

WORKPLACE AIR MONITORING FOR SILICA

Employer Guide



Photo credit courtesy of National Institute for Occupational Safety and Health (NIOSH)

Introduction

Workers who cut and grind engineered stone made from silica, commonly referred to as quartz, are at high risk of silicosis, a lung disease caused by breathing silica dust. As an employer in the stone fabrication industry, you are [required by Cal/OSHA](#) to check workers' exposure to respirable crystalline silica through regular 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.

GET STARTED



Know the exposure limits

Worker exposure to silica **must not exceed the permissible exposure limit (PEL)** of 50 micrograms per cubic meter ($50 \mu\text{g}/\text{m}^3$), calculated as an 8-hour **time-weighted average (TWA)**. If initial air monitoring levels are above the PEL, you must implement dust control methods to decrease silica levels and designate regulated areas with signs.

The action level (AL) is $25 \mu\text{g}/\text{m}^3$, half of the PEL. When worker exposures reach the AL, you must implement a written exposure control plan, worker training, scheduled personal air monitoring, and housekeeping methods.

- When workers are exposed to silica at or above the AL for 30 days or more per year, you must provide medical surveillance to those workers.
- When silica levels are below the AL, no action is required.

Take Requirements Seriously
Cal/OSHA recently inspected 47 stone countertop fabrication shops. Air monitoring showed 24 (51%) of these shops had silica exposures above the PEL, as high as $670 \mu\text{g}/\text{m}^3$. Thirty-four (72%) of the shops were cited for one or more violations of the silica standard.

Gather support for sampling and analysis

Help with air monitoring is available! 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 work. Check to make sure the consultant is using an [accredited lab](#) that is compliant with Cal/OSHA Appendix A.

Select workers for personal air monitoring

You are not required to conduct personal air monitoring for each and every worker. 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.

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.

5 Review and share results with workers



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 worker exposures have increased and whether additional dust control methods are required. Within 15 working days of receiving air monitoring results, you must notify affected workers in writing of their results. When the results are above the PEL, the written notification to workers must also describe the planned actions and engineering controls that you will use to reduce their silica dust exposures.

6 Maintain records

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 during air monitoring

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

The results of initial air monitoring help determine when you need to repeat air monitoring:

| Initial Air Monitoring Results | When to reassess |
|--|---|
| Worker exposure is below the AL | May discontinue air monitoring, unless work practices are changed (see below) |
| Worker exposure is at or above the AL, but below the PEL | Must repeat monitoring within six months |
| Worker exposure is at or above the PEL | Must repeat monitoring within three months |



Remember: Regardless of previous air monitoring results, 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](#) for more information about air monitoring 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 closest Cal/OSHA Consultation office to your workplace,](#)

Occupational Health Branch | California Department of Public Health
 (510) 620-5757 | visit go.cdph.ca.gov/silicosis for an electronic version of this
 guide and more silica resources

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