Compliance with OSHA's Silica Rule



- Rule's obligations and implementation dates
- NAPA's guidance documents and other assistance
- Milling and brooming equipment





- Known health hazard and top priority for U.S. OSHA
- > Decades in the making; finalized in March 2016
- Reduces occupational Permissible Exposure Limit (PEL) to 50 micrograms per cubic meter (µg/m³) across all sectors
- General industry was "100" but construction was "250"
- Proposed rule required respirators & "no visible dust" during milling
- Industry: let's work together to find a better solution
- Participated in all aspects of rulemaking process
- Final rule provides some relief





- > Agency-Labor-Industry Partnership
- > 10 years of increased effort to control milling machine dust
- During rule-making process, voluntary manufacturers' commitment to include control technologies starting in 2017
 - Vacuum & enhanced spray systems on new machines
 - **>** Retrofit spray systems on older machines
- Industry position: no milling respiratory protection needed





- > PEL for all industries set at 50 μ g/m³ (prior construction @ 250)
- Construction compliance (e.g., milling) by June 2017
- Gen'l industry compliance (e.g., asphalt plant) by June 2018
- Numerous law suits and possibly Presidential action to halt rule
 Can't be "undone" using Congr. Review Act
- > Milling: respiratory protection and visible emissions <u>REMOVED</u>
- Basic premise of rule: <u>specific engineering controls identified for</u> <u>many jobs/tasks/activities</u> called "Table 1"
- > Other major obligations (will discuss individually)
 - Designate "Competent Person"
 - Develop a written Exposure Control Plan
 - Hazard Communication
 - Maintain appropriate records



- (a) Scope
- (b) Definitions
- (c) Specified exposure control methods (Table 1)

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

Table 1 entries

NAPA NATIONAL ASPHALT

- 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 / 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



- Table 1 controls generally involve equipment/activities with
 - the following engineering controls:
 - ➤ water suppression
 - vacuum systems
 - > enclosed cabs with HEPA filters



- If an employer chooses NOT to implement engineering controls:
 - >must measure exposure
 - "Action Level" at ½ PEL
 - restrict access/dedicated clothes
 - > medical monitoring / PPE / etc.





- Fairly straight-forward although written a bit wonky
 - > No allowable controls for milling > 4-inches of concrete
- All milling machines now have both "enhanced" water suppression AND vacuum controls; many since ~3 years ago
 - > Both controls allow any depth cut of asphalt
 - > Water-spray only allows milling up to 4-inches any pavement
- Reasonably priced retrofits available for many models
- "enhanced" water spray + surfactant (detergent)
- Small mills (skid-steer) require water suppression only
 - Enclosed cab as best practice



Brooming & sweeping controls



NATIONAL ASPHALT PAVEMENT ASSOCIATION

- Not as straight-forward
- Table 1: heavy equipment and utility vehicles that
 - > abrade or fracture silicacontaining material ...
 - > do NOT abrade or fracture
- If abrasive: enclosed cab + water suppression (if grounds-crew present)
- If non-abrasive: water suppression *OR* enclosed cab when operator is only one engaged in activity



https://www.youtube.com/watch?v=SY49tv-WC5M





- OSHA requires exposure assessment when using noncontrolled equipment or when activity not Table 1 specified
 (short duration) brooming, flaggers, truck drivers
- Employer must understand employee 8-hr TWA exposure
 Iow PEL still allows elevated exposure for short durations
- > Measuring airborne silica requires an IH and results lag
- > OSHA allows alternative methods of exposure assessment
- Use of "real-time" dust monitor and silica content
- Aggregate silica content varies but dust exposures can be large and PEL low
- Rule of thumb: ~ 10% silica



Exposure example: uncontrolled brooming



- > Theoretically relevant if brooming not considered Table 1
- Short duration, uncontrolled, or non-specified activities
- Should remain below Action Level of 25 µg/m³ (0.025 mg)

In general, if a direct-read real-time monitor records respirable dust levels greater than 0.25 mg/m³ for an 8-hr TWA or 2.3 mg/m³ for a 45-min activity duration (with no further exposure) <u>and</u> the crystalline silica content in respirable dust is known to be approximately 10%, then more in-depth IH monitoring would be appropriate.

- > NAPA guidance for details
- Should be part of Exposure Control Plan and reviewed by Competent Person
- Some type of exposure assessment required ... but ..





