



## Silica Safety in Construction

Workers in cement/concrete or stucco operations, abrasive blasting, jack hammering, rock/well drilling, brick/block cutting, and tunneling operations are often overexposed to crystalline silica. Although any exposure can be dangerous, overexposure can reach other workers in the area and even their families. Because crystalline silica can cause silicosis and possibly death, dust-producing operations should carefully follow industry safety measures.

### What happens when exposure occurs?

Crystalline silica is a dangerous dust that can be inhaled. It has been classified as a human lung carcinogen. It reacts with tissue in the lungs to create scarring or fibrotic nodules around the silica particles and may result in silicosis. Silicosis may result in breathing difficulty, tuberculosis, and possibly death. Exposure ranges from cumulative (over many years of exposure) to acute (exposure to high concentrations of contaminated air in short periods). Acute silicosis is identifiable by fever, shortness of breath, and cyanosis, or bluish colored skin. Silicosis is incurable and may be progressive even after dust exposure has ceased.

Harmful silica particles, as small as 1/100th the size of a grain of sand, are impossible to detect by sight or smell. They can only be measured using air sampling equipment. In comparison, a human hair is 70 microns, and the silica dust we are concerned with is as small as 10 microns.

### How can employers protect workers from exposure to crystalline silica?

- Engineering controls—mechanical ventilation for removal of the contaminated air.
- Replace crystalline silica materials with safer substitutes whenever possible.
- Use of NIOSH-approved respirators.
- Wear only a Type CE abrasive blast supplied air respirator with a pressure demand valve for abrasive blasting.
- Practice wet dust suppression measures.
- Isolation/enclosure/ventilation of dusty processes.
- Use handheld grinders with a shroud and vacuum.
- Use wet grinding/cutting methods.
- Wear aprons or coveralls and disposable clothing.
- Combine the use of more than one control measure.
- Conduct environmental monitoring.
- Educate and train workers and supervisors.

### Proper housekeeping measures should always be in place by:

- Minimizing your dry sweeping of the work area.
- Using vacuum cleaners to collect dust.
- Wetting down the area prior to cleanup.
- Never using an air supply to blow dust off of work clothing. (Air pressure causes silica dust to become airborne.)
- Removing dust-contaminated clothing at the worksite to minimize transportation and relocation of the dust.

Silica dust will have long-term effects on the health of your employees; preventing exposure is an issue that requires significant attention. Be sure to minimize the possibility of exposure by following occupational guidelines and protective measures.

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