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Controlling Silica Dust Exposure in Construction: Real World Case Studies in Exposure Assessment and Hazard Control

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Questions and Answers

1. *What if my company does not perform work activities that that can produce silica dust exposure above the exposure limits, but our workers have to work around other subs that perform this work?*
   Construction companies will want to ensure that their workers avoid any dusty work areas where high risk activities such as jack hammering are occurring. If that is not possible, then employers may need to do some air monitoring to verify that they are not exposed to silica above the exposure limits.

2. *Are all forms of silica applicable to the standard?*
   NO. Silica refers to the chemical compound silicon dioxide which occurs in a crystalline or non-crystalline form. Examples of crystalline silica that would be applicable to the standard include quartz, cristobalite and tridymite. Amorphous silica gel or diatomaceous earth is not crystalline, therefore not applicable under the rule.

3. *What was the reason for the delay in enforcement?*
   From OSHA: "In order to provide the opportunity to conduct additional outreach to construction industry to the regulated community and to train compliance officers."

4. *Do you have to have to be a CIH to perform sampling for silica?*
   You don't have to be a CIH to perform air monitoring for respirable crystalline silica, but you do need to have experience sampling and understand what you are doing and be able to

follow established OSHA or NIOSH sampling methods for respirable silica dust. Any mistakes can seriously affect the integrity of your samples or invalidate them all together.

Air monitoring under the standard requires special sampling devices called cyclone samplers that are fitted with the proper filters (e.g., polyvinyl chloride) and calibrated to run at specific airflow rates. The sampler is placed in the employee's breathing zone for the duration of their work activities involving silica dust.

5. *The standard references objective data in reference to exposure assessment. What does that mean?*
   Objective data means information, such as air monitoring data from industry-wide surveys or calculations based on the composition of a substance, demonstrating employee exposure to respirable crystalline silica associated with a particular product or material or a specific process, task, or activity. The data 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. Samples have to be taken at least 7 days apart for repeat samples.

6. *If my workers' exposures are under the PEL, is that safe?*
   OSHA does not consider the PEL of 50 µg/m³ to be a "safe" level of exposure. Instead, the PEL was established because it was believed to be the lowest level that can be generally achieved through use of engineering controls and work practices for most operations. The ACGIH (which is an organization that reviews scientific studies and develops health-based exposure limits) recommends that an even lower exposure limit of 25 µg/m3 of air be used as the maximum exposure.

7. *For activities that are conducted per OSHA "Table 1: Specified Exposure Control Methods When Working with Materials Containing Crystalline Silica," what is the assumed exposure of the employee? i.e., do these procedures ensure that they will be working below or above the action levels?*
   Table 1 relies heavily on engineering controls - namely ventilation and water delivery systems - to minimize exposures. Where respiratory protection is not required, then it is assumed that exposures are less than the PEL. However, there are various activities and conditions when Table 1 calls for respirator use, thus for these tasks dust exposures are going to be higher and could exceed the PEL even with engineering controls.

8. *The revised regulation states something to the effect that if an employee has more than 30 days exposure than they must have medical surveillance. The potential issue with this is when an employee works for multiply employers throughout a given year, who is responsible for tracking their exposures and ensuring proper medical surveillance? An example of this would be an employee who is hired out of a union hall.*
   The standard states that the employer is required to provide medical surveillance if they are employed by the company performing silica dust work for more than 30 days in 1 year. My interpretation is that if a worker is employed by a company for 25 days, then they would not be required to enroll them in your medical surveillance program. Unions may begin to intervene to incorporate contractual requirements for medical surveillance for its members, particularly with some high risk trades.

9. *Can you provide clarification as to what constitutes a "filter-cleaning mechanism" as mentioned in "Table 1: Specified Exposure Control Methods When Working with Materials Containing Crystalline Silica, Engineering and Work Practice Control Methods" for "Equipment/Task (vii) Handheld drills"? Industry questions have been around the interpretation between a mechanism being a written policy/procedure or an actual mechanical mechanism.*
   A "filter-cleaning mechanism" is a physical component of the dust collector. The purpose of this mechanism is to dislodge particles from the filter surface to ensure no loss in air flow. A common filter cleaning mechanism in vacuums, for example, is electromagnetic shaking pulse.

10. *What kind of respiratory PPE or work controls is recommended when emptying a HEPA vacuum with silica contents such as concrete dust?*
    At minimum, a ½ mask tight fitting respirator with P100 filter cartridges and goggles.

11. *How should the waste be disposed of if just clean (i.e. non-contaminated with other chemicals or radiation, etc.) concrete residue?*
    The new OSHA standard for Crystalline Silica does not address the management of this substance under the RCRA regulations. Assuming it is not contaminated with any other chemical, then most states would likely consider this normal construction debris. However, because hazardous waste rules and compliance varies significantly from state to state,

consult with your local, state, and federal requirements and your designated hazardous waste contractor for specific guidance.

12. *In the handheld operator example where the samples were below the action level, why was the employee still wearing a respirator? (Submitted by Don Enke, Safety National)*
    Many companies are choosing to have employees wear respiratory protection until sampling can verify/validate that the exposure controls are effective. However, OSHA does not require it if Table 1 is strictly followed.

13. *Is the action level considered with or without controls? (Submitted by Raul Garcia, Hensel Phelps)*
    When determining if the requirements under the silica dust standard apply to an employer through air monitoring results and comparison with the Action Level, they cannot factor their workers' use of respirators into the equation.

14. *It seems that even going by the table 1, air monitoring should also be done to make sure through human error the tool may be used improperly, causing the PEL to go at or above the action level of 25. Shouldn't monitoring be done anyway? (Submitted by Wayne Littlejohn, CPFC)*
    Many companies are choosing to include air monitoring as part of their due diligence to verify/validate the exposure controls are effective. However, OSHA does not require it if Table 1 is strictly followed. This was a concession made by OSHA during the public review process of the standard.

15. *Did your exposure levels represent an 8hr TWA? (Submitted by Paula Oberst, Ventura County)*
    Yes, we conducted full shift sampling when possible. For these examples, sampling typically ranged between 6 and 8 hours

16. *Is there a hearing scheduled for 9/25/17 after the standard goes into effect on Saturday? (Submitted by Mark Tipperreiter, BSI)*
    We have not been informed of any OSHA hearings on 9/25/17.

17. *Like asbestos, will the "Competent Person" need OSHA certified training for crystalline silica? (Submitted by Millie Tran, SDSU)*
    The competent person needs to be an individual who can identify or foresee potential silica dust hazards and this person also needs to have the authority to act quickly to eliminate or minimize these hazards on behalf of his/her company. It would be beneficial if the competent person has safety training that would support these responsibilities, but the standard does not explicitly require this.

18. *Any indication of if the EPA will eventually treat crystalline silica waste as hazardous, like asbestos waste is treated? (Submitted by Millie Tran, SDSU)*
    The new OSHA standard for Crystalline Silica does not address the management of this substance under the RCRA regulations. Most states would likely consider this normal construction debris. However, because hazardous waste rules and compliance varies significantly from state to state, consult with your local, state, and federal requirements and your designated hazardous waste contractor for specific guidance.

19. *If an employer will not hit the action limit (using portland cement for occasional post setting) is there something that they could have on file that proves this task done rarely will not cause them to hit the action limit? (Submitted by Steven Glazier, Woodruff Sawyer)*
    Yes. Representative air sampling data or other objective data (reference the earlier question on objective data).