Respirable Crystalline Silica: What's Next with MSHA & OSHA

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Presented By

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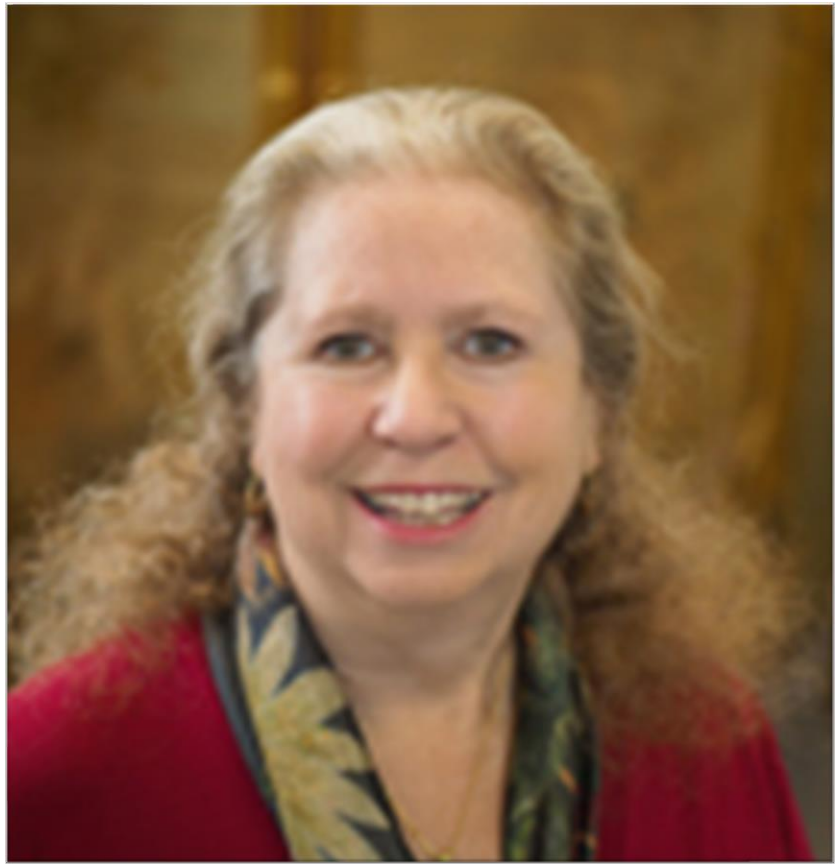


Overview: MSHA Rulemaking

- MSHA's NPRM for Respirable Crystalline Silica: "**Lowering Miners' Exposure to Respirable Crystalline Silica and Improving Respiratory Protection"**
  - Proposal in 7/13/23 *Fed. Reg*. - comments closed 9/11/23 (15 day extension was granted and several public hearings were conducted for ANPRM and NPRM)
  - Rule is at OIRA now for final review & stakeholder meetings (NSSGA, EMA, AFL-CIO, ATS etc)
  - Would take effect 4 months after publication (proposed)
- MSHA currently does not credit PPE and proposal says respirators are ONLY FOR TEMPORARY USE while engineering controls being developed or implemented, and where necessary by nature of work involved (must be 100 series or greater – no more N95)
  - Mine operator must have respiratory protection program that complies with ASTM F3387-19
  - If miner is unable to wear respirator, would receive compensation at regular rate of pay or can be transferred back to regular work once respirators no longer required
  - Will potentially generate confusion for contractors accustomed to following the OSHA construction/general industry silica rules and using Table 1 for 18 enumerated tasks/equip
  - MSHA indicates it plans to issue same rule for coal and MNM mines

MSHA: Current Respirable Crystalline Silica Rule

- MSHA's metal and nonmetal mine standards are based on the 1973 American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values formula: 10 mg/m^3 divided by the percentage of silica plus 2.
  - MSHA's existing coal mine standards evaluate miners' exposure to quartz in relation to the respirable dust standard. When respirable coal mine dust samples are analyzed for quartz and exceed 0.1 mg/m^3 (100 micrograms per cubic meter of air or µg/m^3), the Agency reduces the applicable respirable dust standard for sections of the mine represented by the sample data.
- RCS is a "Group 1" human carcinogen
- Workers exposed to quartz in respirable dust can develop variety of lung and autoimmune diseases as well as cancer!
  - These diseases are irreversible and may ultimately be fatal.
  - ➢ 30% of coal workers with pneumoconiosis reported considering suicide in 2021 study

