

OVERVIEW

DOES MIOSHA/OSHA'S RESPIRABLE CRYSTALLINE SILICA STANDARD APPLY TO ME?

Employers performing sandblasting activities **MUST** assess employee exposures to silica to determine if exposures are at, above or below the action level (AL) of 25 $\mu\text{g}/\text{m}^3$ (micrograms of silica per cubic meter of air), averaged over an 8-hour day. The silica standard does not apply when an employer has *objective* data that employee exposure to respirable crystalline silica will remain below the action level (AL) of 25 $\mu\text{g}/\text{m}^3$ of air as an 8-hour time-weighted average (TWA) *under any foreseeable conditions*. (See Chapter 4: Air Sampling)

IF SILICA EXPOSURE IS AT OR ABOVE 25 MICROGRAMS PER CUBIC METER OF AIR (25 $\mu\text{g}/\text{m}^3$) AS AN 8-HOUR TIME-WEIGHTED AVERAGE (TWA) UNDER ANY FORESEEABLE CONDITION:

The employer is required to limit worker exposures to respirable crystalline silica and to take other steps to protect workers.

All employers are required to:

- Protect/limit worker exposure to respirable crystalline silica exposures above the permissible exposure limit (PEL) of 50 $\mu\text{g}/\text{m}^3$, averaged over an 8-hour day;
- Limit workers' access to areas where they could be exposed above the PEL;
- Use dust controls to protect workers from silica exposures above the PEL;
- Provide respirators to workers when dust controls cannot limit exposures to the PEL;
- Use housekeeping methods that do not create airborne dust, if feasible;
- 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;
- Train workers on work operations that result in silica exposure and ways to limit exposure; and
- Keep records of exposure measurements, objective data, and medical exams.

⇒ **General Industry and Maritime** employers are required to:

- Offer initial medical exams within 30 days of initial assignment (the day the employee starts working in a job/task in which he or she *will be exposed above the trigger level - PEL for 30 or more days a year from June 23, 2018 through June 22, 2020; After June 22, 2020, for exposures at or above the AL for 30 or more days a year*). Medical exams must be offered at least every 3 years if still meeting the trigger level.

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⇒ **Construction** employers are required to:

- Designate a competent person to implement the written exposure control plan;
- Offer medical exams within 30 days of initial assignment (the day the employee starts working in a job/task in which he or she is *required by the standard to wear a respirator for 30 or more days per year*). Medical exams must be offered at least every three years after the initial exam if still performing work that involves silica that requires a respirator more than 30 days per year.

WHY DO I NEED TO DEVELOP AN ACCIDENT PREVENTION PROGRAM (APP-CONSTRUCTION), A HEALTH AND SAFETY PROGRAM (GENERAL INDUSTRY) AND A SILICA EXPOSURE CONTROL PLAN?

Silica and silicosis threaten the health of abrasive blasters, and potentially, their families. The number one abrasive media used in the United States is silica. Workers performing abrasive blasting using silica sand or blasting substrates containing silica have so much exposure to crystalline silica that they are slowly killing themselves.

Silica exposure can also threaten the health of your company. The overall cost of silica problems can be staggering: medical costs, workers' compensation cases, lost workdays, and poor employee morale.

When silica exposures are above the PEL, a silica exposure control plan is required. A health and safety program complements and enhances a silica exposure control plan. In fact, MIOSHA requires construction companies to develop an accident prevention program (APP) and recommends general industry employers develop a health and safety program using a "systems" approach.

If your company has serious MIOSHA violations, such as overexposures to silica without an implemented silica exposure control plan, you could be cited and fined. If you are a construction employer, and you do not have an APP, you could be cited and fined.

SILICA SUBSTITUTES

The amount of silica dusts in the air can be greatly reduced by substituting silica-free abrasives.

See Chapter 1.

HEALTH HAZARDS OF ABRASIVE BLASTING

Silicosis is not the only health hazard associated with abrasive blasting.

See Chapter 2.

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GETTING ORGANIZED

How do I get started in developing an accident prevention program? In developing a health and safety program?

See Chapter 3.

AIR SAMPLING

Air sampling should be performed to determine if your company has a silica exposure problem.

See Chapter 4.

MINIMIZING AIRBORNE SILICA EXPOSURE

If blasting with silica, the best way to limit exposure is to use a non-silica based abrasive.

The standard requires all employers to protect employees following the hierarchy of controls, which relies on engineering and work practice controls for reducing exposures and allows for respirator use, in addition to those controls, only when feasible engineering controls cannot reduce exposures to acceptable levels.

The silica rule requires all *covered* employers to maintain a written exposure control plan to limit employee exposure to respirable crystalline silica. MIOSHA requires construction firms to have a written accident prevention program (APP) and recommends general industry/maritime employers have a health and safety program. Also discussed in this chapter is a strategy for substituting non-silica abrasives.

See Chapter 5.

RESPIRATORY PROTECTION AND PERSONAL PROTECTIVE EQUIPMENT

While performing abrasive blasting activities and during cleanup operations, we recommend you wear a National Institute for Occupational Safety and Health (NIOSH) approved Type CE Abrasive-Blasting Pressure-Demand Supplied-Air respirator. You should wear an approved respirator AT ALL TIMES when working in or near the blast site.

See Chapter 6.

SAFETY TRAINING

Your efforts to create a safe and healthy workplace may be wasted if you and your employees don't understand the importance of working safely.

See Chapter 7.

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CLEANING UP

You can also be exposed to respirable crystalline silica during cleanup operations. Cleanup operations include YOU: sink, soap and water; where you eat and take your breaks; and how you maintain your protective clothing. Cleanup operations include your WORKSITE: cleanup methods, rules concerning locations where eating, drinking, smoking, etc. are permitted; and properly disposing of waste materials.

See Chapter 8.

MEDICAL MONITORING

The silica rule medical monitoring requirements depends upon the industry sector.

- **General Industry and Maritime:** Medical surveillance must be offered to employees who will be exposed to respirable crystalline silica above the permissible exposure limit (PEL=50 $\mu\text{g}/\text{m}^3$) for 30 or more days a year. Starting June 23, 2020, medical surveillance must be offered to employees who will be exposed to respirable crystalline silica at or above the action level of 25 $\mu\text{g}/\text{m}^3$ as an 8-hour TWA [time weighted average] for 30 or more days per year.
- **Construction Industry:** The new rule requires that medical surveillance be made available to employees who use respirators for 30 or more days per year in situations where those respirators are required by OSHA.

All employers: Medical surveillance must be made available at no cost to every employee. Monitoring must include a baseline medical and occupational history for each new employee. The baseline must include a complete physical, chest x-ray and a pulmonary function test called spirometry. The chest x-ray must be reviewed by a doctor with special certification. If you or any employee shows signs of overexposure, scarring of the lungs, or nodules forming in the lungs, reassignment to a silica-free area should occur. Other health condition recording and reporting requirements are discussed.

See Chapter 9.

KEEPING YOUR FAMILY SAFE

This manual is mainly about protecting you against silicosis and crystalline silica exposure. It's also important to protect your family, neighbors, and your community.

See Chapter 10.

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Notes