

Technical Data Bulletin

#210 — Task-Based PPE Suggestions for Silica in the Construction Industry

Published: 2013; Revised May 2016

On March 25, 2016 the US Occupational Safety and Health Administration (US OSHA) published its Respirable Crystalline Silica in Construction regulations - 29 CFR 1926.1153. The regulation is detailed and the reader is strongly encouraged to review and understand the entire regulation and preamble prior to work with crystalline silica. The regulation, preamble, US OSHA Fact Sheet on Construction and FAQ are available on the OSHA website and should be consulted to help ensure a complete understanding of this regulation. (www.OSHA.gov). The term “silica” will be used in this document for convenience to represent “respirable crystalline silica”.

29 CFR 1926.1153, Table 1 lists 18 equipment/tasks that may produce worker exposure to respirable crystalline silica (“silica”). When the specific engineering, administrative and respiratory controls for a given task are “fully and properly” implemented, US OSHA waives the exposure assessment requirements of 29 CFR 1926.1153 and 29 CFR 1910.134. US OSHA does not specify the type of respirator to be used, only the minimum assigned protection factor (APF) the respirator must have per 29 CFR 1910.134(d)(3)(i)(A).

In addition to inhalation of silica, work with the equipment/tasks listed may simultaneously expose the worker to other dangers such as eye, head, fall and noise hazards. Table A in this Technical Bulletin lists suggested 3M respirators and particulate filters based on the current US OSHA Table 1. Also included are additional suggested personal protective equipment (PPE) for other hazards that may be present. These suggestions should be used as a starting point during pre-project planning and are a minimum level of protection. 3M sales representatives or Technical Service Helpline (800-243-4630) can discuss alternative products and their features. After project commencement, the safety professional or safety competent person should review the worksite to determine if the PPE is appropriate for the hazards and to identify any additional hazards that must be controlled. Assessments should be repeated as needed to identify changes in conditions, tasks, tools and work practices as the project progresses.

3M recommends contractors review and understand 29 CFR 1926.1153, the preamble to the regulation, the FAQ and Fact Sheet on Construction for detailed information on silica hazards and other compliance information. A respirator program meeting the requirements of 29 CFR 1910.134 must be implemented when respirator use is required. Employers and workers must read, understand and follow the procedures and recommendations in the respirator manufacturer’s user instructions. Full facepiece respirators must be fit-tested using quantitative methods for an assigned protection factor of 50.

In addition to the PPE listed below, contractors should also consider protective coveralls such as the 3M 4520 to prevent workers from taking silica home on their clothing.

Table A: Construction Tasks with Suggested Respirators and Additional PPE

Task	Suggested respirator <4 hours and all specified engineering controls are in place per 29 CFR 1926.1153(c)	Suggested respirator > 4 hours and all specified engineering controls are in place per 29 CFR 1926.1153(c)	Suggested Additional PPE	Additional Information
Stationary masonry saw	US OSHA does not require respirator use	US OSHA does not require respirator use	A, C, E, F, H	
Hand held power saw – any blade diameter	A*, C	A, C	E, F, H, J	* Not required if work is done outdoors
Handheld power saws for cutting fiber-cement board (blade diameter of 8 inches or less) <u>outdoor tasks only</u>	US OSHA does not require respirator use	US OSHA does not require respirator use	A, C, E, F, H, J	This applies to outdoor work only. Indoor work is not covered in Table 1 – 29 CFR1926.1153 or this Table A.
Walk behind saw	A*, C	A*, C	E, F, H	* Not required if work is done outdoors
Drivable saw	US OSHA does not require respirator use	US OSHA does not require respirator use	E, F, H	This applies to outdoor work only. Indoor work is not covered in Table 1 – 29 CFR1926.1153 or this Table A
Rig mounted core saws or drills	US OSHA does not require respirator use	US OSHA does not require respirator use	A, C, E, F, H	
Handheld and stand-mounted drills (including impact and rotary hammer drills)	US OSHA does not require respirator use	US OSHA does not require respirator use	A, C, E, F, H	
Dowel drilling rigs for concrete – <u>outdoor tasks only</u>	A, C	A, C	E, F, H	This applies to outdoor work only. Indoor work is not covered in Table 1 – 29 CFR1926.1153 or this Table A
Vehicle-mounted drilling rigs for rock and concrete	US OSHA does not require respirator use	US OSHA does not require respirator use	A, C, E, F, H	
Jackhammers and handheld powered chipping tools	A*, C	A, C	E, F, H, J	* Not required if work is done outdoors
Handheld grinders for mortar removal (i.e., tuckpointing)	A, C, G	B*, C	D(1), E, H, J (1) NIOSH recommends a 100 efficiency filter when exposures exceed 10x	*Must use quantitative fit test. Alternative TR-300 PAPR with M-300 headgear
Handheld grinders for uses other than mortar removal	US OSHA does not require respirator use	A*, C	E, F, H, J	* Not required if work is done outdoors

Walk-behind milling machines and floor grinders	US OSHA does not require respirator use	US OSHA does not require respirator use	A, C, E, F, H	US OSHA does not require respirator use
Small drivable milling machines (less than half-lane)	US OSHA does not require respirator use	US OSHA does not require respirator use	A, C, E, F, H	US OSHA does not require respirator use
Large drivable milling machines (half-lane and larger)	US OSHA does not require respirator use	US OSHA does not require respirator use	A, C, E, F, H	US OSHA does not require respirator use
Crushing machines	US OSHA does not require respirator use	US OSHA does not require respirator use	A, C, E, F, H	US OSHA does not require respirator use
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	US OSHA does not require respirator use	US OSHA does not require respirator use	A, C, E, F, H	
Heavy equipment and utility vehicles for tasks such as grading and excavating but not including: Demolishing, abrading, or fracturing silica-containing materials	US OSHA does not require respirator use	US OSHA does not require respirator use	A, C, E, F, H	
Abrasive blasting* <i>informational purposes only</i>	I	I	E, J	*Abrasive blasting is NOT part of 29 CFR 1926.1153 Table 1. Must also comply with 29 CFR 1926.57.

PPE Codes:

- A – 6000 Series half facepiece respirator
- B – 6000 Series full facepiece respirator
- C- 2071 P95 particulate filter
- D – 2091 P100 particulate filter – NIOSH recommends a 100 filter when exposures exceed 10x the PEL.
- E – Push-in style ear plugs
- F – Virtua CCS – foam gasket safety glasses
- G – Lexa Dust GoggleGear
- H – H-700 vented hard hat
- I – W-8100B abrasive blast helmet with GVP-122 breathing tube, V-300 air regulator, W-9435 air hose
- J- ExoFit STRATA™ Construction style harness



Personal Safety Division
3M Center, Building 0235-2W-70
St. Paul, MN 55144-1000
3M.com/PPEsafety

For More Information
Technical Assistance 1-800-243-4630
Hours of Operation: M-Th 8am - 6pm, Fri 8am - 4:30 pm CST
© 3M 2016. All rights reserved.