

OSHA Standard and What You Need to Know

Presented by:

Peter Kuzj

Industrial Hygienist

Workplace Safety Consultation

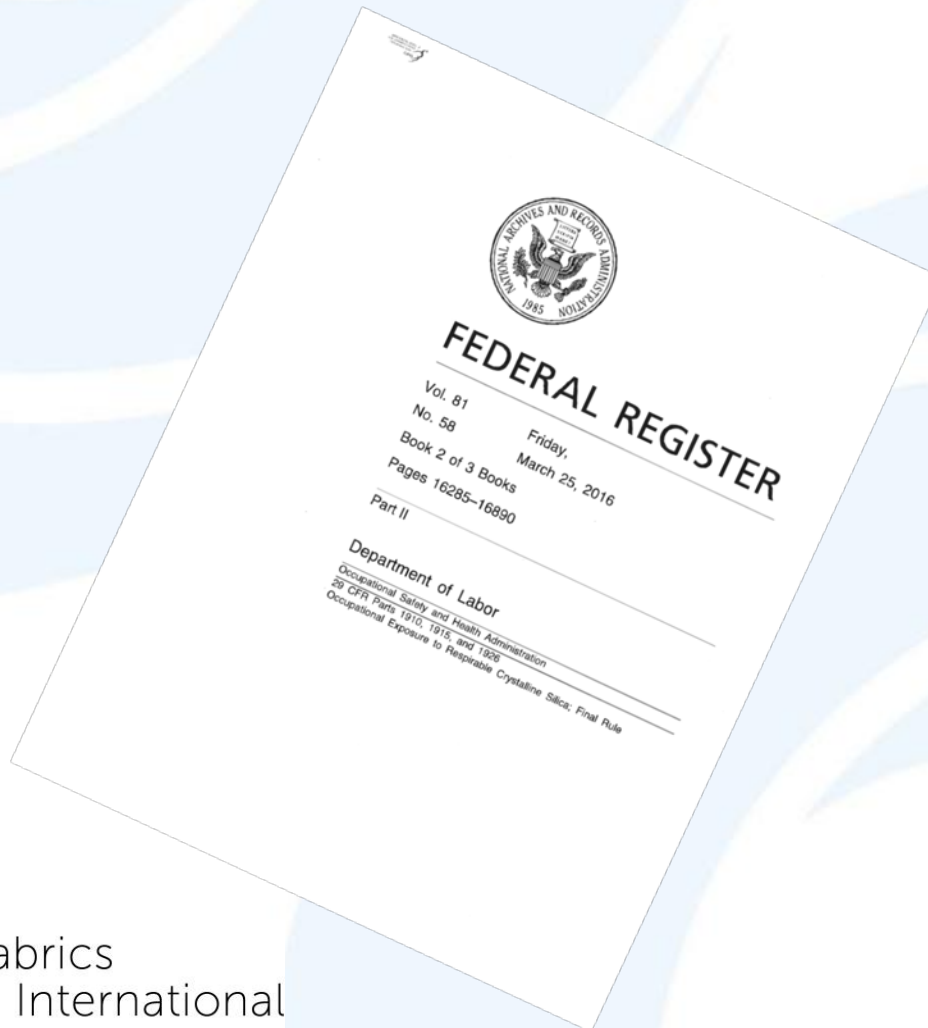
Brought to you by:



OSHA's Final Rule on Occupational Exposure to Respirable Crystalline Silica: The Construction Standard



Final Rule Published on March 25, 2016



Reasons for the Rule

- Previous permissible exposure limits (PELs) were formulas that many find hard to understand
- Construction PELs were obsolete particle count limits
- General industry formula PEL was about equal to $100 \mu\text{g}/\text{m}^3$; construction formulas was about $250 \mu\text{g}/\text{m}^3$

Most Important Reason for the Rule

- **Previous PELs do not adequately protect workers**
- Exposure to respirable crystalline silica has been linked to:
 - Silicosis
 - Lung cancer
 - Chronic obstructive pulmonary disease
 - Kidney disease
- Extensive epidemiologic evidence that lung cancer and silicosis occur at exposure levels below $100 \mu\text{g}/\text{m}^3$

Health Benefits

OSHA estimates that once the effects of the rule are fully realized, it will prevent:

- More than 600 deaths per year
 - Lung cancer: 124
 - Silicosis and other non-cancer lung diseases: 325
 - End-stage kidney disease: 193
- More than 900 new silicosis cases per year

New Exposure Levels

- PEL = 50 $\mu\text{g}/\text{m}^3$ as an 8-hour TWA
- Action Level(AL) = 25 $\mu\text{g}/\text{m}^3$ as an 8-hour TWA

Scope of Coverage

- Three forms of silica: quartz, cristobalite and tridymite
- Exposures from chipping, cutting, sawing, drilling, grinding, sanding, and crushing of concrete, brick, block, rock, and stone products (such as in construction operations)
- Exposures from using sand products (such as glass manufacturing, foundries, and sand blasting)



