Compliance with OSHA’s Silica Rule

- Rule’s obligations and implementation dates
- NAPA’s guidance documents and other assistance
- Milling and broomming equipment
Overview

- 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 rule-making process
- Final rule provides some relief
Milling Machine Partnership

- 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 µg/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 REMOVED
- Basic premise of rule: specific engineering controls identified for many jobs/tasks/activities called “Table 1”
- Other major obligations (will discuss individually)
  - Designate “Competent Person”
  - Develop a written Exposure Control Plan
  - Hazard Communication
  - Maintain appropriate records
<table>
<thead>
<tr>
<th><strong>Table 1 entries</strong></th>
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<tbody>
<tr>
<td>• Stationary masonry saws</td>
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<tr>
<td>• Handheld power saws</td>
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<tr>
<td>• Handheld power saws for fiber cement board</td>
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<tr>
<td>• Walk-behind saws</td>
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<td>• Drivable saws</td>
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<tr>
<td>• Rig-mounted core saws or drills</td>
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<tr>
<td>• Handheld / stand-mounted drills</td>
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<td>• Dowel drilling rigs for concrete</td>
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<td>• Vehicle-mounted drilling rigs for rock and concrete</td>
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<td>• Jackhammers and handheld powered chipping tools</td>
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<td>• Handheld grinders for mortar removal (tuckpointing)</td>
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<td>• Handheld grinders for other than mortar removal</td>
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<tr>
<td>• Walk-behind milling machines and floor grinders</td>
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<td>• Small drivable milling machines</td>
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<tr>
<td>• Large drivable milling machines</td>
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<tr>
<td>• Crushing machines</td>
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<tr>
<td>• <strong>Heavy equipment and utility vehicles to abrade or fracture silica materials</strong></td>
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<tr>
<td>• <strong>Heavy equipment and utility vehicles for grading and excavating</strong></td>
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</tbody>
</table>
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.
Milling operations and controls

➤ 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

- Not as straight-forward

- Table 1: heavy equipment and utility vehicles that .....
  - abrade or fracture silica-containing 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 non-controlled equipment or when activity not Table 1 specified

- (short duration) broomming, flaggers, truck drivers

Employer must understand employee 8-hr TWA exposure

- low 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: cutting plugs or cores

- 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) and 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..
**Designate a Competent Person**

- 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
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)
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 certain 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
- Procedures used to restrict access, when necessary to limit exposures (employee rotation/scheduling, signage)
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 will require 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 internal 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
Summary

- Bottom line: compliance activities are responsibility of employer; rely on common sense; be careful of consultants
- Equipment controls are straightforward: 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
Questions?