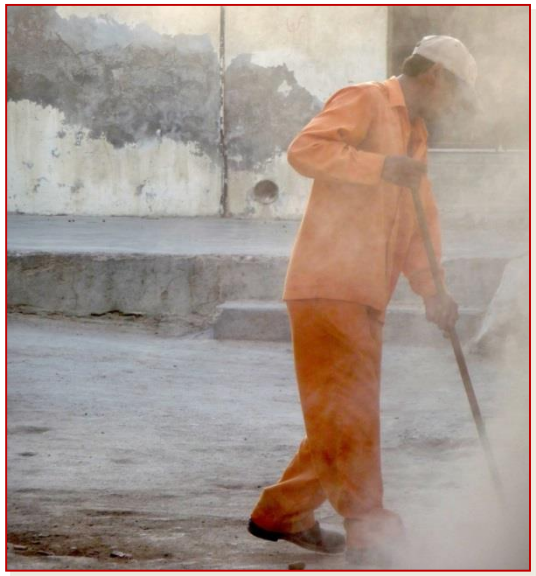


OSHA's New Crystalline Silica Standard

CAMSAFETY

Crystalline Silica Standard

- There are Two (2) main purposes to this session:
  - To provide an overview of the OSHA Crystalline Silica Standard.
  - To have a discussion period after the presentation to address questions and concerns.

The Reason Why

Current Estimate of exposure:

- Approximately 2.3 million workers are exposed to respirable crystalline silica each year; the majority of these workers (2 million) are in the construction industry.

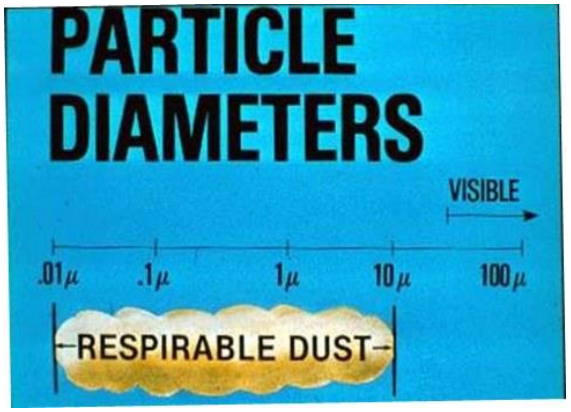
OSHA estimates that the new rule will:

- Save over 600 lives annually.
- Prevent over 900 new cases of silicosis each year.
- Provide a net benefit to industry ranging from $3.8 to $7.7 billion annually.
- Annual costs per year of $1,524 for the average work place.

The Reason Why

What is Respirable Crystalline Silica?

- OSHA refers to "Respirable Crystalline Silica", a form of silica that is 100 times smaller than sand and released into the air by cutting & grinding operations, on certain materials.
- Prolonged breathing of silica dust is linked to diseases such as:
  - Silicosis, lung cancer, tuberculosis and other respiratory conditions.
  - The CDC also said there is a possibility that occupational exposure to silica may be linked to some autoimmune conditions, as well as chronic kidney illnesses.



About the Standard

- Took effect on June 23, 2016

Previous	Current
PEL- 250 ug/m^3 for 8 hr	PEL - 50 ug/m^3 for 8 hr
Action Limit - NA	Action Limit - 25 ug/m^3

- OSHA -Construction compliance date June 23, 2017
  - MIOSHA Implementation of Part 690 will be at a later date.
- Compared to other countries:
  - Great Britain: 100 µg/m3
  - Canada: 50 µg/m3
  - South Africa: 100 µg/m3
  - Australia: 50 µg/m3.

Control Measures

To control exposures employers must:

- Develop a **written Exposure Control Plan** & Designate a **Competent person** to implement.
- Train workers on the hazards and necessary safeguards for working with silica containing materials.
- Utilize engineering controls whenever feasible (**Table 1**)
- Restrict housekeeping practices that expose workers to silica.
- Provide respirators when engineering controls alone cannot limit exposure. If using respirators employers must:
  - Have a written respiratory program.
  - Offer medical exams to highly exposed employees (Over 30 days of respiratory usage).
  - **Do an exposure assessment for activities not included in Table 1.**

Table 1 Task/Control Measures

- Table 1 is a flexible compliance option that effectively protects workers from Silica exposures.
  - It identifies 18 common construction tasks that generate high exposures to respirable crystalline silica.
  - For the 18 tasks; it identifies engineering controls, work practices & respiratory protection that can effectively protect workers.
  - Employers who fully implement the control measures on Table 1 are not required to measure respirable silica exposures or; to verify that levels are at or below the PEL for workers engaged in the tasks listed.

