OSHA's New Proposed Crystalline Silica Rule

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Based on extensive risk assessments and scientific research, exposure to respirable crystalline silica has been associated with multiple health conditions including, but not limited to, silicosis – a fibrosis of the lung, lung cancer, chronic obstructive pulmonary disease (COPD), and kidney and immune system disease. It is estimated that approximately 2.2 million workers in the United States employed in the fields of aggregate mining, construction, concrete and brick manufacturing, foundry work, hydraulic fracturing (fracking) and sandblasting are exposed to respirable crystalline silica.

OSHA's Notice of Proposed Rulemaking (NPRM) for Occupational Exposure to Respirable Crystalline Silica was announced on August 23, 2012 and published in the Federal Register on September 12, 2013 (https://federalregister.gov/a/2013-20997). OSHA public hearings are scheduled to begin on March 18, 2014 in Washington, D.C. Members of the public can also testify or question witnesses during the hearings and a post-hearing comment period is also planned after the written comments and public hearing.

The Mine Safety and Health Administration (MSHA) also has the respirable crystalline silica standard on its regulatory agenda and has indicated that they would use OSHA's risk assessment as reference. MSHA is likely to adopt a similar standard applicable to mines once OSHA has completed its rulemaking. OSHA is proposing two standards - one for construction, and the other for general industry and maritime. As part of the rulemaking process, OSHA reviewed current industry standards on crystalline silica exposure and recommendations from interested parties, and evaluated the health effects and risk assessment associated with occupational exposure to crystalline silica. OSHA concluded that the current rule does not adequately protect the workers.

The factors that prompted OSHA to establish a new Permissible Exposure Limit (PEL) for respirable crystalline silica other than increasing the protection of workers and the general public from its hazards include the following:

- The current OSHA PEL is a formula that many find difficult to comprehend;
- Construction/shipyard PELs are based on obsolete particle count limits; and,
- Inconsistencies between the PELs for the general industry (approximately equal to 0.1 mg/m^3) and construction/shipyards industry (equivalent to 0.25 mg/m^3).

The rule proposes the following occupational exposure limits (OELs):

- PEL of 0.05 mg/m^3 for an 8-hour work shift; and,
- Action Level (AL) of 0.025 mg/m^3 for an 8-hour work shift

The proposed rule provides provisions on related activities such as exposure assessment, implementation of engineering controls; employee notifications, medical surveillance, training

and recordkeeping. The NPRM includes specific details on how to address each the following aspects which may impact your operations:

- Exposure assessments – fixed or performance based;
- Establishing a competent person;
- Access control plans based on employee exposure results;
- The work areas, job classes and shifts to be included in the various programs;
- Medical surveillance - Baseline exam and periodic exams every 3 years;
- Training (performance based to include hazard communication specific to silica); and,
- Recordkeeping requirements.

OSHA highlights that engineering controls should be the primary means of mitigating employee exposure to respirable crystalline silica. There is flexibility in the methods or work practices employers can use to control dust such as water sprays, enclosures, and vacuum dust collection systems. Modification of work practices can be used as secondary controls. The new rule also allows for use of respirators only when dust suppression or work practice controls cannot reduce exposures to the proposed PEL or as a temporary measure while dust controls are being installed. Job rotation is prohibited as a means of exposure control.

Based on the NPRM, OSHA now specifies the sampling and analysis methods and the laboratory qualifications required to sample for respirable crystalline silica to ensure the reliability of the data obtained, and hence states that silica exposure can be accurately measured at the proposed levels.

The Industrial Minerals Association – North America (IMA-NA) endorses a PEL of 100 $\mu g/m^3$ (equivalent to 0.1 mg/m^3) for all forms of crystalline silica (quartz, cristobalite, tridymite), arguing that silicosis has been proven preventable if proper precautionary measures are taken to maintain exposures consistently below the PEL. IMA-NA also argues that measurements below the current PEL are not considered accurate with the existing analytical techniques, and lowering the PEL will have "catastrophic" economic impacts in many industries, estimated at $5.45 billion per year. IMA-NA believes that air monitoring, record keeping, medical surveillance and preventive measures are complementary factors that will ensure the current PEL to be protective.

The National Industrial Sand Association (NISA), a Washington-based group of silica and sand producers supports a comprehensive new crystalline silica rule that would include exposure monitoring and medical surveillance requirements, but the group does not support lowering the PEL below 100 $\mu g/m^3$ or 0.1 mg/m^3. NISA argues that its own health program is more stringent that OSHA's proposal in some respects. For instance, NISA would require x-rays for potentially exposed workers every two or three years, whereas OSHA would issue the same requirement only for exposures above the PEL for 30 or more days. NISA also argues that enforcing the current PEL through monitoring is more important than lowering the PEL, because there are employers who are not complying with the 100 $\mu g/m^3$ PEL. In NISA's view, this is a "middle of the road, practical, pragmatic solution."

The American Chemistry Council's (ACC) Crystalline Silica Panel, a panel with trade associations and individual companies that produce or use silica and silica-containing products or that perform operations (such as construction activity and mining) on natural materials that contain crystalline

silica, as members submitted their comments to OSHA in February 2014. They concluded with scientific certainty that the current OSHA PEL for general industry is appropriate to protect against silica-related disease and that OSHA has not established with reliable scientific evidence that reducing the PEL to 50 μg/m^3 would cause any change in mortality or morbidity in silica-exposed workers. The ACC also commented that OSHA has not established that it would be technologically and economically feasible to achieve and maintain compliance with the proposed PEL. The panel has also raised concerns about reliably measuring respirable crystalline silica concentrations at the PEL or lower

OSHA has acknowledged the concerns some small businesses have voiced over the new rule, and responded by proposing a series of measures that reduce employer burdens on determining employee exposures and what type of controls are needed, if employers follow those measures. Some changes introduced to the proposed rule based on small business input include the removal of specific hygiene provisions (such as change rooms, shower facilities and lunchrooms); the prohibition of compressed air, brushing and dry sweeping **only when the PEL can be exceeded**; and limiting the use of respirator for tasks performed for less than four hours a day.