- Defined as someone who "can identify existing and foreseeable respirable crystalline silica hazards; is authorized to promptly eliminate or minimize silica hazards; [and] has the knowledge and ability to implement the written exposure control plan"
- > Any "qualified" employee can be designated as competent
- > Employer is responsible for determining what training is needed
 - > NAPA to develop a short but comprehensive training webinar
- Duties include frequent and regular job site/equipment inspections; and implement the exposure control plan
- Doesn't need to remain on jobsite but does need authority to take prompt corrective action which may include halting work
- Recommend a crew chief, foreperson, or other supervisor-type individual who regularly works on or inspects a job site

Develop a Written Exposure Control Plan



- Must develop an exposure control plan that can be implemented by the Competent Person
 - > can be generic (not project-specific)
- > Plan must contain the following information:
 - > Description of tasks involving exposure to respirable silica
 - Engineering controls, work practices, and respiratory protection for each task (e.g., water spray while brooming)
 - > Housekeeping measures used to limit exposure
 - Procedures used to restrict access, when necessary to limit exposures (employee rotation/scheduling, signage)

Hazard Communication and Recordkeeping



- > Must comply with OSHA's HazCom Standard
 - > Address health hazards associated with airborne silica
 - Train workers on activities/tasks resulting in exposure, workplace protections, the identity of the competent person, and the medical surveillance program if applicable
- > Recordkeeping per existing Standard (29 CFR 1910.1200)
 - > Must maintain ertain records for appropriate duration
 - > Air monitoring data, objective data, medical records, etc.
 - Even MSDSs/SDSs since constitute exposure assessment
 - > Must retain for generally 30 years after employment

www.silica-safe.org



Know the Hazard 🛕

Workers may be exposed to dangerous levels of silica dust when cutting, drilling, grinding, or otherwise disturbing materials that contain silica. These materials and tasks are common on construction jobs. Breathing that dust can lead to serious, often fatal illnesses. This section contains information that workers – and contractors – need to know to <u>recognize the hazard</u>, understand the risk factors, and work safely with silica. Control the Dust 目

There are ways **contractors** can reduce the dust and reduce the hazard. This easy to use planning tool takes you step-by-step through conducting a **job hazard analysis for silica**, selecting appropriate controls, and creating a job-specific plan to eliminate or reduce silica hazards. You can save as a pdf, print and/or email your plan.

CREATE-A-PLAN

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Regulations & Requirements

What's New

Training & Other Resources

Find silica-related handouts, fact sheets, videos, toolbox talks and other resources for workers and contractors.

What's Working

Contractors, workers, manufacturers, and researchers are on the lookout for the best ways to control silica dust. Learn what is happening in the field and share what you are doing.

? Ask a Question

Get answers to commonly asked questions about silica and ask one of your own.

(2)Know the Hazard

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Step 1. Will you generate dust containing silica on the job?

The materials listed below contain silica. Select all of the materials you plan to use.

As you select a material a list of dust generating tasks will appear. Please select the task(s) that you will perform with the material.

Step 1 --Asphalt Refractory Mortar/Castables (<u>q</u>)(1)(i) OBrick Refractory Units Abrasive blasting Polishing Rock Bushhammering Sacking/patching Abrasive blasting Polishing Cutting/sawing Sanding Bushhammering Sacking/patching Demolishing/disturbing Scabbling Cutting/sawing Sanding Drilling/coring Scarifying Demolishing/disturbing Scabbling Earthmoving Scraping Drilling/coring Scarifying Grinding Sweeping/cleaning up Earthmoving Scraping Jackhammering Test Task Sweeping/cleaning up Grinding Milling Jackhammering Test Task Mixing/pouring Milling Other Mixing/pouring Other Cement Roof Tile (concrete) Concrete Concrete Block Sand Soil (fill dirt and top soil) Drywall Fiber Cement products Stone (including: granite, limestone, quartzite, sandstone, shale, slate, cultured, etc.) Grout Stucco/EIFS Gunite/Shotcrete Terrazzo Mortar Tile (clay and ceramic) Paints containing silica Material Other Plaster

CONTINUE

Step 2. How do you plan to control the dust?

Click here for examples of commercially available equipment and

Brick - Cutting/sawing

Select the Equipment/Control:

Hand-Held Masonry Saw with Vacuum

Stationary Masonry Saw with Vacuum

Stationary Masonry Saw with Water

Rock - Drilling/coring

Hand-Held Masonry Saw with Water

controls.

Splitter

Other

Select the type of equipment and dust control you plan to use for each material and task you selected in Step 1. *Not Sure - Perform Air Monitoring.*

To find the exposure control methods in OSHA's silica standard, learn about air monitoring, or to find studies and data on the use of controls <u>click here</u>. To give users the greatest flexibility, any material-task combination may be selected. For uncommon combinations or those not typically performed, the default control is respiratory protection.