Engineering Controls

- **Wet Methods**
- Equipment utilizing water deliver methods

- **Vacuum**
- Dust collection equipment capable of pulling 25 cubic feet of air per minute

- **Ventilation**
- When working in enclosed spaces exhaust ventilation may be required

Alternate Exposure Control Methods

- For activities not addressed within Table 1 or when an employer proposes an alternate engineering control or work practice to protect workers from exposures to respirable silica.
- Employers must conduct an exposure assessment to determine:
  - If the proposed Alternate methods will keep workers below the PEL for an 8-hr TWA.
  - Re-assessment's must be conducted if changes in means, methods or work environment occur that could reasonably be expected to cause a change in the exposure or control methods.
  - Employers must notify **Affected** employees within 5 working days after the conclusion of the initial assessment.

Medical Evaluation

Mandatory for any employee required to wear a respirator for 30 or more days per year.

- ***Initial evaluation within 30 days after first assignment***
- Includes:
  - Medical and work history
  - Physical exam with emphasis on the respiratory system
  - Chest x-ray
  - Pulmonary function test
  - Testing for latent tuberculosis
  - Any other test deemed appropriate by the attending Physician/ Licensed Health Care Provider (PLHCP)
- Re-examination every 3 years or more if required by PLHCP
- **Records must be maintained for 30 years.**

Medical Evaluation

Employers must provide the PLHCP with:

- Description of employees former, current, and future duties
- Employee's former, current, and future exposure to respirable crystalline silica
- Description of any PPE used or to be used by the employee and the duration that the employee is using the PPE

Other Employer Requirements

Training for employees on:

- Health Hazards associated with respirable crystalline silica
- Control Measures used by the employer
- Tasks where exposure occur and may occur on the job
- Rules and Regulations

Develop an exposure control plan, respiratory protection plan, incorporate HAZCOM info on materials, develop and track monitoring methods.

End of Presentation

- **Discussion**
  - –Questions
  - –Concerns
  - –Insights

TABLE 1: Specified Exposure Control Methods When Working With Materials Containing Crystalline Silica

Equipment / Task	Engineering and Work Practice Control Methods	Required Respiratory Protection and Minimum Assigned Protection Factor (APF)	
		≤ 4 hours /shift	> 4 hours /shift
(i) Stationary masonry saws	Use saw equipped with integrated water delivery system that continuously feeds water to the blade. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	None	None
(ii) Handheld power saws (any blade diameter)	Use saw equipped with integrated water delivery system that continuously feeds water to the blade. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. – When used outdoors. – When used indoors or in an enclosed area.	None APF 10	APF 10 APF 10
(iii) Handheld power saws for cutting fiber-cement board (with blade diameter of 8 inches or less)	For tasks performed outdoors only: Use saw equipped with commercially available dust collection system. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency.	None	None

(iv) Walk-behind saws	Use saw equipped with integrated water delivery system that continuously feeds water to the blade. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. – When used outdoors. – When used indoors or in an enclosed area.	 None APF 10	 None APF 10
(v) Drivable saws	For tasks performed outdoors only: Use saw equipped with integrated water delivery system that continuously feeds water to the blade. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	None	None
(vi) Rig-mounted core saws or drills	Use tool equipped with integrated water delivery system that supplies water to cutting surface. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	None	None
(vii) Handheld and stand-mounted drills (including impact and rotary hammer drills)	Use drill equipped with commercially available shroud or cowling with dust collection system. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism. Use a HEPA-filtered vacuum when cleaning holes.	None	None
(viii) Dowel drilling rigs for concrete	For tasks performed outdoors only: Use shroud around drill bit with a dust collection system. Dust collector must have a filter with 99% or greater efficiency and a filter-cleaning mechanism. Use a HEPA-filtered vacuum when cleaning holes.	APF 10	APF 10

