

A Guide for California Employers: Workplace Air Monitoring for Silica during Engineered Stone (Quartz) Fabrication Work



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Introduction

A dangerous lung disease called silicosis can occur in workers who breathe silica dust from cutting and grinding engineered stone. Engineered stone, which is also called quartz or artificial stone, is commonly used to make countertops.

As a California employer that fabricates countertops or other materials made from stone, you are [required by Cal/OSHA](#) to ensure that workers are not exposed to harmful amounts of dust. You must regularly check your workers' exposures to respirable crystalline silica through personal air monitoring. Use this guide to gather tips and best practices as you plan to conduct personal air monitoring for silica.



What is Personal Air Monitoring?

Personal air monitoring is a way to measure a worker's exposure to a material in the air, such as silica.



A small battery-operated pump is connected by a tube to a sampler designed to collect dust. The pump is placed on a worker to check their exposure.

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Know the exposure limit

- ✓ Work on engineered stone that contains more than 0.1% by weight crystalline silica or on natural stone that contains more than 10% by weight crystalline silica is considered a “high-exposure trigger task.”
- ✓ Check with your stone suppliers or the manufacturers to find out how much crystalline silica each type contains. Get Safety Data Sheets (SDSs) on each type of stone – the amount of crystalline silica will be on the SDSs. Granite, sandstone, quartzite, and other types of natural stone can be above 10% silica.
- ✓ For workers who perform high-exposure trigger tasks, exposure to silica must not exceed the Action Level (AL) of 25 micrograms of respirable crystalline silica per cubic meter of air ($25 \mu\text{g}/\text{m}^3$), calculated as an 8-hour time-weighted average (TWA).
- ✓ Monitoring must be repeated on a regular basis. How often is determined by the levels that are found. The schedule is found on page 5.

Take Requirements Seriously

Cal/OSHA inspected 47 stone countertop fabrication shops in 2019 and 2020. Air monitoring showed 31 (66%) of these shops had silica exposures above the AL, as high as **$670 \mu\text{g}/\text{m}^3$** .

2

Gather support for sampling and analysis

Select a professional [air monitoring consultant](#), also known as an industrial hygienist, to collect samples at your workplace. If possible, use a company that has a Certified Industrial Hygienist (CIH) who can conduct or oversee the air monitoring. You can also contact Cal/OSHA consultation or your Workers' Compensation insurer for assistance.



Select workers for personal air monitoring

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You are not required to conduct personal air monitoring for each and every worker. However, the air monitoring must reflect the exposure of different employees on each shift, for each job classification, and in each work area. Work with the consultant to decide how many workers and which types of workers you should monitor to ensure results are representative.

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Notify workers and conduct air monitoring

Let workers know about air monitoring in advance. You must let workers, and their representatives, if applicable, observe air monitoring if requested. Help workers know what to expect on the day of air monitoring and be available to answer questions about the process.

Pro Tip

If only some workers are monitored, pick those expected to have the highest exposure to silica. Your consultant should test a variety of workers, at different times of the day, conducting different tasks, throughout the workplace.

Review and share results with workers

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Your consultant will provide a report. Review the report carefully and ask the consultant to help you understand the results. Compare the results with any prior air monitoring conducted to see if exposures have increased and whether additional dust control methods are required.

Within 15 working days after completing the exposure measurements, you must notify affected workers in writing of their results. When the results are above $50 \mu\text{g}/\text{m}^3$, the written notification to workers must also describe the corrective actions, such as engineering controls, that you will use to reduce their silica dust exposures.

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Notify workers and conduct air monitoring

You must keep an accurate record of all air monitoring data including:

- The name of the laboratory and date(s) air monitoring was conducted;
- Task(s) monitored;
- Sampling and analytical methods used;
- Number, duration, and results of samples taken;
- Type of personal protective equipment used (e.g., type of respirator worn); **and**
- Name and job classification of all workers assessed.

Worker exposure records must be kept for at least thirty years. See the Cal/OSHA regulation regarding access to employee exposure records for more information.

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Plan to repeat air monitoring

Repeat air monitoring is required as follows:

Air Monitoring Results	Actions to take/When to Repeat
Worker exposure is below the Action Level of $25 \mu\text{g}/\text{m}^3$	Must repeat at least every 12 months. If workers are to wear respirators other than a full-face tight-fitting powered air purifying respirator (PAPR), you must repeat air monitoring at least once every 6 months. See section (h)(3)(A) of the regulation for details.
Worker exposure is at or above $25 \mu\text{g}/\text{m}^3$ but at or below $50 \mu\text{g}/\text{m}^3$	Implement more effective controls and repeat air monitoring within 6 months
Worker exposure is above $50 \mu\text{g}/\text{m}^3$	Implement more effective controls and repeat air monitoring within 3 months



Remember: You must repeat air monitoring whenever a change in the production, process, controls, personnel, or work practices may lead to increased silica exposure.

You are encouraged to consult the [Cal/OSHA website](https://www.dir.ca.gov/calOSHA/) for more information about requirements and commonly used terms.



For questions and assistance: contact Cal/OSHA Consultation

Services email: InfoCons@dir.ca.gov | phone: 1 (800) 963-9424

[Find the nearest Cal/OSHA Consultation office](#) to your workplace.



Occupational Health Branch | California Department of Public Health

(510) 620-5757 | Visit [Silica Safety for Countertop Fabrication Employers](#)

for an electronic version of this guide and more silica resources.

