



Silica Dust Hazards in Granite Counter Top Fabrication

Silicosis is an irreversible and progressive lung disease that can cause serious disability or death. This disease is caused by a naturally occurring mineral known as crystalline silica. It is a basic component of sand, quartz and granite rock. The International Agency for Research on Cancer (IARC) considers inhaled crystalline silica to be a known human carcinogen. Based on the available research, California adopted permissible exposure limits (PEL) as low as 0.05 milligrams per cubic meter of air (0.05 mg/m³) averaged over an 8-hour work shift for some types of crystalline silica.

Employers should first conduct air monitoring to obtain baseline levels of airborne crystalline silica dust. Per Cal-OSHA, air monitoring of silica dust in the granite counter top fabrication industry has shown to reach and exceed permissible exposure levels.

Exposure to silica dust is dependent on various factors. Granite stone and some engineered stone surfaces today can contain different concentrations of crystalline silica. This depends on the type of material and the amount of crystalline silica in each product. Material Safety Data Sheets (MSDS) are available through suppliers to obtain this information. The type of activity and tool used will also influence the amount of dust generated. Grinding and routing for example will generate more dust than polishing tasks. Ventilation controls, facility layout and personal work practices will also contribute to the degree of dust in the air. Lastly, housekeeping practices can also influence the amount of dust released into the air. As a result, it is important to evaluate each element to determine best ways to improve dust control.

Control Strategies

Using systems that reduce dust at the source is the best way to protect workers. Examples include the use of water-fed tools such as water-fed air grinders and polishers. These systems are easily available today and can significantly reduce dust levels for workers. Local air exhaust systems with proper HEPA filtration can also be used on tools and equipment to reduce the release of dust. Both of these systems are considered preferred methods because they reduce the level of dust before it reaches the workers' breathing area.

Water walls and general exhaust ventilation are also common methods to reduce airborne dust. However, these are considered less effective than the former because the dust is not captured at the source and the worker is more likely to need respiratory protection.



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Providing respiratory protection should be the last line of defense to protect workers. If respirators need to be used, employers are required to implement a Respirator Protection Program. Program elements include:

- 1) Medical evaluation
- 2) Proper respirator selection
- 3) Fit-testing
- 4) Cleaning
- 5) Maintenance
- 6) Training
- 7) Supervision
- 8) Written program

For more information on establishing a Respiratory Protection Program, refer to *Cal-OSHA Respiratory Protection at Work A Practical Guide for Small Employers*

http://www.dir.ca.gov/DOSH/dosh_publications/Respiratory.pdf

Workers should avoid the use of compressed air to clean work surfaces or themselves as this will increase the concentrations of dust in the air. Also, dry sweeping should be avoided. The use of water should be encouraged instead to clean surfaces. In addition, daily cleaning of surfaces will help reduce dust build-up in the shop and help keep dust concentrations down.

To reduce exposure of crystalline silica dust to family members, employers and workers should look for ways to avoid taking dust home. Providing workers with work coats and washing facilities can reduce this risk.

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If You Have Any Questions or Need Assistance**

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