MNOSHA Construction Seminar
Respirable Crystalline Silica
29 CFR 1926.1153

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History

• Sept. 12, 2013: Published the proposed rule and request for comments
• Federal OSHA adopted the final rule March 25, 2016
• Minnesota OSHA adopted the final rule Sept. 26, 2016
General industry effective dates

- All obligations of this section June 23, 2018
  - except medical surveillance (i)(1)(i)
    - June 23, 2018, for those exceeding the PEL for 30 or more days a year
    - June 23, 2020, for those exceeding the action level 30 or more days a year

- Hydraulic fracturing operations in gas and oil industry – June 23, 2018
  - except medical surveillance (i)(1)(i) and engineering controls (f)(1) (June 23, 2021)
Construction effective dates

- All obligations commence Sept. 23, 2017
- Requirements for sample analysis (d)(2)(v) commence June 23, 2018
Permissible exposure limits (PELs)

- Action level of 25 µg/m³ as an eight-hour TWA
- Permissible exposure limit of 50 µg/m³ as an eight-hour TWA
New definition

*Respirable crystalline silica* means quartz, cristobalite and/or tridymite contained in airborne particles that are determined to be respirable by a sampling device designed to meet the characteristics for respirable-particle size-selective samplers specified in the International Organization for Standardization (ISO) 7708:1995: Air Quality — Particle Size Fraction Definitions for Health-related Sampling.
Exposure assessment

- Initial exposure assessment
- Periodic exposure assessments
  - fixed schedule option
  - performance option
- Additional exposure assessments
  - changes in operation
- Or, in construction, comply with Table 1
Construction – Table 1

• Specified exposure control methods
• The employer shall fully and properly implement:
  – the engineering controls
  – work practices
  – respiratory protection
• Specified for the task on Table 1, unless the employer complies with paragraph (d)
## Table 1. Exposure control methods for selected construction operations

<table>
<thead>
<tr>
<th>Equipment/task</th>
<th>Engineering and work practice control methods</th>
<th>Required respiratory protection and minimum assigned protection factor (APF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(i) Stationary masonry saws</td>
<td>Use saw equipped with integrated water delivery system that continuously feeds water to the blade</td>
<td>≤4 hr/day: None</td>
</tr>
<tr>
<td></td>
<td>Operate and maintain tool in accordance with manufacturer’s instructions to minimize dust emissions</td>
<td>&gt;4 hr/day: None</td>
</tr>
</tbody>
</table>

**Note:**
- ≤4 hr/day: None
- >4 hr/day: None
<table>
<thead>
<tr>
<th>Equipment/task</th>
<th>Engineering and work practice control methods</th>
<th>Required respiratory protection and minimum assigned protection factor (APF)</th>
</tr>
</thead>
</table>
| (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 | ≤4 hr/day: None  
>4 hr/day: APF 10  
≤4 hr/day: APF 10  
>4 hr/day: APF 10 |
When implementing control measures specified in Table 1, each employer shall:

(i) for tasks performed indoors or in enclosed area, 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 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 work properly
D. is under positive pressure maintained through a continuous delivery of fresh air
E. has intake air that is filtered through a filter that is 95 percent efficient in the 0.3 to 10.0 um range (for example MERV-16 or better)
F. has heating and cooling capabilities
Employee notification of assessment results

- Within five days (construction) or 15 days (general industry) of conducting an assessment the employer shall notify in writing each affected employee.
- Whenever an exposure assessment indicates employee exposure is above the PEL, the employer shall describe in the written notification the corrective action being taken to reduce employee exposures to or below the PEL.
Engineering controls

- Wet methods
- Ventilation
- Enclosures

- Elimination
- Substitution
Regulated areas

- **General industry:** establish a regulated area to limit access to areas that exceed the PEL

- **Construction, general industry:** develop a written exposure control plan
Written exposure control plan

