



Silica Standard Overview

As you may be aware, OSHA began enforcement of its new Silica Standard in Construction on September 23, 2017. However, a similar standard for General Industry exposures will go into effect on June 23, 2018. Public entities within Illinois will need to comply with these requirements. While this article is intended to summarize the general requirements of these standards, there are many different situations that must be considered. Each entity will need to determine their own exposures and apply the standard requirements based on their findings.

These standards will affect many of the IRMA members who cut or drill concrete, cut or grind asphalt, or create an exposure to respirable silica. While each standard is similar, it is best to determine which standard applies. In general, Construction Standards apply when the employer is engaged in building or re-building such as in road construction or sewer replacement. Work that is repetitive or considered as maintenance fall under the General Industry standards. In some cases, a municipality may fall under both standards.

While each of the standards are applied to distinct types of work, there are many similarities. For example, both standards have established Action Limits (AL) of 25 $\mu\text{g}/\text{m}^3$ for an eight-hour time-weighted average and a Permissible Exposure Limit (PEL) of 50 $\mu\text{g}/\text{m}^3$ as an eight-hour time-weighted average. When determining exposure levels, each standard requires the use of a Performance Option or Scheduled Monitoring Option.

The Performance Option gives employers flexibility to determine the 8-hour TWA exposure for each task based on any combination of air monitoring data or objective data that can accurately characterize employee exposures to respirable crystalline silica. This option may include items such as using industry wide surveys or typical tasks or operations, using direct reading instruments to measure real-time levels of respirable dust, or by using historical monitoring data when work operations are consistent. The Performance Option may be better suited for work that is performed periodically. When using the Performance Option, the employer may determine that engineering and work practice controls are not feasible to maintain exposures below the PEL. In this case, respirators along with engineering and work practice controls may be used; however, the respirators Assigned Protective Factor must be capable of protecting the employee from the exposure.

The Scheduled Monitoring Option allows exposure monitoring on a predetermined schedule. When using this option there are strict timeframes and monitoring must begin as soon as work begins. The frequency of future monitoring will then depend on the results obtained. For example, if initial monitoring is below the AL, no further monitoring is necessary. If the monitoring is above the AL but below the PEL, monitoring must occur every six months. If monitoring identifies exposures above the PEL, repeat monitoring must occur every three months. Monitoring may stop when two consecutive tests at least 7 days apart and within 6 months are below the AL. As in any exposure, the employer must re-assess when exposures or work practices change.

When following the construction standard, employers may use Alternative Exposure Control Methods by conducting exposure assessments when exposures may reach the AL to ensure employee exposure does not exceed the PEL. Similarly, this method requires the employer to apply the Performance Option or the Scheduled Monitoring Option mentioned above.

The construction standard allows employers to determine protection methods through a table of Specified Exposure Control Methods called Table 1. (Please find Table 1 in Publication 3902 below) When correctly following Table 1 the employer will not be required to conduct exposure assessments. When properly followed it is assumed that the work methods outlined in Table 1 will keep the exposures low enough so that no further testing would be needed. If the tasks completed in General Industry work are indistinguishable from the construction tasks, General Industry may also follow Table 1 as long as the tasks are not performed regularly in the same environment and conditions. The rule requires the employer to follow Table 1 or measure exposure to silica to determine which dust controls are effective in limiting exposures below the Permissible Exposure Limit (PEL).

Work methods outlined in Table 1 are common practices that can limit the employee exposure to silica. However, if you follow these methods the employee may be required to wear a respirator which would require the employer to establish and follow a respirator safety program including medical evaluations, annual fit tests, and annual training. For example, Table 1 states that when using a walk-behind saw with an integrated water delivery system a respirator would not be needed. However, when using a jackhammer or chipping tool outdoors with a continuous water delivery spray or a shroud with HEPA vacuum a respirator is not needed until the work is completed beyond 4 hours.

Remember, both standards require employers to protect employees following the hierarchy of controls which relies on engineering and work practice controls for reducing exposures. A respirator may be used only when feasible engineering controls cannot reduce exposures to acceptable levels. The only exception to this requirement is when the employer is appropriately following the requirements of Table 1. Simply requiring the employee to wear a respirator when exposures are present will not suffice.

Employers with these exposures will need to establish written exposure control plans, follow medical monitoring and surveillance requirements, maintain records, and provide employee training when exposures are at or above the Action Level. In some circumstances you may also need to demarcate regulated areas, establish a respirator program meeting the requirements of 29 CFR 1910.134, ensure housekeeping methods are followed, and provide written notification on exposure and medical evaluations to the affected employees.

Regardless of which method is used employers will be required to establish the following:

- Establish and implement a written exposure control plan that identifies tasks that involve exposure and methods used to protect workers, including procedures to restrict access to work areas where high exposures may occur.
- Designate a competent person to implement the written exposure control plan.
- Restrict housekeeping practices that expose workers to silica where feasible alternatives are available.
- Offer medical exams—including chest X-rays and lung function tests—every three years for workers who are required by the standard to wear a respirator for 30 or more days per year.

- Train workers on work operations that result in silica exposure and ways to limit exposure.
- Keep records of workers' silica exposure and medical exams.

Each of the work methods must be listed within your written silica exposure control plan. The plan must demonstrate that the employer has a complete understanding of those instructions and is using them to control silica dust.

References:

[Occupational Safety and Health Administration, OSHA Fact Sheet - OSHA's Crystalline Silica Rule: Construction. Publication 3681.](#)

[Occupational Safety and Health Administration, OSHA Small Entity Compliance Guide for Respirable Crystalline Silica Standard for Construction. Publication 3902.](#)

[Occupational Safety and Health Administration, OSHA Small Entity Compliance Guide for Respirable Crystalline Silica Standard for General Industry and Maritime. Publication 3911.](#)