

SILICA REGULATION, TABLE 1:

SPECIFIED EXPOSURE CONTROL METHODS WHEN WORKING WITH MATERIALS CONTAINING CRYSTALLINE SILICA



Equipment/Task	Engineering and Work Practice Control Methods	Required Respiratory Protection and Minimum Assigned Protection Factor (APF) < 4 hrs./shift	Required Respiratory Protection and Minimum Assigned Protection Factor (APF) > 4 hrs./shift	What does full and proper implementation require?
Stationary Masonry Saws	Use saw equipped with integrated water delivery system that continuously feeds water to the blade. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	None	None	Water Controls: An adequate supply of water for dust suppression is used; The spray nozzle is working properly to apply water at the point of dust generation; The spray nozzle is not clogged or damaged; and All hoses and connections are intact.
Handheld power saws (any blade diameter)	Use saw equipped with integrated water delivery system that continuously feeds water to the blade. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. When used outdoors When used indoors or in an enclosed area	None APF 10	APF 10 APF 10	Water Controls: An adequate supply of water for dust suppression is used; The spray nozzle is working properly to apply water at the point of dust generation; The spray nozzle is not clogged or damaged; and All hoses and connections are intact.
Handheld power saws for cutting fiber-reinforced (FR) concrete (any blade diameter)	For tasks performed OUTDOORS ONLY: Use saw equipped with commercially available dust collection system. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency.	None APF 10	None	Dust Collection Systems: The shroud or casing is intact and installed in accordance with the manufacturer's instructions. The hose connecting the tool to the vacuum is intact and without leaks or tight bends. The filter(s) on the vacuum are cleaned or changed in accordance with the manufacturer's instructions to prevent clogging; and The dust collection bags are emptied to avoid overflowing.
Walk-behind saws	Use saw equipped with integrated water delivery system that continuously feeds water to the blade. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. When used outdoors When used indoors or in an enclosed area	None APF 10	None APF 10	Water Controls: An adequate supply of water for dust suppression is used; The spray nozzle is working properly to apply water at the point of dust generation; The spray nozzle is not clogged or damaged; and All hoses and connections are intact.
Drivable saws	For tasks performed OUTDOORS ONLY: Use saw equipped with integrated water delivery system that continuously feeds water to the blade. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	None	None	Water Controls: An adequate supply of water for dust suppression is used; The spray nozzle is working properly to apply water at the point of dust generation; The spray nozzle is not clogged or damaged; and All hoses and connections are intact.
FR-mounted core saws (with) (with)	Use tool equipped with integrated water delivery system that supplies water to cutting surface. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. When used outdoors When used indoors or in an enclosed area	None	None	Water Controls: An adequate supply of water for dust suppression is used; The spray nozzle is working properly to apply water at the point of dust generation; The spray nozzle is not clogged or damaged; and All hoses and connections are intact.
Handheld and stand-mounted drills (including impact and rotary hammer drills)	Use drill equipped with commercially available shroud or casing with dust collection system. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism. Use a HEPA-filtered vacuum when cleaning holes.	None	None	Dust Collection Systems: The shroud or casing is intact and installed in accordance with the manufacturer's instructions. The hose connecting the tool to the vacuum is intact and without leaks or tight bends. The filter(s) on the vacuum are cleaned or changed in accordance with the manufacturer's instructions; and The dust collection bags are emptied to avoid overflowing.
Drill-mounted augers for concrete	For tasks performed OUTDOORS ONLY: Use shroud around drill bit with dust collection system. Dust collector must have a filter with 99% or greater efficiency and a filter-cleaning mechanism. Use a HEPA-filtered vacuum when cleaning holes.	APF 10	APF 10	Dust Collection Systems: The shroud is intact and installed in accordance with the manufacturer's instructions; The hose connecting the tool to the vacuum is intact and without leaks or tight bends. The filter(s) on the vacuum are cleaned or changed in accordance with the manufacturer's instructions; and The dust collection bags are emptied to avoid overflowing.
Vehicle-mounted drilling for rock and concrete	Use dust collection system with clear capture hood or shroud around drill bit with a low flow water spray to wet the dust at the discharge point from the dust collector. OR Operate from within an enclosed cab and use water for dust suppression on the drill bit.	None	None	Dust Collection Systems: The shroud is intact and installed in accordance with the manufacturer's instructions. The hose connecting the tool to the vacuum is intact and without leaks or tight bends. The filter(s) on the vacuum are cleaned or changed in accordance with the manufacturer's instructions; and The dust collection bags are emptied to avoid overflowing. Water Controls: An adequate supply of water for dust suppression is used; The spray nozzle is working properly and produces a pattern that applies water on the discharge point from the dust collector; The spray nozzle is not clogged or damaged; and All hoses and connections are intact.
Jackhammers and handheld powered digging tools	Use tool with water delivery system that supplies a continuous stream or spray of water at the point of impact. When used outdoors When used indoors or in an enclosed area OR Use tool equipped with commercially available shroud and dust collection system. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism. When used outdoors When used indoors or in an enclosed area	None APF 10 APF 10	APF 10 APF 10 APF 10	Water Controls: An adequate supply of water for dust suppression is used; The water spray is working properly and produces a pattern that applies water at the point of dust generation; The spray nozzle is not clogged or damaged; and All hoses and connections are intact. Dust Collection Systems: The shroud is intact and installed in accordance with the manufacturer's instructions; The hose connecting the tool to the vacuum is intact and without leaks or tight bends. The filter(s) on the vacuum are cleaned or changed in accordance with the manufacturer's instructions; and The dust collection bags are emptied to avoid overflowing.