<table>
<thead>
<tr>
<th>Industry</th>
<th>Occupations</th>
<th>Materials</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do you work in any of these?</td>
<td>Are you one of these?</td>
<td>Are any of these involved?</td>
</tr>
<tr>
<td>Abrasive blasting</td>
<td>Bricklayer/stonemason</td>
<td>Abrasives</td>
</tr>
<tr>
<td>Asphalt pavement manufacturing</td>
<td>Construction laborer</td>
<td>Coal Dust</td>
</tr>
<tr>
<td>Blast furnaces</td>
<td>Crane and tower operator</td>
<td>Concrete</td>
</tr>
<tr>
<td>Cement manufacturing</td>
<td>Crushing and grinding machine operator</td>
<td>Dirt</td>
</tr>
<tr>
<td>Ceramics, clay, and pottery</td>
<td>Furnace, kiln, non-food oven operator</td>
<td>Filter Aids</td>
</tr>
<tr>
<td>Concrete mixing</td>
<td>Grinding, abrasion, buffing, and polishing machine operator</td>
<td>Graphite, natural</td>
</tr>
<tr>
<td>Concrete tunneling</td>
<td>Hand molders/shapers (not jeweler)</td>
<td>Mica</td>
</tr>
<tr>
<td>Construction (mainly cement concrete work)</td>
<td>Heavy equipment mechanic</td>
<td>Mineral Products</td>
</tr>
<tr>
<td>Demolition</td>
<td>Janitor or cleaner</td>
<td>Paints</td>
</tr>
<tr>
<td>Electronics industry</td>
<td>Machinist</td>
<td>Pavement</td>
</tr>
<tr>
<td>Foundry industry: grinding, molding, shakeout, core room (High Risk)</td>
<td>Metals/plastics machine operator</td>
<td>Perlite</td>
</tr>
<tr>
<td>Hand molding, casting, and forming</td>
<td>Mining and casting machine operator</td>
<td>Plant Materials</td>
</tr>
<tr>
<td>Jackhammer operations</td>
<td>Mining machine operator</td>
<td>Plastic Fillers</td>
</tr>
<tr>
<td>Manufacturing abrasives, paints, soaps, and glass</td>
<td>Miscellaneous material moving equipment operator</td>
<td>Polishing</td>
</tr>
<tr>
<td>Mining</td>
<td>Millwright</td>
<td>Compounds</td>
</tr>
<tr>
<td>Repair or replacement of linings of rotary kilns and cupola furnaces</td>
<td>Operating engineer</td>
<td>Portland Cement</td>
</tr>
<tr>
<td>Rolling and finishing mills</td>
<td>Painter who sandblasts (High Risk)</td>
<td>Sands</td>
</tr>
<tr>
<td>Sandblasting (High Risk)</td>
<td>Production supervisor</td>
<td>Silicates</td>
</tr>
<tr>
<td>Setting, laying, and repairing railroad track</td>
<td>Rock driller (High Risk)</td>
<td>Slag</td>
</tr>
<tr>
<td>Steelwork</td>
<td>Roof boltar (High Risk)</td>
<td>Soapstone</td>
</tr>
<tr>
<td>Stone, brick, and concrete block cutting, blasting, chipping, grinding, and sawing</td>
<td>Sandblaster (High Risk)</td>
<td>Soil</td>
</tr>
<tr>
<td>Tunneling operations</td>
<td>Steelworker</td>
<td>Welder/cutter</td>
</tr>
</tbody>
</table>

A description of the tasks that have exposure
A description of the engineering controls, work practices and respiratory protection used
A description of the housekeeping measures to be used
A description of procedures to restrict access and minimize the number of employees exposed
Shall be reviewed annually
Housekeeping

• The employer shall not allow dry sweeping or dry brushing where such activity could contribute to employee exposure unless wet sweeping, HEPA vacuuming or other methods are not feasible.

• Compressed air shall not be used to clean clothing or surfaces unless used in conjunction with a ventilation system to capture the dust cloud or no alternative method is available.
Respirators

- Used when engineering controls are not sufficient to reduce exposures below the PELs
- Requires
  - a written respiratory protection program
  - medical evaluation
  - employee Training
  - fit testing
Medical surveillance

- **Construction:** for workers who wear a respirator 30 or more days a year
- **General industry:** for workers who are exposed above the action level for 30 or more days a year
Medical surveillance

- Medical and work history
- Physical exam with emphasis on respiratory
- A chest X-ray
- A pulmonary function test
- Testing for latent tuberculosis
- Any other tests deemed appropriate by the PLHCP
- At least every three years
Hazard communication

- Must be included in hazard communication training
- Must address cancer, lung effects, immune system effects and kidney effects
Employee information and training

- Health hazards associated with silica
- Specific tasks that could expose employees to silica
- Specific measures the employer has implemented to reduce exposures to silica, including engineering controls and work practices
- Contents of the standard
- Purpose and description of the medical surveillance program
- Construction: identity of the competent person
Recordkeeping

- Exposure assessment records
- Medical surveillance records
- Respirator medical evaluation and fit testing
- Training records
- Injury and illness records
MNOSHA’s newsletter Safety Lines

- **Safety Lines** is an online, quarterly publication of the Minnesota Department of Labor and Industry.

- Its purpose is to promote occupational safety and health and to inform readers of the purpose, plans and progress of Minnesota OSHA.

- Sign up to receive email notification about the publication of new editions at www.dli.mn.gov/OSHA/SafetyLines.asp.