IG Report on MSHA & Silica

Inspector General issued a report in 12/20, calling MSHA's current silica exposure limit is out of date

- IG notes: "When adopting 50 µg/m³ limits, both OSHA and NIOSH warned that 50 µg/m³ is the **lowest** **feasible** limit, **not the safest**"
  - ***OSHA says (after evaluating the best available evidence) that it was uncertain if there was any limit that would result in zero harm to workers, but such a limit would likely be lower than 50 µg/m³***
- IG states: "a significant body of evidence shows that lowering the silica limit would be a major factor in preventing coal workers' deaths and illnesses caused by silica exposure."
- IG recommends that MSHA adopt a lower legal exposure limit for silica in ***coal mines*** based on recent scientific evidence.
- IG states that respirable crystalline silica may be responsible for the recent increase in black lung disease among coal miners
  - More than three times as many coal miners were found to have black lung disease during 2010–2014 compared to 1995–1999

MSHA Rulemaking Issues

- MSHA 2019 RFI stated: ***"Many miners are exposed to respirable crystalline silica (RCS) in respirable dust. These miners can develop lung diseases such as chronic obstructive pulmonary disease, and various forms of pneumoconiosis, such as silicosis, progressive massive fibrosis, and rapidly progressive pneumoconiosis. These diseases are irreversible and may ultimately be fatal."***
- Key MSHA issues under consideration:
  - Whether to adopt a "Table 1" approach for common high exposure tasks or require individualized periodic sampling
  - Medical removal (if OSHA adopts provisions)
  - Whether to allow the use of respiratory protection or require exposure to be limited solely through engineering/work practice/ administrative controls (Mine Act issues) – use of worker rotation controversial because human carcinogen
  - Whether to issue overexposure citations based solely on operator's own sampling results (current document/data requests underway)
  - Whether to require medical surveillance (what trigger), medical removal for workers with Chest X-rays of 1/0 or worse by an ILO certified B-Reader

Proposed Rule: Exposure Monitoring

- Section 60.12: Proposes to require both monitoring via sampling (quantitative) and periodic evalution of process and control measures (qualitative)
- Mine operator would perform baseline monitoring within 180 days of effective date for each miner who is or may reasonably be expected to have RCS exposure (all workers in extraction and processing)
    - Can use representative sampling (same task, shift, work area)
- If baseline is below 25 ug/m3, this must be verified by operator using MSHA/operator sampling data within past 12 months, another sample taken within 3 months, or objective data
- If baseline or later data are between AL (25 ug/m3) and PEL (50 ug/m3), must conduct further monitoring within 3 mo of prior sample, and continue until two consecutive samples below AL
- If samples exceed PEL (50 ug/m3), operator must implement corrective actions and sample until below PEL – then continue periodic sampling
    - Where samples are above PEL, miners must wear respirators properly for full shift or during period of overexposures until exposures are at or below the PEL
    - Operators must immediately take corrective actions to lower RCS below PEL – then conduct sampling and take additional correction actions until samples are below PEL

Exposure Monitoring and Evaluation

- Operators must conduct semi-annual evaluations to determine if any changes in production, processing, eng/admin controls or other factors result in new or increased RCS exposures
- Operators must make a record of the evaluation and date, post on mine board for next 31 days, and repeat at least every 6 months (begins 1 yr after effective date of rule)
- If evaluation indicates miners may be exposed to RCS above the AL (25 ug/m3), mine operator must conduct sampling for each miner who is or may be exposed above the AL
- All samples are for 8 hr TWA, must be in miner's breathing zone, use ISO approved sampling equipment (ISO 7708:1995) and use ISO/IEC 17025 accredited laboratories for analysis, and proper MSHA/NIOSH/OSHA methods
- Sampling records must include: date, sampled occupation, results for RCS and respirable dust exposure level and records must be posted for 31 days (electronically, physically or both)

Compliance & Corrective Actions (60.11)

Mine Operators are required to install, use, and maintain feasible engineering and administrative controls

- Engineering controls (primary) > administrative controls (supplementary)
- § 60.11 (a) Engineering controls can include:
  - Ventilation systems
  - Dust suppression devices
  - Enclosed cabs or control booths with filtered air
  - Changes in material handling, equipment used in a process, ventilation, and dust capture
- § 60.11 (b) Administrative Controls can include: Housekeeping, Proper work positions of miners, Cleaning spills, Prevent/minimize contamination of clothes
  - Rotation of miners prohibited as an administrative control

