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OSHA's Crystalline Silica Standard: Challenges & Solutions

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Overview

- Final OSHA rule: March 25, 2016 Fed Reg 606 pp long!
 - 30 pp of actual reg text - rest is preamble/explanation
 - Draft enforcement guidance 9/27/16 was 100+ pages long
 - Revised Interim guidance issued 10/19/17 is under 10 pp:
https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=INTERPRETATIONS&p_id=31349
 - 8/18 FAQ interpretative guidance (53 FAQ):
https://www.osha.gov/dsg/topics/silicacrystalline/additional_info_silica.html



Litigation Outcome: Rule Upheld!

- Industry challenged rule on 5 grounds: Court found OSHA provided “substantial evidence” that the rule:
 - 1) would reduce a “significant risk of material impairment or harm”;
 - 2) is technologically feasible for the foundry, hydraulic fracturing, and construction industries;
 - 3) is economically feasible for the foundry, hydraulic fracturing, and construction industries;
 - 4) OSHA can prohibit housekeeping methods that cause silica exposure, such as dry sweeping or using compressed air; and
 - 5) OSHA complied with the Administrative Procedure Act
- Court panel (led by M. Garland) rejected all, and remanded rule, at Union request, for consideration of “medical removal” provision



Rulemaking History

- **OSHA** launched emphasis programs dating back to 1997 IARC classification; current NEP required 2% of all OSHA inspections to be silica related
- **OSHA's** revised PEL (50 ug/m³) is consistent with NIOSH REL; action level (25 ug/m³) is consistent with ACGIH TLV.
- **MSHA** has had an analogous silica rule on its agenda for years – planned to use same health risk assessment
 - ***Current MSHA PEL is a formula, equivalent to 100 ug/m³ – twice new OSHA PEL***
- ❑ **MSHA** proposed rule is now “long term action”
 - MSHA chief said: “What works for OSHA doesn’t necessarily work for mining” at 2018 Congressional hearing
 - Meanwhile, silica is thought to be contributor to spike in black lung cases among younger miners in Appalachia



Health Findings in OSHA Rule

- Over 600 deaths/yr and 900 new silicosis cases prevented by rule
- Crystalline Silica categorized as respiratory toxin that causes silicosis, COPD and lung cancer
 - Three types of silicosis: Chronic (15-20+ yrs), Accelerated (5-10 yrs), and Acute (months-2 yrs)
- OSHA also links occupational silica exposure with kidney disease and auto-immune disorders
- Rule states more than 50 peer-reviewed studies were evaluated and found links between silica exposure and lung cancer in at least 10 industries
 - Worker's comp cases already being filed by current & retired workers based on “findings” in OSHA final rule – in both OSHA and MSHA-regulated sectors!



Where do we find silica?

- Crystalline silica is present as an ingredient in the following:
 - brick and mortar,
 - concrete,
 - slate,
 - dimensional stone (granite, sandstone),
 - engineered stone products (countertops etc.)
 - stone aggregate,
 - tile,
 - asphalt filler,
 - roofing granules,
 - plastic composites,
 - soil, and
 - wallboard joint compounds, paint, plaster, caulking and putty.



OSHA's Economic Analysis

- Total Annualized Costs: \$1.030 billion including:
 - Engineering controls: \$661.5 million
 - Respirators: \$32.9 million
 - Exposure assessment: \$96.2 million
 - Medical Surveillance: \$96.4 million
 - Familiarization & Training: \$95.9 million
 - Regulated Area: \$2.6 million
 - Written Exposure Control Plan: \$44.3 million
- Annualized benefits monetized: \$8.687 billion
 - Costs of prevented fatal lung cancers, silicosis and other respiratory diseases, renal disease and other silica-related mortality



Net benefits: \$7.657 billion

OSHA's 2016 GI/Maritime Rule

- Includes provisions for:
 - Measuring worker exposures to silica if at or above 25 ug/ m^3 action level and workers get notification of results within 15 working days;
 - Using engineering controls (e.g., water, ventilation) and work practices to limit exposures from exceeding 50 ug/ m^3 over 8 hr time-weighted average workday;
 - Limiting access to areas where workers could be exposed above the PEL;
 - Using respirators when necessary after implementing engineering and administrative controls;
 - Restricting housekeeping practices that expose workers to silica if feasible alternatives are available;
 - Medical exams for highly exposed workers;
 - Worker training on work ops that result in exposure and ways to limit exposure; and
 - Recordkeeping of workers' silica exposure and medical exams.



