

Controlling Silica Exposures in Construction While Operating Handheld Masonry Saws

Silica is a mineral that is found in stone, soil and sand. It is also found in concrete, brick, mortar and other construction materials. Breathing in silica dust can cause silicosis, a serious lung disease. Using a handheld masonry saw to cut concrete, stone, brick and similar materials can expose workers to hazardous levels of airborne silica. The small particles easily become suspended in the air and, when inhaled, penetrate deep into workers' lungs. This fact sheet describes ways to reduce workers' exposures to silica when using handheld masonry saws to cut masonry products.



Handheld masonry saw without dust controls creates silica dust while cutting cinder blocks. (Photo courtesy of New Jersey Department of Health).



Handheld masonry saw using water for dust control while cutting cinder blocks. (Photo courtesy of New Jersey Department of Health).

Silica Dust Control Methods

There are two main methods used to control silica dust while operating a handheld saw:

- **Wet cutting**, and
- **Vacuum dust collection systems**.

Wet Cutting

Wet cutting is a good way to reduce the amount of silica dust that becomes airborne because it controls the exposure at its source. Water can be supplied to the saws by either a pressurized container or by a constant water source such as a hose connected to a faucet.

Employers are responsible for keeping equipment in good condition to minimize dust and for training workers on how to use the equipment.

- **Check** that hoses are securely connected and are not cracked or broken.
- **Adjust** nozzles so that water goes to the cutting area but still cools the blade.
- **Maintain** saws and dust-control equipment based on the manufacturer's recommendations and maintenance schedule.

Electrical Safety

Use ground-fault circuit interrupters (GFCIs) and watertight, sealable electrical connectors for electric tools and equipment on construction sites. These features are particularly important in wet or damp areas, such as where water is used to control dust.

Vacuum Dust Collection Systems

Vacuum dust collection systems (VDCSs) are another good method for reducing silica exposures, but may not reliably keep exposure below OSHA's permissible exposure limit. VDCSs include a dust collector (hood or shroud), vacuum, hose and filter(s).

- Use a vacuum with enough suction to capture dust at the cutting point.
- Use a high-efficiency particulate air (HEPA) filter in the vacuum exhaust and a prefilter or cyclonic separator to improve vacuum efficiency.
- Use a 1½- to 2-inch diameter vacuum exhaust hose or a hose size that is recommended by the tool manufacturer.
- Use a hood or shroud that is recommended by the tool manufacturer.

VDCSs work best when workers are properly trained and use good work practices. For best results:

- **Keep** the vacuum hose clear and free of debris, kinks and tight bends.
- **Turn** the vacuum off and on regularly to reduce dust buildup on the filter, if it is not self-cleaning.
- **Change** vacuum-collection bags as needed.
- **Set up** a regular schedule for filter cleaning and maintenance.
- **Avoid** exposure to dust when changing vacuum bags and cleaning or replacing air filters.

Compressed Air

Do not use compressed air to clean surfaces, clothing, or filters because it can increase your exposure to silica. Clean only with a HEPA-filtered vacuum or by wet methods.

Respiratory Protection

When VDCSs and wet cutting are not feasible or do not reduce silica exposures to OSHA's permissible exposure limit, workers need respiratory protection. When respirators are required, employers have to put in place a written respiratory protection program in accord with [OSHA's Respiratory Protection standard](#). It must include the following:

- How to select a respirator;
- Fit testing;
- Directions on proper use, maintenance, cleaning and disinfecting;
- Medical evaluations of workers; and
- Training.

For more information on how to determine proper respiratory protection, visit OSHA's web site at www.osha.gov.

For more detailed information on controlling silica exposures when using handheld masonry saws, refer to OSHA Publication 3362, [Controlling Silica Exposures in Construction](#).

This is one in a series of informational fact sheets highlighting OSHA programs, policies or standards. It does not impose any new compliance requirements. For a comprehensive list of compliance requirements of OSHA standards or regulations, refer to Title 29 of the Code of Federal Regulations. This information will be made available to sensory-impaired individuals upon request. The voice phone is (202) 693-1999; teletypewriter (TTY) number: (877) 889-5627.

For assistance, contact us. We can help. It's confidential.



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