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OSHA's Crystalline Silica Standard

"New Solution to a Very Old Problem"

By T.A. Rowland III, CIH

Old Problem

It was March of 1930. Mohandas Gandhi was in the midst of his Salt March to the Arabian Sea, the industrialized world was about to experience the lowest point of the Great Depression, and ground was being broken in West Virginia on construction of a diversion channel known as the Hawk's Nest Tunnel. The tunnel was to be a critical component of a hydroelectric plant, but before the three-mile tunnel through Gauley Mountain was completed, at least 109 and perhaps as many as 764 laborers died from acute silicosis. Eight decades later, the Hawk's Nest Tunnel incident is still recognized as one of the worst occupational disasters in modern history.

In 1936, a congressional subcommittee published its findings regarding the Hawk's Nest incident. While the report included a strong indictment of the builders of the tunnel, no further actions were undertaken. Fortunately, publicity regarding the incident did shape opinions, and by the close of 1937, all but two of the then 48 states had enacted laws benefiting workers with silicosis. While these measures constituted steps in the right direction, they were not preventative in nature. Such critical employer requirements would not be enacted for another 80 years.

New Solution

In 1997, the World Health Organization's International Agency for Research on Cancer (IARC) classified Crystalline Silica dust as a human carcinogen (Group 1). Ultimately, this act placed the IARC in agreement with the U.S. National Toxicology Program and the National Institute for Occupational Safety and Health that occupational exposure to silica increases one's odds of developing lung cancer. This meant that silica was a human carcinogen, that was present at countless workplaces, and whose exposure limit had not been re-evaluated in nearly half a century. It was finally time for significant regulatory change.

In March of 2016, the Occupational Safety and Health Administration (OSHA) issued a final rule to control exposure to respirable crystalline silica. The silica rule is comprised of two separate standards. The first (29 CFR 1926.1153) is known as the Silica Construction Standard, and it applies to work within the construction industry including construction, demolition, alterations, repair, bridge erection, roadwork, excavations, large-scale painting projects, etc. The second (29 CFR 1910.1053) is known as the General Industry & Maritime Standard, and it applies to work within the manufacturing (static in nature) and shipyard industries. The table below provides a summary of the nature and requirements of the rule.

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Crystalline Silica Rule: Quick Reference Table		
	Construction Standard 29 CFR 1926.1153	General Industry & Maritime Standard 29 CFR 1910.1053
When Does Exposure Typically Occur?	During common construction tasks such as using masonry saws, grinders, drills, jackhammers, and handheld powered chipping tools; operating vehicle-mounted drilling rigs; milling; operating crushing machines; and using heavy equipment for demolition or certain other tasks.	During the manufacture of glass, pottery, ceramic, brick, concrete, asphalt roofing, jewelry, artificial stone, dental, porcelain, or structural clay products; While using industrial sand in operations such as foundry work and hydraulic fracturing; While using sand for abrasive blasting (e.g. maritime operations).
What Does the Standard Require Employers to Do?	1. **Limit worker exposures** to respirable crystalline silica and to take other steps to protect workers; 2. **Either** employ a control method prescribed within the standard **or** measure workers' exposure and choose those dust control measures that will limit exposures to the PEL; 3. Establish and implement a **written exposure control plan**; 4. **Designate a competent person** to implement the written exposure control plan; 5. Restrict **housekeeping** practices that expose workers to silica where feasible alternatives are available; 6. Offer **medical exams**—including chest X-rays and lung function tests—every three years for workers who are required by the standard to wear a respirator for 30 or more days per year; 7. **Train workers** regarding work operations that result in silica exposure and ways to limit exposure; 8. **Keep records** of workers' silica exposure and medical exams.	1. **Determine the concentration** of silica to which workers are exposed, if the concentration may reasonably be expected to reach the **Action Level (AL)**; 2. Protect workers from exposures above the **Permissible Exposure Limit (PEL)**; 3. Establish and implement a **written exposure control plan;** 4. **Limit access** to areas where workers could be exposed above the PEL; 5. Use **dust controls and safer work methods** to protect workers for exposures above the **PEL;** 6. **Provide respirators** to workers when dust controls and safer work methods cannot limit exposures to the PEL**;** 7. **Restrict housekeeping practices** that might lead to exposure; 8. Offer **medical exams** every three years to workers exposed at or above the AL for 30 days or more per year; 9. **Train workers** regarding adverse health effects from exposure, work operations that result in silica exposure, and ways to limit exposure; 10. **Keep records** of workers' silica exposure and medical exams.
When Did the Requirements Go into Effect?	Construction employers must comply with all requirements of the standard by June 23, 2017, except requirements for laboratory evaluation of exposure samples, which begin on June 23, 2018.	General industry and maritime employers must comply with all requirements of the standard by June 23, 2018, with limited exceptions.
Action Level (AL) = 25 µg/m^3 as an 8 hour time weighted average.		
Permissible Exposure Limit (PEL) = 50 µg/m^3 as an 8 hour time weighted average.		

OSHA estimates that 2,300,000 workers in the United States are routinely exposed to respirable crystalline silica, the vast majority of which are in the construction industry. Of these, OSHA estimates that over 640,000 are being exposed to concentrations that exceed the PEL. When compared to other regulated hazardous substances, crystalline silica has an alarming percent of positive exposure assessments.

What EHS Consultants and Attorneys Should Be Doing to Protect Workers and Assist Employers with Compliance

Before and since OSHA's Silica Standard went into effect, proactive EHS professionals have been providing the requisite services to ensure that workers are protected, and employers are prepared for the challenges of compliance. Such critical initiatives might include the following services:

1. Training for personnel involved in Silica work, including instruction regarding the OSHA Standard and Respiratory Fit Testing;
2. Development of client-specific Written Exposure Control Plans, including assistance with implementation of the plan;
3. Collection of personal air samples to Determine the Concentration of Silica to which personnel may be exposed;
4. General client consultations regarding:
    a. Compliance with the Silica Standards,
    b. Proper Control Methods,
    c. Designation of a Competent Person,
    d. Personal Protective Equipment,
    e. Interpretation of Sampling Data,
    f. Proper Housekeeping Practices,
    g. Medical Surveillance Programs,
    h. Recordkeeping Requirements.

ANDY ROWLAND, CIH
PRINCIPAL AT IMPRIMIS FORENSIC HEALTH & SAFETY

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