Exposure Monitoring

Silica Exposure Monitoring Results	Required Action
< Action Level 25 $\mu\text{g}/\text{m}^3$ (initial sampling)	No Additional Monitoring
\geq Action Level 25 $\mu\text{g}/\text{m}^3$ but < PEL 50 $\mu\text{g}/\text{m}^3$	Monitor again \leq 6 months
\geq PEL 50 $\mu\text{g}/\text{m}^3$	Monitor again \leq 3 months

- Next steps are determined by monitoring results
- Goal is to use all feasible controls to reduce exposure < PEL of 50 $\mu\text{g}/\text{m}^3$, or better yet < AL of 25 $\mu\text{g}/\text{m}^3$



Performance Option

aka “Air Monitoring” or “Objective Data”

- The employer shall assess the 8-hour TWA exposure for each employee on the basis of any combination of air monitoring data or objective data sufficient to accurately characterize employee exposures to respirable crystalline silica. Burden is on employer.
- **“Air Monitoring Data”** is not well-defined, but could include historical data provided tasks are the same. Employer has flexibility.
- **“Objective Data”** could include industry-wide surveys, NIOSH surveys, OSHA data, use of direct read instruments or other methodologies. 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.



Medical Surveillance

- ER must make medical surveillance available at no cost to EE for each worker exposed to respirable CS at or above AL for 30+ days/yr (GI/Maritime) or must wear a respirator for 30+ days/yr (construction)
- All exams and procedures must be performed by PLHCP – after initial, exam must be repeated every 3 years or more often if recommended Baseline exam includes:
 - past, present and anticipated exposure to RCS, dusts, and other agents affecting respiratory system,
 - history of resp system dysfunction and TB,
 - smoking status and history,
 - physical exam,
 - chest X-ray –
 - NOTE: MSHA views 1/0 X-rays as a “diagnosis of silicosis” reportable under Part 50 – same analysis for OSHA reporting?
 - pulmonary function test,
 - testing for latent TB infection,
 - any other tests determined appropriate by PLHCP.



Employee Training

- Each covered employee must be trained, under OSHA's Haz Com Standard (29 CFR 1910.1200) on hazard of RCS containing products and have access to labels and SDSs
 - Enforcement guide says MUST include silica in HazCom program, provide access to labels and SDSs.
- Workers must also be trained on:
 - Health hazards associated with exposure to RCS
 - Specific tasks in workplace that could result in exposures
 - Specific measures ER has implemented to protect EE from exposure, including engineering and WPC, and respirators to be used
 - Contents of OSHA rule
 - Purpose and description of medical surveillance program



Written Exposure Control Plan

- Plan must include following elements:
 - Description of tasks involving exposure to respirable crystalline silica
 - Description of engineering controls, work practices, and respiratory protection used to limit worker exposure for each task – engineering and WPC must be used unless employer demonstrates not feasible.
 - Description of housekeeping measures used to limit employee exposure – dry sweeping, dry brushing, and use of compressed air not allowed (unless compressed air is part of ventilation system that captures dust cloud)
- ER must review and evaluate effectiveness of written plan at least annually and update as necessary
- Plan must be available for exam and copying by OSHA rep



Regulated Areas (GI/Maritime)

- Employer must establish regulated area if worker exposures are expected to be above PEL, and demarcate area from rest of workplace so minimizes number of exposed employees
- Must post signs at all entrances with: DANGER – RESPIRABLE CRYSTALLINE SILICA. MAY CAUSE CANCER. CAUSES DAMAGE TO LUNGS. WEAR RESPIRATORY PROTECTION IN THIS AREA. AUTHORIZED PERSONNEL ONLY.
- Limit access to persons authorized by employer and required by work duties to be present, anyone who is employee's designated representative to observe monitoring, anyone authorized by OSH Act or regs to be in area
- Each person in regulated area must be provided by employer with appropriate respirator and it must be used while in regulated area.
- ***Construction sites have limited access areas, but placarding not required***



OSHA's RCS Construction Rule

- High risk tasks: masonry saws, grinders, drills, jackhammers, chipping tools, drilling rigs, milling crushing, heavy equipment used for demolition & other tasks
- Rule includes provisions for:
 - Use of control methods in Table 1 OR measure worker exposure and decide which controls work best to limit exposures to PEL in workplace
 - Written exposure control plan with implementation by designated competent person
 - Restriction on housekeeping practices that expose workers to silica
 - Medical exams (chest X-ray and lung function tests) every 3 years for workers who wear respirator 30+ days/yr.
 - Worker Training & Recordkeeping



TABLE 1

- Stationary masonry saws
- Handheld power saws
- Handheld power saws for cutting fiber-cement board (blade diameter of 8" or less)
- Walk-behind saws
- Drivable saws
- Rig-mounted core saws or drills
- Handheld and stand-mounted drills
- Dowel drilling rigs for concrete
- Vehicle-mounted drilling rigs for rock and concrete
- Jackhammers and handheld powered chipping tools
- Handheld grinders for mortar removal (i.e., tuck pointing)
- Handheld grinders for uses other than mortar removal
- Walk-behind milling machines and floor grinders
- Small drivable milling machines
- Large drivable milling machines
- Crushing machines
- Heavy equipment and utility vehicles used during demolition
- Heavy equipment and utility vehicles for grading/excavating



What's Next?