Medical Surveillance: 30 CFR 60.15

- MNM operators would have to provide each miner with periodic medical exams that include: medical and work history, Physical exam (focused on respiratory health), Chest X-ray, pulmonary function test
- Medical exam is voluntary for miners but must be offered every 5 yrs
- Each NEW miner must receive medical exam within 30 days of employment, follow up within 3 years, and follow up with specialist within 2 years if evidence of decreased lung function
- PLHCP will provide a written medical opinion to the mine operator within 30 days of exam, but will report only:
  - Date of medical examination
  - Statement that the exam meets the provisions of the standard, and
  - Any recommendations or limitations on miner's use of respirator

Recordkeeping Provisions

Proposed rule would require the following records be maintained, and made available to miner, miners' rep, and MSHA authorized rep upon request (30 CFR 60.16(b)):

- Evaluation records (60.12) – maintain for 2+ years from date of eval
- Sampling records (60.12) – maintain for 2+ years from sampling date
- Corrective action records (60.13) – maintain for 2+ years from date of each corrective action
- Written determination records from PLHCP (60.14) – maintain for duration of miner's employment plus 6 months
- Written medical opinion records from PLHCP (60.15) – maintain for duration of miner's employment plus 6 months

2022 MSHA Silica Enforcement Initiative

- On 6/10/22, MSHA launched a silica enforcement program, targeting mines with histories of overexposures or MSHA citations for silica violations – initiative targets sand plants in particular **and** holds supervisors responsible personally under Sec 110C (up to $85K fine)
  - Using both historical MSHA samples AND internal sampling showing overexposures for enforcement (internal used to show knowledge – pattern or practice – of overexposures
  - All MSHA sampling data is publicly viewable – potential for tort litigation and class actions in the future
  - Contractors working at mines may be sampled and are considered "miners" and "mine operators"
- Section 104(b) withdrawal orders will be issued if silica citations are not timely abated – MSHA is very directive in terms of engineering controls they will accept
- Worker rotation may be issue in MSHA rulemaking b/c of silica's classification as a Group 1 Human Carcinogen
- MSHA is demanding historical sampling data, occupational health program info, medical surveillance, worker chest X-rays, worker's comp files on silica-related illness, and current/former workers' contact info – has 5-year statute of limitations
  - ➢ MSHA has right to worker health records and worker's comp info because it is a public health agency and is exempt from HIPAA

MSHA Silica Enforcement Emphasis Program

Initiative has four components: (1) inspections, (2) sampling, (3) compliance assistance, and (4) miners' rights.

Inspections

- MSHA will conduct spot inspections for silica at coal and MNM mines in accordance with section 103(i) of the Mine Act.
- At mines with repeated overexposures to silica, mines may be inspected every 15-days at irregular intervals.
- Where there are overexposures above 100 micrograms per cubic meter (existing PEL):
  - For MNM mines, abatement within a period of time.
    - For overexposures not abated, MSHA will issue a 104(b) withdrawal order.
  - For coal mines, MSHA will encourage mine operators to change the dust control and mine ventilation plans and review plans/exposures after changes are made.
- MSHA will take additional dust samples for miners who are overexposed
- MSHA District Managers will review approved plans (underground mines) to determine if the plans are appropriate when MSHA's samples indicate silica overexposures

MSHA Silica Enforcement Program

Sampling

- MSHA will collect respirable dust samples from occupations known to have a high-risk of exposures to silica. This will include:
  - MNM miners involved in overburden removal.
  - Coal miners involved in the construction of a shaft or slope.

Compliance Assistance

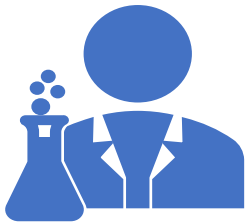
- MSHA will work with stakeholders including mine operators, industry, and labor.
- MSHA will share additional information through stakeholder calls and to MSHA grantees.
- All information will be posted on the Agency's website.
- MSHA will distribute materials related to this initiative and provide compliance assistance through Educational Field and Small Mine Services staff.

