica exposure or complying with the Cal/OSHA silica standards:

- More information about the Cal/OSHA Silica Standard <https://www.dir.ca.gov/dosh/respiratory-silica-FAQ.html>
- Call Cal/OSHA Consultation at (800) 963-9424 or email at infocons@dir.ca.gov with questions, or to schedule a free, confidential visit.
- Contact your workers' compensation insurance company.
- Find an industrial hygienist to help you assess levels and control exposures from a list of consultants provided by the American Industrial Hygiene Association: <https://www.aiha.org/consultants-directory>
- Link to a webinar about working safely with natural and engineered stone products: <https://www.cdc.gov/nora/councils/resp/webinars.html>

For more information, contact the CDPH Occupational Health Branch at occhealth@cdph.ca.gov, (800) 970-6680 or www.cdph.ca.gov/silica-stonefabricators. To obtain a copy of this document in an alternate format, please contact (510) 620-5757. Allow at least 10 working days to coordinate alternate format services. CA Relay Service: 711