

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 hours/shift	> 4 hours/shift
(xiii) 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 tool in accordance with manufacturer’s instructions to minimize dust emissions.	None	None
	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 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 a HEPA-filtered vacuum to remove loose dust in between passes.	None	None

Two control options may be used when using **walk-behind milling machines and floor grinders**. Regardless of control option used, the tool must also be operated and maintained in accordance with manufacturer’s instructions for minimizing dust emissions.

Option one is to use an integrated water delivery system (commercially developed specifically for the type of tool in use) that

continuously feeds water to the cutting surface. Table 1 does not specify a minimum flow rate; however, water must be applied at flow rates specified by the manufacturer.

Full and proper implementation of water controls on walk-behind milling machines and floor grinders requires the employer to ensure that:

- An adequate supply of water for dust suppression is used;

- The spray nozzles are working properly and produce a pattern that applies water at the point of dust generation;
- The spray nozzles are not clogged or damaged; and
- All hoses and connections are intact.

Option two is to use a dust collection system recommended by the manufacturer of the milling machine or floor grinder and a filter with 99 percent or greater efficiency and a filter-cleaning mechanism. The dust collection system used must be capable of maintaining the air flow recommended by the manufacturer.

Full and proper implementation of dust collection systems on walk-behind milling machines and floor grinders requires the employer to ensure that:

- The hose connecting the tool to the vacuum is intact and without kinks 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 overfilling.

When using a dust collector system indoors or in enclosed areas (areas where airborne dust can buildup, such as a structure with a roof and three walls), loose dust must be cleaned with a HEPA-filtered vacuum in between passes of the milling machine or

floor grinder to prevent the loose dust from being re-suspended. Removing loose dust with a HEPA vacuum also maximizes vacuum suction by improving the seal between the machine and floor. For indoor and enclosed spaces, employers must provide additional ventilation as needed to minimize the accumulation of visible airborne dust. See the section on *Indoors or Enclosed Areas* for more information.

Respiratory protection is not required for work with walk-behind milling machines and floor grinders regardless of task duration.



Worker milling granite floor indoors with milling machine and dust collection system (background).

Photo courtesy of OSHA.