Miners' Voice

- MSHA will reinvigorate efforts to educate miners about their rights to make hazardous condition complaints and their protections against retaliation and discrimination.
- MSHA will ensure that miners are aware of their right to:
  - Accompany an MSHA inspector, obtain an immediate MSHA inspection if they believe safety or health hazards exists, identify hazardous conditions, and refuse unsafe work without fear of retaliation and discrimination
  - Compliance assistance materials will be provided through the Educational Field and Small Mine Services staff and www.msha.gov

MSHA Emphasis Areas & Best Practices

Most exposed miners work as: stone cutters, crusher operators, and baggers (MNM) and machine operators, highwall drill operators and roof bolter operators (coal)



MSHA recommended best practices for silica control:

Coal

- **Water spray systems at the cutting drum or boom**
- **Increased face ventilation**
- **Enclosed cab filtration systems**
- **Equipment maintenance and cab cleaning**

Metal/Nonmetal:

- **Wet cutting where possible**
- **Local Exhaust Ventilation (LEV) systems at workstations or dusty areas**
- **Implementation of properly designed wet spray systems**

Industry Recommendations

- Have separate rules for coal and for Metal/Nonmetal
- Allow MNM to get credit for use of PPE
- Adopt a Table 1 analogous to OSHA rule
- Streamline sampling and eliminate the four proposed types
- Only require medical surveillance where worker has 30+ days of occupational RCS exposure (similar to OSHA construction rule)
- Extend enforcement dates

MSHA Rulemaking Conclusion

- MSHA rulemaking is likely to mirror OSHA requirements but Table 1 will NOT be an option if PPE & worker rotation not among control options
- MSHA enforcement will subject operators to greater IH scrutiny due to 2/4 mandatory inspections and strict liability (enforcement on single sample)
  - MSHA will continue compiling data where available to help build rulemaking record (enforcement for data provision through Sec. 103(a) & Sec. 108(a)(1)(E)
  - Continued use of employer's historical sampling data for enforcement "pattern or practice" findings (104D/OSHA willful) makes mitigation documentation critical
  - MSHA defines reportable silicosis as a 1/0 or worse Chest X-ray by B reader (even without symptoms) -- are mine operators and contractors accurately reporting?
  - Will workers with "long COVID" be at greater risk of silica-related illness or need PAPRs due to compromised lungs?
  - How will medical removal provisions impact worker's comp?
  - ***BE PROACTIVE AT MIXED OPERATIONS … DON'T WAIT for MSHA to regulate!***

OSHA RCS Regulatory Status

- 50 ug/m3 PEL now in full effect, along with medical surveillance and sampling requirements
- Construction can utilize “Table One” and future plans for expansion
- OSHA Respirable Crystalline Silica rule scheduled to be REOPENED in January 2024, (NPRM) to address medical removal
  - US Ct of Appeals ordered OSHA to reconsider the removal of this provision from the final rule in 2017 – MSHA likely to follow OSHA’s lead on this (or vice versa) depending upon which agency moves first!
  - Impact on Worker’s Compensation, ADA and determination of what constitutes a “removable” condition

OSHA's Silica NEP

- On 2/4/20, OSHA launched new NEP for silica (CPL 03-00-0023) across all industries – 2% of ALL OSHA inspections must target RCS
  - https://www.osha.gov/sites/default/files/enforcement/directives/CPL_03-00-023.pdf - state plan participation is mandatory
  - Area offices conducted 3 months of outreach before NEP enforcement begins
- *General Industry*: NEP contains updated NAICS list –sectors with the largest numbers of workers performing tasks with RCS overexposures
- *Construction*: Will use OSHA Construction Inspection Targeting Application (C-target), CSHOs' observations of area construction sites (i.e., knowledge gathered by CSHO "drive-bys"), and local knowledge (e.g., lists of projects from the local DOT)
  - See also CPL 02-00-155, Inspection Scheduling for Construction.
  - Appendix A also lists construction operations likely to have RCS exposures, provided as an aid for compliance officers
  - ➢ If worksite is also selected for inspection under SST initiative – inspections will be conducted concurrently (expands scope)

Revised RCS Inspection Procedures

- OSHA issued new enforcement CPL 6/25/2020 - references FAQs extensively
  - GI employers' requirement to offer medical surveillance is now triggered by exposure above 25 ug/m3 AL for 30+ days/yr rather than the PEL, effective 6/23/2020
  - Requirement for hydraulic fracking operations to implement engineering and work practice controls becomes enforceable on 6/23/2021
  - OSHA stresses that CSHOs should question employees in detail including work tasks that may generate RCS, knowledge of Exposure Control Plans, training received, knowledge of respirator use, etc. If CSHO receives inadequate responses, employer will be cited for training violations
  - OSHA confirms permissible use of operator rotation as administrative control
  - Employers must have processes in place for the retention of records for medical surveillance opinions and exposure assessments
  - OSHA notes that citations related to overexposures will generally be cited as Serious (can also be willful or repeat, or egregious)
- https://www.osha.gov/sites/default/files/enforcement/directives/CPL_02-02-080.pdf

Enforcement Highlights

- CSHOs are expected to:
  - Collect breathing zone samples on 1st day of inspection,
  - Review written exposure control plan, respiratory protection and HazCom programs,
  - Review ER's own air monitoring records (if any), and
  - Interview affected employees and the competent person to assess implementation of WECP

➢Employers must use engineering and work practice controls to reduce & maintain exposures below the PEL unless ER can demonstrate not feasible … only then can supplement with respiratory protection or use worker rotation.

