

The new U.S. OSHA Final Rule on Respirable Crystalline Silica sets a lower PEL of 50 µg/m³ for all industries covered by the rule, adopts the more conservative ISO/CEN criteria of a 4-µm cut-point for respirable dust samplers, and allows any sampler conforming to ISO 7708/CEN criteria to be used. SKC offers active sampling solutions for silica, including respirable dust samplers that meet the performance criteria in (and are listed in) the OSHA final rule. OSHA refers to SKC Parallel Particle Impactor (PPI) respirable dust samplers on page 16439 in its Final Crystalline Silica Rule as “personal impactors available for use at flow rates from 2 to 8 L/min that have been shown to conform closely to the ISO/CEN convention.” These samplers provide objective data, which meets the action level of 25 µg/m³, calculated as an 8-hour TWA. Exposures at or above the action level trigger requirements for exposure assessment.

The use of the Parallel Particle Impactor (PPI) allows companies to meet OSHA scheduled monitoring option to conduct initial monitoring as soon as work begins so that they are aware of exposure levels and where control measures. Under the scheduled monitoring option, employers must correctly characterize each employee’s exposure to respirable crystalline silica. Exposure monitoring must include, at a minimum, one full-shift sample taken for each job function in each job classification, in each work area, and on each shift. Characterizing each employee’s exposure may involve monitoring all exposed employees or a smaller number of employees whose exposures can then represent those of other employees. Representative sampling involves monitoring the employee or employees reasonably expected to have the highest exposure to respirable crystalline silica (for example, the employee closest to an exposure source). This exposure is assigned to the other employees in the group who perform the same tasks on the same shift and in the same work area. Representative monitoring occurs when several employees perform the same job on the same shift and under the same conditions.

Under the scheduled monitoring option, monitoring completed based on the results of initial monitoring and any required further monitoring. If the initial monitoring indicates that employee exposures are below the action level, no further monitoring is required. If the most recent exposure monitoring reveals employee exposures at or above the action level but at or below the PEL, the employer must repeat monitoring within six months of the most recent monitoring.

If the most recent exposure monitoring reveals employee exposures above the PEL, the employer must repeat monitoring within three months of the most

recent monitoring. When two non-initial monitoring results taken consecutively, at least 7 days apart but within 6 months of each other, are below the action level, employers may stop monitoring for employees represented by those results, as long as no changes occur that could reasonably be expected to result in new or additional exposures at or above the action level.

Definitions:

Objective data means information, such as air monitoring data from industry-wide surveys or calculations based on the composition of a substance, demonstrating employee exposure to respirable crystalline silica associated with a particular product or material or a specific process, task, or activity. The data must reflect workplace conditions closely resembling or with a higher exposure potential than the processes, types of material, control methods, work practices, and environmental conditions in the employer's current operations.

Action level means an airborne concentration of 25 µg/m³ calculated as an 8-hour TWA. Exposures at or above the action level trigger requirements for exposure assessment.

Permissible Exposure Limit (PEL)

Employers complying with the alternative exposure control methods must ensure that their employees' exposures to respirable crystalline silica do not exceed the PEL, which is 50 µg/m³ as an 8-hour TWA. This means that over the course of any 8-hour work shift, exposures can fluctuate, but the average exposure to respirable crystalline silica cannot exceed 50 µg/m³. The PEL applies to the three forms of respirable crystalline silica that are covered by the standard: quartz, cristobalite, and tridymite. Quartz is by far the most common form of crystalline silica found at construction workplaces, and in most cases, quartz will be the only form of respirable crystalline silica analyzed in air samples used to measure employee exposures.

References:

Retrieved from <https://www.gpo.gov/fdsys/pkg/FR-2016-03-25/pdf/2016-04800.pdf>

OSHA 3902-07R 2017 - <https://www.osha.gov/Publications/OSHA3902.pdf>