



DRAFT Four Corners Materials Silica Exposure Control Plan¹

29 CFR §1926.1153

1. Tasks that involve exposure to respirable crystalline silica, and engineering controls, work practices and respiratory protection used to limit employee exposure to respirable crystalline silica in the Four Corners Materials workplace:



Table I: *Exposure Control Methods When Working With Materials Containing Crystalline Silica (Task specific one-page plans are included in Appendix A)*

Equipment / Task	Engineering and Work Practice Control Methods	Manufacturer's Instructions	Required Respiratory Protection and Minimum Assigned Prot. Factor (APF) (Follow 4CM Resp. Prot. Prog.)	
			≤ 4 hours/shift	≥ 4 hours/shift
<p>① Handheld power saws (any blade diameter)</p>  	<p>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.</p> <ul style="list-style-type: none"> • When used outdoors. • When used indoors or in an enclosed area. 	<p>Husqvarna® X-TORQ® K970: Always wear: protective helmet, hearing protection, approved eye protection, breathing mask, heavy duty firm-grip gloves, protective clothing (skin protected from sparks), and steel tip boots. Cut only using wet methods.</p> <p>STIHL TS420 Cut-Off Saw: A water attachment kit is provided with your cut-off machine and should be used to reduce dust whenever wet cutting is feasible. For dust suppression purposes, the flow rate should be at least 0.6 liters (20 fl. oz.) of water per minute. If wet cutting at the recommended flow rate is not utilized, the operator and any bystanders should always wear a respirator approved by NIOSH/MSHA for the material being cut. Even if wet cutting at the recommended flow rate, an operator who is actively cutting for more than 2 hours in one day should wear at least a NIOSH-approved disposable respirator.</p>	<p>None</p> <p>APF 10</p>	<p>APF 10</p> <p>APF 10</p>

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<p>③ Rig-mounted Core-saws or drills</p> 	<ul style="list-style-type: none"> Use tool equipped with integrated water delivery system that supplies water to cooling surface. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. 		None	None
<p>④ Handheld and stand-mounted drills (including impact and rotary hammer drills)</p> 	<ul style="list-style-type: none"> Use drill equipped with commercially available shroud or cowling with dust collection system. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. Dust Collector must provide the airflow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism. Use HEPA-filtered vacuum when cleaning holes. 		None	None
<p>⑤ Vehicle-mounted drilling rigs for rock and concrete</p>	<ul style="list-style-type: none"> Use dust collection system with close 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. <p>OR</p>		None	None

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			≤ 4 hours/shift	≥ 4 hours/shift
	<ul style="list-style-type: none"> Operate from within an enclosed cab and use water for dust suppression on drill bit. 		None	None
<p>⑥ Jack-hammers and handheld powered chipping tools</p> 	<p>Use tool with water delivery system that supplies a continuous stream or spray of water at the point of impact.</p> <ul style="list-style-type: none"> When used outdoors When used indoors or in an enclosed area. <p>OR</p> <p>Use tool equipped with commercially available shroud and dust collection system.</p> <p>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.</p> <ul style="list-style-type: none"> When used outdoors When used indoors or in an enclosed area. 		None APF 10	None APF 10
			None APF 10	None APF 10

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<p>⑦ Handheld grinders for uses other than mortar removal</p> 	<p>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 cyclonic pre-separator or filter-cleaning mechanism.</p> <ul style="list-style-type: none"> - When used outdoors - When used indoors or in an enclosed area. 		None None	None APF 10
<p>⑧ Small drivable milling machines (less than half-lane)</p>	<p>Use a machine equipped with supplemental water sprays designed to suppress dust. Water must be combined with a surfactant.</p> <p>Operate and maintain machine to minimize dust emissions.</p>		None	None
<p>⑨ Large drivable milling machines (half-lane and larger)</p>	<p>→ For cuts of any depth on asphalt only: Use machine equipped with exhaust ventilation on drum enclosure and</p>	<p>Roadtec milling machines have two independent spray bars to inject water into the cutter</p>		

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			≤ 4 hours/shift	≥ 4 hours/shift	
	<p>supplemental water sprays designed to suppress dust. Operate and maintain machine to minimize dust emissions. → For cuts of four inches or less on any substrate:</p> <ul style="list-style-type: none"> • Use machine equipped with exhaust ventilation on drum enclosure and supplemental water sprays designed to suppress dust. • Operate and maintain machine to minimize dust emissions. <p>-OR-</p> <ul style="list-style-type: none"> • Use 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. 	<p>housing. The front spray bar is primarily for dust suppression, the rear spray bar cools the cutting teeth.</p>	None	None	
	<p>⑩ Heavy equipment and utility vehicles used to abrade or fracture silica-containing materials (e.g.; hoe-ramming, rock ripping) or used during demolition activities involving silica-containing materials</p>		<p>Operate equipment from within an enclosed cab.</p> <p>When employees outside of cab are engaged in the task, apply water and/or dust suppressants as necessary to minimize dust emissions.</p>	None	None
	<p>⑪ Heavy equipment and utility vehicles used for such tasks as grading and excavating but not including: demolishing, abrading or fracturing silica-containing materials</p>		<p>Apply water and/or dust suppressants as necessary to minimize dust emissions.</p> <p>OR</p> <p>When the equipment operator is the only employee engaged in the task, operate equipment from within an enclosed cab.</p>	None	None