Employee Training: Legal Pitfalls

- Employer's Written Exposure Control Plan
  - Specific tasks in workplace that could result in exposures
  - Specific measures implemented to reduce/eliminate exposure, including engineering and work practice controls, and any respiratory protection
- OSHA's HAZCOM Standard *(29 CFR 1910.1200)*
  - Hazards of RCS containing products, access to labels and SDS's
- Employees must also be trained on:
  - Contents of OSHA rule
  - Tool/Equipment operation & maintenance in accordance with manufacturer's instructions to minimize dust emissions.
  - Health hazards associated with exposure to RCS
  - If necessary, medical surveillance program elements

OSHA's New RCS Initiative: Stone Product Mfg

- 9/25/23 OSHA launched new initiative for Regions 1 through 8, focusing on enhanced enforcement and compliance assistance to protect workers in the engineered stone fabrication and installation industries – state plans MUST adopt!
  - Targets two sectors: NAICS 327991 (cut stone and stone product manufacturing) and 423320 (brick, stone and related construction material merchant wholesalers)
  - Each area office must do at least 5 inspections under this initiative in next year
- Initiative supplements the current OSHA NEP for RCS (CPL 03-00-023, 2/4/2020) and inspections will count toward the agency goal of 2% of inspections being silica-related
- NIOSH/CDC data showing accelerated silicosis cases among stone fabrication workers – including two fatalities, auto immune and latent TB cases – OSHA also references the JAMA 2023 study with advanced silicosis
- Nearly 9,000 employers and 100,000 employees are within the scope of the new enforcement program
- Highest silica levels associated with manufactured countertops, where silica is mixed with resins, adhesives and pigments and products have up to 93% silica (versus < 50% in most natural stone) and the components can also increase risk of occupational asthma
- Tasks at highest risk include cutting, grinding, polishing, QC, maintenance and housekeeping

Targeted Activities Under Stone Product Initiative

- Manufacturing and/or finished engineered OR manufactured stone products at the facility, including the following activities:
  - Cutting, grinding, chipping, sanding, drilling and polishing engineered or manufactured stone products
  - Opening bags of ground quartz, moving or mixing bulk raw materials, cleaning and scraping mixers, or cleaning dust collector bag houses
  - Changing filters on dust collectors
  - Making the engineered or cultured slabs – involving mixing crystalline silica, resins and pigments
  - Operating powered hand tools such as saws, grinders and high speed polishers
  - Casting department that mixes and heats raw materials, including silica sand (which comprises more than 70 percent of each countertop by weight), epoxy resin, PA (a respiratory sensitizer) and pigments
- Finishing and/or installing engineered or manufactured stone products off-site

Verification of Dust Control Measures

- OSHA will verify dust controls and safer work methods used by employers to protect workers exposed above the PEL – looking for use of the following controls:
  - Water spraying systems and remote-controlled tools at site where dust is generated
  - Large bridge or gantry saws using water sprays that can be remote-controlled
  - Hand-held angle grinders modified to deliver water to point of contact
  - Wet-edge milling machines or stone routers to replace dry grinders in shops
  - Use of hand tools with shrouds or vacuum systems
  - Local exhaust ventilation
  - Wet sweeping or HEPA-filtered vacuums rather than dry sweeping or compressed ai
  - Replacement of water and dust filters according to manufacturer recommendations
  - Pre-washing stone slabs before cutting
  - Good housekeeping for water slurry and settled dust

Applicable OSHA Standards Under Initiative

- Respirable silica rules (29 CFR 1910.1053 and 1926.1153)
- Ventilation (1910.94 and 1926.57)
- Noise (1910.95)
- PPE (1910.132)
- Respiratory Protection (1910.134)
- Access to Medical Records and Employee Exposure (1910.1020)
- Hazard Communication (1910.1200)
- Recordkeeping of Injuries/Illnesses (Part 1904)

Questions???

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