Step 2 -- (g)(1)(ii)

More information to help you decide how to control the dust:

Option 1 - OSHA Exposure Control Methods: The exposure control methods and respiratory requirements specified in the OSHA silica standard. Learn More

Option 2 - Perform Air Monitoring:

Information on how to find an industrial hygienist to conduct air monitoring, questions to ask, and what's involved. <u>Learn More</u>

Option 3 - Studies and Data on the Use of Dust Controls:

Summaries of research findings, reports, and data. Learn more

Option 4 – OSHA's On-site Consultation Program: Learn More

RETURN TO YOUR SILICA CONTROL PLAN

Desc



3. Husqvarna K 3000 14-inch Vac Electric Power Cutter

- 💷 See how it works
- Manufacturer

Learn More: OSHA - Fact Sheet

RETURN TO YOUR SILICA CONTROL PLAN

*OPWR does not endorse any specific equipment or product. Many factors influence the effectiveness of a control including maintenance, user skill and training, the appropriateness of the equipment/control for the task, and manufacturer instructions/requirements. Respiratory protection may be needed when controls do not bring the slice exposures down to or below OSHA's Permissible Exposure Limit (PEL).



COMPLETED

COMPLETED



Step 3. Complete your Silica Control Plan

Company:

Jobsite/Project:

Description of Work:

Person	Comr	leting	the	Plan/	Title:

Company

Person completing the plan

Jobsite/Project

Description of work

Step 3

Please use the space below to describe the training that will be provided to workers engaged in dust producing tasks and those working nearby.

Please fill in the name and title of the person assigned as the competent person for silica Required by 29 CFR 1926.1153 (g)(4).

Click here for an explanation of what a competent person is, why it is important to assign one for silica, and what this on the job.

Competent

Exposure Assessment and Controls

1 Materials: Brick Task: Cutting/sawing Equipment and Control(s): 1) Hand-Held Masonry Saw with Vacuum, 2) Hand-Held Masonry Saw with Wa Task/Control Description: Lorem ipsum dolor sit amet, postea epicentry (eff), cu veniam persecuti eam. Eos debet reprimique ut. Legimus accumsan voluptatum no eam, nor prominati in cum, pro pro

Materials: Rock Task: Drilling/coring

Equipment and Control(s): Heavy Equipment with Cab Filtration System

Task/Control Description: Lorem ipsum dolor sit amet, postea explicari no eum, cu veniam persecuti eam. Eos debet reprimique ut. Legimus accumsan voluptatum no eam, mollis minimum nominati in cum, pro pro

Materials: Rock Task: Jackhammering

Equipment and Control(s): Jackhammer with Vacuum

Task/Control Description: Lorem ipsum dolor sit amet, postea explicari no eum, cu veniam persecuti eam. Eos debet reprimique ut. Legimus accumsan voluptatum no eam, mollis minimum nominati in cum, pro pror

Please describe the procedures to restrict access to work areas, when necessary, to min employees exposed to respirable crystalline silica and their level of exposure, including by other employers or sole proprieters. Required by 29 CFR 1926.1153 (g)(1)(iv)

Restricting Access (g)(1)(iv)

Click here for an explanation of the elements of a worker-training program. Materials to help you conduct your training program are available on this site - just click "Training and Other Resources."

Click here forTraining

Please use the space below to describe the housekeeping measures that will be used on the project to limit employee exposure to respirable crystalline silica. Required by 29 CFR 1926.1153 (g)(1) (iii) Click here to learn more about recommended housekeeping activities.

Housekeeping (g)(1)(iii)

Please use the space below to describe medical surveillance that will be provided to workers exposed to silica dust.

Click here to learn more about medical surveillance. Additional materials on the risk, information workers should provide their physicians, and steps to work safely with silica are available on this site - just click "Know the Hazard."

Medical Surveillance

Please use the space below to describe other things that need to be taken into consideration when controlling dust on this project.

<u>Click here</u> to learn more about possible things to consider.

Other Considerations

CONTINUE



<u>Summary</u>



- > The train has left the station; difficult to stop
- Compliance for construction activities June 2017 (pending litigation or legislative efforts)
- > Will require employer identification of job-task exposure
- Milling Partnership successful: eliminated need for respirators
 Mills <u>will require</u> controls (new or retrofit @ ~ \$12-15k)
 Small mills (skid-steer) only require water suppression
- Brooms may need enclosed cab / water suppression
 - Dependent on how employer classifies
 - Recommend conducting <u>internal</u> limited exposure assessment with real-time dust monitor for ancillary activities like uncontrolled brooming and flagging

Bottom line: compliance activities are responsibility of employer; rely on common sense; be careful of consultants



- Bottom line: compliance activities are responsibility of employer; rely on common sense; be careful of consultants
- > Equipment controls are straight forward: mills and brooms
- Identify your company's "competent person(s)" ... should be crew supervisory level
- > Develop an Exposure Control Plan for your activities
 - Utilize exposure assessment information to assist
- Make sure your HazCom plan is updated
- Make sure you keep the appropriate records and inform employees of any industrial hygiene testing results as well as exposure assessments
- NAPA is available to help