Respirable Crystalline Silica Rule

- Two standards:
 - One for general industry (awning manufacturing)
 - One for construction (awning installation)

Construction Standard

- (a) Scope
- (b) Definitions
- (c) Specified exposure control methods
- OR**
- (d) Alternative exposure control methods
 - (1) PEL
 - (2) Exposure Assessment
 - (3) Methods of Compliance
- (e) Respiratory protection
- (f) Housekeeping
- (g) Written exposure control plan
- (h) Medical surveillance
- (i) Communication of silica hazards
- (j) Recordkeeping
- (k) Dates



Construction – Scope

- All occupational exposures to respirable crystalline silica are covered, unless employee exposure will remain below $25 \mu\text{g}/\text{m}^3$ as an 8-hr TWA under any foreseeable conditions.

When can you expect to be below 25 $\mu\text{g}/\text{m}^3$ as an 8-hr TWA?

Guidance from the OSHA Small Entity Compliance Guide For Respirable Crystalline Silica Standards For Construction

Guide

- Drilling with handheld drills for 15 minutes or less
- Mixing concrete for post holes
- Pouring concrete footers, slabs or walls
- Removing framework
- Other tasks

Construction – Specified Exposure Control Methods

- Table 1 in the construction standard matches 18 tasks with effective dust control methods and, in some cases, respirator requirements.
- Employers that fully and properly implement controls on Table 1 do not have to:
 - Comply with the PEL
 - Conduct exposure assessments for employees engaged in those tasks

Example of a Table 1 Entry

Equipment / Task	Engineering and Work Practice Control Methods	Required Respiratory Protection and Minimum APF	
		≤ 4 hr/shift	> 4 hr/shift
Handheld and stand-mounted drills(including impact and rotary hammer drills)	<p>Use drill equipped with commercially available shroud or cowling with dust collection system.</p> <p>Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.</p> <p>Dust collector must provide the air flow recommended by the tool manufacturer and have a filter with 99% or greater efficiency and a filter cleaning mechanism</p>	None	None

Example of a Table 1 Entry

Equipment / Task	Engineering and Work Practice Control Methods	Required Respiratory Protection and Minimum APF	
		≤ 4 hr/shift	> 4 hr/shift
Handheld power saws (any blade diameter)	<p>Use saw equipped with integrated water delivery system that continuously feeds water to the blade.</p> <p>Operate and maintain tool in accordance with manufacturers' instruction to minimize dust</p> <ul style="list-style-type: none"> - When used outdoors - When used indoors or in an enclosed area 	<p>None</p> <p>APF 10</p>	<p>APF 10</p> <p>APF 10</p>

List of Table 1 Entries

- Stationary masonry saws
- **Handheld power saws**
- Handheld power saws for fiber cement board
- Walk-behind saws
- Drivable saws
- Rig-mounted core saws or drills
- **Handheld and stand-mounted drills**
- Dowel drilling rigs for concrete
- Vehicle-mounted drilling rigs for rock and concrete
- **Jackhammers and handheld powered chipping tools**
- Handheld grinders for mortar removal (tuckpointing)
- Handheld grinders for other than mortar removal
- Walk-behind milling machines and floor grinders
- Small drivable milling machines
- Large drivable milling machines
- Crushing machines
- Heavy equipment and utility vehicles to abrade or fracture silica materials
- Heavy equipment and utility vehicles for grading and excavating

Fully and Properly Implementing Controls Specified on Table 1

- Presence of controls is not sufficient.
- Employers are required to ensure that:
 - Controls are present and maintained
 - Employees understand the proper use of those controls and use them accordingly

Employees Engaged in Table 1 Tasks

- Employees are “engaged in the task” when operating the listed equipment, assisting with the task, or have some responsibility for the completion of the task
- Employees are not “engaged in the task” if they are only in the vicinity of a task

Respiratory Protection Requirements on Table 1

- Respirators required where exposures above the PEL are likely to persist despite full and proper implementation of the specified engineering and work practice controls
- Where respirators required, must be used by all employees engaged in the task for entire duration of the task
- Provisions specify how to determine when respirators are required for an employee engaged in more than one task

Alternative Exposure Control Methods – Exposure Assessment

- Required if exposures are or may reasonably be expected to be at or above action level of $25 \mu\text{g}/\text{m}^3$
- Exposures assessments can be done following:
 - The performance option
 - The scheduled monitoring option

Performance Option

- Exposures assessed using any combination of air monitoring data or objective data sufficient to accurately characterize employee exposure to respirable crystalline silica

Objective Data

- Includes air monitoring data from industry-wide surveys or calculations based on the composition of a substance
- Demonstrates employee exposure associated with a particular product or material or a specific process, task, or activity
- 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

Scheduled Monitoring Option

- Prescribes a schedule for performing initial and periodic personal monitoring
- If monitoring indicates:
 - Initial below the AL: no additional monitoring
 - Most recent at or above the AL: repeat within 6 months
 - Most recent above the PEL: repeat within 3 months
 - When two consecutive non-initial results, taken 7 or more days apart, are below the AL, monitoring can be discontinued
 - Reassess if circumstances change

Alternative Exposure Control Methods – Methods of Compliance (Hierarchy of Controls)

- Employers can use any engineering or work practice controls to limit exposures to the PEL
- Respirators permitted where PEL cannot be achieved with engineering and work practice controls

Engineering Controls

Cutting block
without engineering controls



Cutting block using water to control
the dust

Engineering Controls (cont.)

