

OSHA 29 CFR Parts 1910, 1915 & 1926

Occupational Exposure to Respirable Crystalline Silica; Final Rule
MSA Technical Brief



On March 25, 2016, the Occupational Safety and Health Administration (OSHA) amended its existing standards for occupational exposure to respirable crystalline silica. The new final rule aims to reduce occurrences of lung cancer, silicosis and other debilitating respiratory diseases that are related to silica-generating activities in workplaces across the United States.

Why was a new rule developed?

OSHA's current permissible exposure limits for silica are more than 40 years old and do not incorporate the most recent scientific evidence showing that workers who inhale very small crystalline silica particles are at increased risk of developing silica related diseases such as silicosis, lung cancer and kidney disease. Approximately 2.3 million U.S. workers are exposed to silica at work. Crystalline silica is a common mineral and can be found within various applications such as cutting, sawing and drilling of concrete products in construction, hydraulic fracturing for oil and gas, abrasive-blasting, and many other industries such as glass, pottery and clay manufacturing.

What are the final rule updates?

The final rule includes two standards—one for the construction industry and one for general industry and maritime applications. Key provisions of the new final rule include reduced permissible exposure limit (PEL) for respirable crystalline silica of 50 micrograms per cubic meter of air, averaged during an eight-hour shift. Employers are also required to employ engineering controls that limit worker exposure to the new PEL. When engineering controls cannot limit exposure to required levels, respirators must be provided in accordance with 29 CFR 1910.134.

The final rule also sets requirements to limit worker access to high exposure areas, development of written exposure control plans, medical exams for highly exposed workers, and training for workers concerning the potential hazard itself.

Construction, general industry and hydraulic fracturing have specific dates for compliance:

- Construction—June 23, 2017, one year after the effective date.*
- General industry and maritime—June 23, 2018, two years after the effective date.
- Hydraulic fracturing—June 23, 2018, two years after the effective date for all provisions except engineering controls, that have a June 23, 2021 compliance date.

Worker exposure & respiratory protection

The general industry and maritime standard requires measuring the amount of silica to which workers are exposed, if that exposure may be at or above the established action level of 25 micrograms per cubic meter of air, averaged during an eight-hour day. Should exposure limits exceed the new PEL of 50 micrograms/averaged within an eight-hour day, then dust controls must be implemented.

Per the construction standard, employers have slightly more flexibility when measuring worker exposure. One method is presented in *Table 1: Specified Exposure Control Methods When Working with Materials Containing Crystalline Silica* of the construction standard.** Table 1 includes common construction tasks paired with specific control methods, along with the required Assigned Protection Factor (APF) of a respirator. When Table 1 methods are followed, employers do not have to measure worker exposure to silica. Alternatively, if employers do not use methods listed within Table 1, they must employ the same monitoring and sampling methods as described in the general industry and maritime standard.

Respiratory protection should be worn only when engineering and work practice controls cannot maintain exposure levels at or below the PEL. When respirators are required, they should be in accordance with 29 CFR 1910.134. Basic respirator guidelines include use of an N95 NIOSH-certified respirator for crystalline silica airborne exposures at concentrations less than or equal to .5 mg/m³. Silica levels exceeding .5 mg/m³ require use of a full-facepiece respirator that provides protection for exposures up to 2.5 mg/m³.

*OSHA will delay enforcement of the respirable crystalline silica standard for construction until September 23, 2017.

**<https://www.osha.gov/silica/index.html>

MSA offers a variety of filters and facepieces that may be suited for protection against respirable silica dust.

FILTERS	
DESCRIPTION	PART NUMBER
LOW-PROFILE P100	815369
FLEXI-FILTER® P100	818342
FLEXI-FILTER N95	818346
FLEXI-FILTER P95	818354
TYPE HE FILTER (Mask-mounted PAPR only)	496081

FACEPIECES				
DESCRIPTION	PART NUMBER			ASSIGNED PROTECTION FACTOR (APF)
	Small	Medium	Large	
ADVANTAGE® 200 LS HALF-MASK RESPIRATOR	815969	815692	815700	10
ADVANTAGE 420 HALF-MASK RESPIRATOR	10102182	10102183	10102184	10
ADVANTAGE 3200 FULL-FACE RESPIRATOR	10028996	10028995	10028997	50
OPTIMAIR® MASK-MOUNTED PAPR	10095184	10095182	10095183	1,000

Conclusion

The final rule went into effect June 23, 2016; however, new rules are often challenged due to concerns of employer feasibility prior to effective dates. The rule for reference purposes can be found on OSHA's Web site, as well as additional supporting documents regarding interpretation of both construction and general industry standards.

Note: This bulletin contains only a general description of the products shown. While uses and performance capabilities are described, under no circumstances shall the products be used by untrained or unqualified individuals and not until the product instructions including any warnings or cautions provided have been thoroughly read and understood. Only they contain the complete and detailed information concerning proper use and care of these products.



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