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<p>⑫ Brooms – skid steer attached</p> 		<p><u>CAT BP118C Skid Steer attachment broom:</u> For Dirt and Gravel – If possible keep the wind at your back, so it follows the angle of the broom. Low broom speed and moderate ground speed are the best choices when sweeping hard surfaces. High broom speeds create excessive dust. For heavy debris - If debris is larger than 55 mm (2 inches) in diameter, use a high broom speed. Ground speed should not exceed 8 km/h (5 mph).</p>	Not required if operated from within a climate controlled enclosed cab with properly functioning and maintained air filtration system.	Not required if operated from within a climate controlled enclosed cab with properly functioning and maintained air filtration system.
<p>⑬ Brooms – powered industrial</p>		<p><u>Superior Broom DT80CT:</u> When operating broom without an enclosed cab, wear hearing and eye protection as well as a dust mask that covers both the mouth and nose. The air cleaner is one of the most important</p>	Not required if operated from within a climate controlled enclosed cab with properly	Not required if operated from within a climate controlled enclosed cab with properly

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		<p>components of the machine. Due to the extremely dusty conditions in which this machine operates, the air cleaner must be maintained constantly. This machine is equipped with a dry type dual element air cleaner, vane type pre-cleaner and a restriction type service indicator as standard equipment. Under average conditions, the air cleaner will need to be serviced every three to four hours. When the clear ring on the service indicator turns red, the air cleaner must be serviced immediately. The procedures in the <i>Operator & Service Manual</i>, starting on page 11 must be followed.</p>	functioning and maintained air filtration system.	functioning and maintained air filtration system.
<p>⑭ Compactor's</p>		<p><u>BOMAG BT 60 Vibratory Tamper:</u> ensure sufficient ventilation when operating the vibratory tamper or vibratory plate in more than shoulder-deep trenches which have a width of less than 1.5 meters, a maximum depth of less than 3 meters or a maximum length of less than 10 meters (for CO control).</p>	none	APF 10
<p>⑮ Backpack Blowers</p> 	<p>The use of Vacuum Trucks is preferred to the use of backpack blowers due to better capture of airborne dust. Investigate the feasibility for the use of a Vacuum Truck prior to the use of backpack blowers.</p>	<ul style="list-style-type: none"> ● Always wear eye protection with side shields marked to comply with ANSI Z87.1, along with hearing protection*. ● Never operate the unit without a spark arrestor screen; this screen is located within the muffler*. ● Maintain the unit per maintenance instructions in the operator's manual*. 	APF 10	APF 10

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	<ul style="list-style-type: none"> ● If the use of vacuum methods is determined to be not feasible then follow the work practices in appendix A. 	<ul style="list-style-type: none"> ● Inspect the unit before each use for loose fasteners, fuel leaks, etc. Replace damaged parts*. ● Do not start or operate the engine in a confined space, building, near open windows, or other unventilated space where dangerous carbon monoxide gas can collect. Carbon monoxide, a colorless, odorless, and extremely dangerous gas, can cause unconsciousness or death*. ● Do not point the blower nozzle in the direction of people or pets*. ● This product is intended for infrequent use by homeowners and other occasional users for such general applications as blowing leaves and lawn clippings, etc. It is not intended for prolonged use. Prolonged periods of operation can cause circulatory problems in the user[s] hands due to vibration. For such use, it may be appropriate to use a product having an anti-vibration feature*. 		
⑯				

ii. Housekeeping measures used to limit employee exposure to respirable crystalline silica:

- A. Dry brushing or dry sweeping of silica-containing or potentially silica-containing dust is **prohibited** unless methods such as wet sweeping and HEPA-filtered vacuuming are not feasible.

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- B. The use of compressed air for cleaning of surfaces is also **prohibited** unless the compressed air is used together with a ventilation system that effectively captures the dust cloud or no other cleaning method is feasible.
 - C. One option for HEPA-filtered vacuum for cleaning of surfaces includes: [http://www.homedepot.com/p/RIDGID-14-gal-HEPA-Wet-Dry- Vac-RV2400HF/202507683](http://www.homedepot.com/p/RIDGID-14-gal-HEPA-Wet-Dry-Vac-RV2400HF/202507683).
 - D. One option for HEPA-filtered cleaning of dust contaminated clothing includes: <http://www.clothescleaningsystems.com/>.
 - E. One option for wet sweeping using a water broom includes: http://www.northerntool.com/shop/tools/product_200517714_200517714.
- III. Procedures used to restrict access to work areas, when necessary, to minimize number of employees exposed to respirable crystalline silica and their level of exposure, including exposures generated by other employers or sole proprietors:
- A. Tasks listed under Table I above that result in a known or potential employee exposure to respirable crystalline silica will be completed in isolation from other worksite personnel. This means either, 1) at a time when other personnel are not in the area, or 2) at a sufficient distance away such that other worksite personnel are not expected to be exposed to respirable crystalline silica during the listed work tasks (upwind whenever feasible).
- IV. Task specific plans (one page plans) are included in Appendix A (attached), for tasks that may result in exposure to airborne silica containing dust.

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