Jackhammer use without engineering controls



Jackhammer use with water spray to control dust

Drilling Engineering Controls

- Vacuum attachments
- Wetting
- Shrouds
- Dust extractors
- Special bits

Respiratory Protection

- Must comply with 29 CFR 1910.134
- Respirators required where specified by Table 1, or for exposures above the PEL:
 - While installing or implementing controls or work practices
 - For tasks where controls or work practices are not feasible
 - When feasible controls cannot reduce exposures to the PEL

Housekeeping

- When it can contribute to exposure, employers must not allow:
 - Dry sweeping or brushing
 - Use of compressed air for cleaning surfaces or clothing, unless it is used with ventilation to capture the dust
- Those methods can be used if no other methods like HEPA vacuums, wet sweeping, or use of ventilation with compressed air are feasible

Construction – Written Exposure Control Plan

- The plan must describe:
 - Tasks involving exposure to respirable crystalline silica
 - Engineering controls, work practices, and respiratory protection for each task
 - Housekeeping measures used to limit exposure
 - Procedures used to restrict access, when necessary to limit exposures

Construction – Competent Person

- Construction employers must designate a competent person to implement the written exposure control plan
- *Competent person* is an individual capable of identifying existing and foreseeable respirable crystalline silica hazards, who has authorization to take prompt corrective measures
- Makes frequent and regular inspection of job sites, materials, and equipment

Construction – Medical Surveillance

- Employers must offer medical examinations to workers **who will be required to wear a respirator under the standard** for 30 or more days a year.
- Employers must offer examinations every three years to workers who continue to be exposed above the trigger
- Exam includes medical and work history, physical exam, chest X-ray, and pulmonary function test (TB test on initial exam only)

Medical Opinion

- Worker receives **report** with detailed medical findings, any work restrictions, and recommendations concerning any further evaluation or treatment
- Employer receives an **opinion** that only describes limitations on respirator use, and if the worker gives written consent, recommendations on:
 - Limitations on exposure to respirable crystalline silica, and/or
 - Examination by a specialist

Communication of Hazards

- Employers required to comply with hazard communication standard (HCS) (29 CFR 1910.1200)
- Address: Cancer, lung effects, immune system effects, and kidney effects as part of HCS
- Train workers on health hazards, tasks resulting in exposure, workplace protections, the identity of the competent person, and the medical surveillance program

Recordkeeping

- Must maintain records per 29 CFR 1910.1020 for:
 - Air monitoring data
 - Objective data
 - Medical records

Construction – Compliance Dates

- Employers must comply with all requirements (except methods of sample analysis) by June 23, 2017

Guidance and Outreach

- OSHA Silica Webpage:
www.osha.gov/silica
 - Fact sheets
 - FAQs
 - Video
- Appendix B – Medical Surveillance Guidelines
- Small Entity Compliance Guide
- Subscribe to OSHA Quicktakes Newsletter

The screenshot shows the OSHA website's page for the final rule on silica. The header includes the United States Department of Labor logo and navigation links like 'Home', 'Index', 'Contact Us', 'FAQs', and 'What's New'. The main heading is 'OSHA's Final Rule to Protect Workers from Exposure to Respirable Crystalline Silica'. Below this is a featured image of a worker with a quote: "I love my trade... It breaks my heart that I still can't work more than an hour or so." attributed to Dennis Cahill from Arizona. The page lists various resources such as 'About the Rule', 'Regulatory Text for Construction Standard', 'Sampling Methods (Appendix A)', 'Medical Surveillance (Appendix B)', 'Fact Sheet on Construction', and 'Fact Sheet on General Industry/Maritime'. It also includes a 'Stay Informed' section with an email registration link and a 'Video' section with a thumbnail of a worker. A 'Background' section provides context on the rule's history and goals. The 'Key Provisions' section lists requirements for engineering controls, medical exams, and training. The 'Compliance Schedule' section details the effective dates for different industry sectors.

Questions?



Contact Information

Peter Kuzj

Industrial Hygienist
Workplace Safety Consultation
651 478 8190
Peter.kuzj@state.mn.us
www.dli.mn.gov

Andrea Jauli

Division Supervisor
Professional Awning Manufacturers Association &
Fabric Structures Association
+1 651 225 6944
akjauli@ifai.com