

CONTROL OF SILICA DUST IN CONSTRUCTION

Small Drivable Milling Machines (Less than Half Lane)

Using small drivable milling machines (less than half lane) on asphalt pavement, concrete, and other silica- containing materials can generate *respirable crystalline silica* dust. When inhaled, the small particles of silica can irreversibly damage the lungs. This fact sheet describes dust controls that can be used to minimize the amount of airborne dust when using small drivable milling machines as listed in Table 1 of the Respirable Crystalline Silica Standard for Construction, **29 CFR 1926.1153**.

Engineering Control Method: Water spray with surfactant (a dust suppressant additive)

Wet Methods

Employers must use spray systems to spray a combination of water and surfactants to control dust generated by small drivable milling machines. These systems use a pump to deliver water to the milling surface and to the conveyor, where it combines with dust and silica particles and reduces airborne levels. The keys to effective dust control are (1) water pressure and water flow rate; (2) the proper application of water amended with a surfactant; (3) nozzle location and orientation; (4) the control of droplet size; (5) the selection of the best spray pattern and spray nozzle type for the operation; and (6) the proper maintenance of nozzles and water spray application equipment.

Employers are responsible for keeping equipment in good condition to minimize dust emissions and for training workers on how to use the equipment, including ways to limit exposure. Focus on the following:

- **Maintain** an adequate water supply to the milling machine.
- **Rinse or replace** water filters according to manufacturers' instructions to maintain water flow.
- **Check** that hoses are securely connected and are not cracked or broken.

- **Adjust** spray nozzles so that water goes to the drum and the conveyor.
- **Check** that spray nozzles are not clogged or damaged.
- **Inspect** the milling machine and cutting bits to be sure the machine is in good working condition.

Indoors or in Enclosed Areas

Using wet methods indoors or in an enclosed area may not reliably keep exposure low, so extra ventilation or a means of exhaust may be needed to reduce visible airborne dust. Extra ventilation can be supplied by using:

- Exhaust trunks
- Portable exhaust fans
- Air ducts
- Other means of mechanical ventilation



Small drivable milling machine.

Photo courtesy of the International Union of Operating Engineers

Ensure that air flow is not impeded by the movements of employees during work, or by the opening or closing of doors and windows. Position the ventilation to move contaminated air away from the workers' breathing zones.

Respiratory Protection

When properly used, wet methods can effectively control exposure to silica dust. Therefore, Table 1 of the silica standard for construction does not require the use of respiratory protection when operating small drivable milling machines using wet methods.

Additional Information

For more information, visit www.osha.gov/silica and see the OSHA Fact Sheet on the [Crystalline Silica Rule for Construction](#), and the [Small Entity Compliance Guide for the Respirable Crystalline Silica Standard for Construction](#).

OSHA can provide compliance assistance through a variety of programs, including technical assistance about effective safety and health programs, workplace consultations, and training and education. OSHA's On-Site Consultation Program offers free, confidential occupational safety and health services to small and medium-sized businesses in all states and several territories across the country, with priority given to high-hazard worksites. On-Site consultation services are separate from enforcement and do not result in penalties or citations. To locate the OSHA On-Site Consultation Program nearest you, visit www.osha.gov/consultation.

Workers' Rights

Workers have the right to:

- Working conditions that do not pose a risk of serious harm.
- Receive information and training (in a language and vocabulary the worker understands) about workplace hazards, methods to prevent them, and the OSHA standards that apply to their workplace.
- Review records of work-related injuries and illnesses.
- File a complaint asking OSHA to inspect their workplace if they believe there is a serious hazard or that their employer is not following OSHA's rules. OSHA will keep all identities confidential.
- Exercise their rights under the law without retaliation, including reporting an injury or raising health and safety concerns with their employer or OSHA. If a worker has been retaliated against for using their rights, they must file a complaint with OSHA as soon as possible, but no later than 30 days.

For additional information, see [OSHA's Workers page](#).

How to Contact OSHA

Under the Occupational Safety and Health Act of 1970, employers are responsible for providing safe and healthful workplaces for their employees. OSHA's role is to ensure these conditions for America's working men and women by setting and enforcing standards, and providing training, education and assistance. For more information, visit www.osha.gov or call OSHA at 1-800-321-OSHA (6742), TTY 1-877-889-5627.

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.



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