Equipment/Task	Engineering and Work Practice Control Methods	Required Respiratory Protection and Minimum Assigned Protection Factor (APF) < 4 hrs./shift	Required Respiratory Protection and Minimum Assigned Protection Factor (APF) > 4 hrs./shift	What does full and proper implementation require?
Handheld grinders for mortar removal (i.e., halftopping)	Use grinder equipped with commercially available shroud and dust collection system. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. Dust collector must provide 25 cubic feet per minute (cfm) or greater of airflow per inch of wheel diameter and have a filter with 99% or greater efficiency and a cyclone pre-separator or filter-cleaning mechanism.	APF 10	APF 21	Dust Collection Systems: The shroud is intact, encloses most of the grinding blade, and is installed in accordance with the manufacturer's instructions. The hose connecting the tool to the vacuum is intact and without leaks or tight bends. The filter(s) on the vacuum are cleaned or changed in accordance with the manufacturer's instructions; The dust collection bags are emptied to avoid overflowing; The blade is kept flush against the surface whenever possible; and The tool is operated against the direction of blade rotation, whenever practical.
Handheld grinders for concrete removal	For tasks performed OUTDOORS ONLY: Use grinder equipped with integrated water delivery system that continuously feeds water to the grinding surface. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. OR Use grinder equipped with commercially available shroud and dust collection system. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. Dust collector must provide 25 cubic feet per minute (cfm) or greater of airflow per inch of wheel diameter and have a filter with 99% or greater efficiency and a cyclone pre-separator or filter-cleaning mechanism. When used outdoors. When used indoors or in an enclosed area.	None	None	Water Controls: An adequate supply of water for dust suppression is used; The spray nozzle is working properly and produces a pattern that applies water at the point of dust generation; The spray nozzle is not clogged or damaged; and All hoses and connections are intact. Dust Collection Systems: The shroud is intact and installed in accordance with the manufacturer's instructions; and The dust collection bags are emptied to avoid overflowing.
Walk-behind milling machines and floor grinders	Use machine equipped with integrated water delivery system that continuously feeds water to the cutting surface. Operate and maintain machine in accordance with manufacturer's instructions to minimize dust emissions. OR Use machine equipped with dust collection system recommended by the manufacturer. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism. When used indoors or in an enclosed area, use HEPA-filtered vacuum to removed loose dust in between passes.	None	None	Water Controls: An adequate supply of water for dust suppression is used; The spray nozzle is working properly and produces a pattern that applies water at the point of dust generation; The spray nozzle is not clogged or damaged; and All hoses and connections are intact. Dust Collection Systems: The hose connecting the tool to the vacuum is intact and without leaks or tight bends. The filter(s) on the vacuum are cleaned or changed in accordance with the manufacturer's instructions; and The dust collection bags are emptied to avoid overflowing.
Small drivable milling machines (less than half-ton)	Use a machine equipped with supplemental water spray designed to suppress dust. Water must be combined with a surfactant. Operate and maintain machine to minimize dust emissions.	None	None	Water Controls: An adequate supply of water for dust suppression is used; The spray nozzle is working properly and produces a pattern that applies water at the point of dust generation; The spray nozzle is not clogged or damaged; and All hoses and connections are intact.
Large drivable milling machines (half-ton and larger)	For cuts of any depth on asphalt only: Use machine equipped with exhaust ventilation on drum enclosure and supplemental water spray designed to suppress dust. Operate and maintain machine to minimize dust emissions. For cuts of four inches in depth or less on any substrate: Use machine equipped with exhaust ventilation on drum enclosure and supplemental water spray designed to suppress dust. Operate and maintain machine to minimize dust emissions. OR Use a machine equipped with supplemental water spray designed to suppress dust. Water must be combined with a surfactant. Operate and maintain machine to minimize dust emissions.	None	None	No additional information provided. Refer to the engineering and work practice control methods outlined.
Crushing machines	Equipment designed to deliver water spray or mist for dust suppression at crusher and other points where dust is generated (e.g., hoppers, conveyors, screening or vibrating components, and discharge points). Operate and maintain machine in accordance with manufacturer's instructions to minimize dust emissions. Use a ventilated booth that provides fresh, climate controlled air to the operator, or a remote control station.	None	None	Water Controls: Nozzles are located upstream of dust generation points and positioned to thoroughly wet the material. The volume and size of droplets are adequate to sufficiently wet the material (optimal droplet size is between 10 and 50 micrometers, and spray nozzles are located far enough from the target area to provide complete water coverage but not so far that the water is spread away to wind.
Heavy equipment and utility vehicles used to blend or fracture silica-containing materials (e.g., hot tapping, rock spalling) or used during demolition activities involving silica-containing materials	Operate equipment from within an enclosed cab. When employees outside of the cab are engaged in the task, apply water and/or dust suppressants as necessary to minimize dust emissions. OR When equipment operator is the only employee engaged in the task, operate equipment from within an enclosed cab.	None	None	No additional information provided. Refer to the engineering and work practice control methods outlined. The following scenarios are examples of when the employer must use water and/or dust suppressants as necessary to minimize dust emissions: Equipment for grading and excavating is not equipped with enclosed, pressurized cabs. AND Employees other than the operator are engaged in the task. If water or dust suppressants are applied as necessary to minimize visible dust, the employer must not provide an enclosed, filtered cab for the operator. Water or dust suppressants are applied as necessary to minimize visible dust, the employer must not provide an enclosed, filtered cab for the operator.