- OSHA must reopen rule to reconsider medical removal (per court order)
- OSHA intends to also expand Table 1 for construction and consider adding a “Table 1” approach for general industry/maritime
- OSHA is finalizing expanded enforcement guidance (written with input from industry)
- OSHA has begun enforcement in construction: approx. 120 citations issued in first 6 mo. federally ... expect higher rates once all worksites on board
 - GI/Maritime enforcement began 6/23/18 in federal OSHA states
 - Some delayed phase in for GI (medical surveillance) and Fracking (engineering controls)



June 2018 Memorandum

- OSHA issued new enforcement memorandum to Regional Administrators that says:
 - OSHA will assist employers that are making good faith efforts to meet the new standard's requirements during the first 30 days of enforcement
 - If employer is not making efforts to comply, OSHA officers will conduct air monitoring according to Agency procedures.
 - Officers will also consider citations for noncompliance with the applicable sections of the new standard.
 - During the first 30 days of enforcement, any proposed citations related to Respirable Crystalline Silica Standard inspections were subject to National Office review.



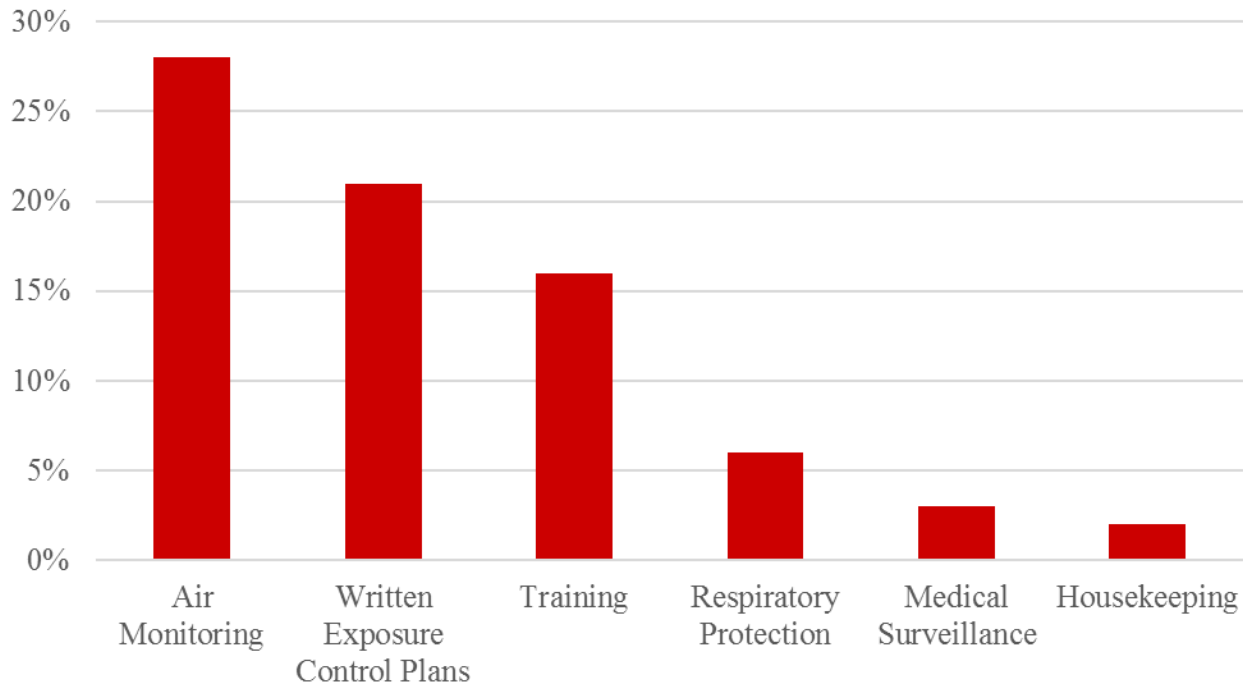
Citation Guidance

- If not following Table 1, and employer has done no exposure assessments: cite under 1926.1153(c) and 1153(d)(2) as grouped violation, plus any deficiencies in respiratory protection or haz com are to be **cited separately**
- If not under Table 1 and samples show overexposures, but ER has done exposure assessment:
 - If ER has not instituted all feasible eng & WP controls, or adequately protected with respirators, issue citations
 - If ER's data is not viewed as representative by CSHO, can issue citation 1926.1153(d)(2)
 - If ER has implemented all feasible controls and workers are protected adequately with respirators, NO citation for PEL violation will be issued.
- Other situation to be cited per OSHA's Field Operations Manual