(ix) Vehicle-mounted drilling rigs for rock and concrete	Use dust collection system with close capture hood or shroud around drill bit with a low-flow water spray to wet the dust at the discharge point from the dust collector. OR Operate from within an enclosed cab and use water for dust suppression on drill bit.	None None	None None
(x) Jackhammers and handheld powered chipping tools	Use tool with water delivery system that supplies a continuous stream or spray of water at the point of impact. – When used outdoors. – When used indoors or in an enclosed area. OR Use tool equipped with commercially available shroud and dust collection system. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism. – When used outdoors. – When used indoors or in an enclosed area.	 None APF 10 None APF 10	 APF 10 APF 10 APF 10 APF 10
(xi) Handheld grinders for mortar removal (i.e., tuckpointing)	Use grinder equipped with commercially available shroud and dust collection system. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. Dust collector must provide 25 cubic feet per minute (cfm) or greater of airflow per inch of wheel diameter and have a filter with 99% or greater efficiency and a cyclonic pre-separator or filter-cleaning mechanism.	APF 10	APF 25

(xii) Handheld grinders for uses other than mortar removal	For tasks performed outdoors only: Use grinder equipped with integrated water delivery system that continuously feeds water to the grinding surface. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. OR Use grinder equipped with commercially available shroud and dust collection system. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. Dust collector must provide 25 cubic feet per minute (cfm) or greater of airflow per inch of wheel diameter and have a filter with 99% or greater efficiency and a cyclonic pre-separator or filter-cleaning mechanism. – When used outdoors. – When used indoors or in an enclosed area.	None None None	None None APF 10
(xiii) Walk-behind milling machines and floor grinders	Use machine equipped with integrated water delivery system that continuously feeds water to the cutting surface. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. OR Use machine equipped with dust collection system recommended by the manufacturer. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. Dust collector must provide the air flow recommended by the manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism. When used indoors or in an enclosed area, use a HEPA-filtered vacuum to remove loose dust in between passes.	None None	None None

(xiv) Small drivable milling machines (less than half-lane)	Use a machine equipped with supplemental water sprays designed to suppress dust. Water must be combined with a surfactant. Operate and maintain machine to minimize dust emissions.	None	None
(xv) Large drivable milling machines (half-lane and larger)	For cuts of any depth on asphalt only: Use machine equipped with exhaust ventilation on drum enclosure and supplemental water sprays designed to suppress dust. Operate and maintain machine to minimize dust emissions. For cuts of four inches in depth or less on any substrate: Use machine equipped with exhaust ventilation on drum enclosure and supplemental water sprays designed to suppress dust. Operate and maintain machine to minimize dust emissions. OR Use a machine equipped with supplemental water spray designed to suppress dust. Water must be combined with a surfactant. Operate and maintain machine to minimize dust emissions.	None None None	None None None
(xvi) Crushing machines	Use equipment designed to deliver water spray or mist for dust suppression at crusher and other points where dust is generated (e.g., hoppers, conveyers, sieves/sizing or vibrating components, and discharge points). Operate and maintain machine in accordance with manufacturer's instructions to minimize dust emissions. Use a ventilated booth that provides fresh, climate-controlled air to the operator, or a remote control station.	None	None

(xvii) 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	Operate equipment from within an enclosed cab. When employees outside of the cab are engaged in the task, apply water and/or dust suppressants as necessary to minimize dust emissions.	None None	None None
(xviii) Heavy equipment and utility vehicles for tasks such as grading and excavating but not including: demolishing, abrading, or fracturing silica-containing materials	Apply water and/or dust suppressants as necessary to minimize dust emissions. OR When the equipment operator is the only employee engaged in the task, operate equipment from within an enclosed cab.	None None	None None

When implementing the control measures in Table 1, each employer shall:

(i) For tasks performed indoors or in enclosed areas, provide a means of exhaust as needed to minimize the accumulation of visible airborne dust;

(ii) For tasks performed using wet methods, apply water at flow rates sufficient to minimize release of visible dust;

(iii) For measures implemented that include an enclosed cab or booth, ensure that the enclosed cab or booth:

(A) Is maintained as free as practicable from settled dust;

(B)Has door seals and closing mechanisms that work properly;

(C) Has gaskets and seals that are in good condition and working properly;

(D) Is under positive pressure maintained through continuous delivery of fresh air;

(E) Has intake air that is filtered through a filter that is 95% efficient in the 0.3-10.0 µm range (e.g., MERV-16 or better); and

(F) Has heating and cooling capabilities.

(3) Where an employee performs more than one task on Table 1 during the course of a shift, and the total duration of all tasks combined is more than four hours, the required respiratory protection for each task is the respiratory protection specified for more than four hours per shift. If the total duration of all tasks on Table 1 combined is less than four hours, the required respiratory protection for each task is the respiratory protection specified for less than four hours per shift.