OSHA Silica Enforcement 2017/2018

Percent of all construction silica citations since
9/23/17 – by category



2017 Enforcement Highlights

- October 2017 Interim Guidance revokes NEP on silica but inspection procedures for GI/Maritime remain unchanged until 6/23/18
- Rule applies where exposures are above **25 ug/m³**, based on total RCS from *all sources*, considering all conditions that may add to exposure levels
- Construction ER must comply with PEL, exposure assessment, methods of compliance for tasks outside Table 1 or where controls not fully or properly implemented



2017 Enforcement Highlights

- CSHOs should:
 - 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 ECP
- 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.



2018 FAQ Guidance Highlights

- 8/18: OSHA issues 53 FAQ to guide on construction rule compliance – developed in conjunction with union and industry stakeholders
- Guidance issues clarifications:
 - Scope: covers all occ. exposures to RCS in construction except where exposures remain below AL of 25 ug/m³ under any foreseeable conditions ... intent is for rule NOT to apply where work results in only minimal silica exposures
 - OSHA says many common construction tasks will be outside scope because silica-containing products are only handled while wet or are performed for 15 minutes per day or less



2018 FAQ Highlights: Exempt Tasks

- Examples of tasks anticipated to be < AL:
 - Mixing small amounts of mortar, concrete, or bagged exterior insulation finishing or silica-free drywall compound
 - Removing concrete formwork
 - Finishing and hand-wiping block walls to remove mortar
 - Pouring concrete
 - Grouting floor and wall ties



2018 FAQ Highlights: Table 1

- For respiratory protection 4 hr triggers, FAQ clarifies that ER does not have to track exact amount of time EE performs job during shift to be in compliance
 - Before task is performed, ER must make “good faith judgment” about whether task will take >4 hr – and if estimates will exceed 4 hrs, utilize protection from the start
- Clarifies that Table 1 requirements to “operate and maintain tools” per manufacturer instruction is aimed at “those related to dust control” and not the other instructions (such as recommended respiratory protection)
- Clarifies that hand-held powered demolition hammers with bushing tools and tile saws are covered by Table 1



FAQ Highlights: Housekeeping

- Clarifies that if EE exposure will remain below AL under foreseeable conditions, prohibition on dry sweeping, brushing, and use of compressed air for cleaning will NOT apply
- Clarifies that the general prohibition on these activities is limited to housekeeping, and not to use of brushes or compressed air to perform a work task
 - Earlier guidance clarified that silica-free sweeping compounds are acceptable, and compressed air can be used IF in conjunction with ventilation system that effectively captures dust, and don't contain silica or add to exposures



FAQ Highlights: WECP

- Clarifies that when silica-generating tasks are performed, standard is not intended to prohibit all employees from entering entire construction area simply because some work generates silica
 - Rule calls for **minimizing** the EE in relevant work areas
- Clarifies that standard does **not** require ER to develop **NEW** written plan for each job or worksite – must only have a plan **applicable** to each worksite
 - ER can have single comprehensive plan that covers all required aspects of plan for all work activities at all worksites



FAQ : Medical Surveillance

- Initial exam for covered workers must be offered within 30 days of initial assignment unless EE has received medical exam meeting standard's requirements within previous 3 yrs
- Clarifies that rule does not preclude in-house healthcare providers from performing the required exams
- Standard does not bar ERs from receiving the same info as EEs from the exam, *if is received for other purposes and through other means such as workers' compensation actions*
- Standard requires ER to make surveillance available to qualifying EE, but does **not** require EE to participate in surveillance



Issues To Consider

- Employers must sample for silica and implement preventative measures NOW (not wait for OSHA enforcement of new rule) to protect workers and third parties from adverse effects of possible overexposures.
- Critical to begin designing and implementing effective occupational health programs that include medical evaluations, surveillance, and exposure monitoring
- Awareness of national consensus standards and application of these “best practices,” where appropriate, may help provide defense to citations and tort litigation, and will assist in designing compliant programs
 - ✓ **A proactive approach to silica risk reduction is key to reducing worker injuries, as also for fending off OSHA/MSHA citations, toxic tort lawsuits, and worker’s compensation claims.**





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