

# OSHA Silica Regulation's Upcoming Impact

North Eastern States' Materials Engineering Association  
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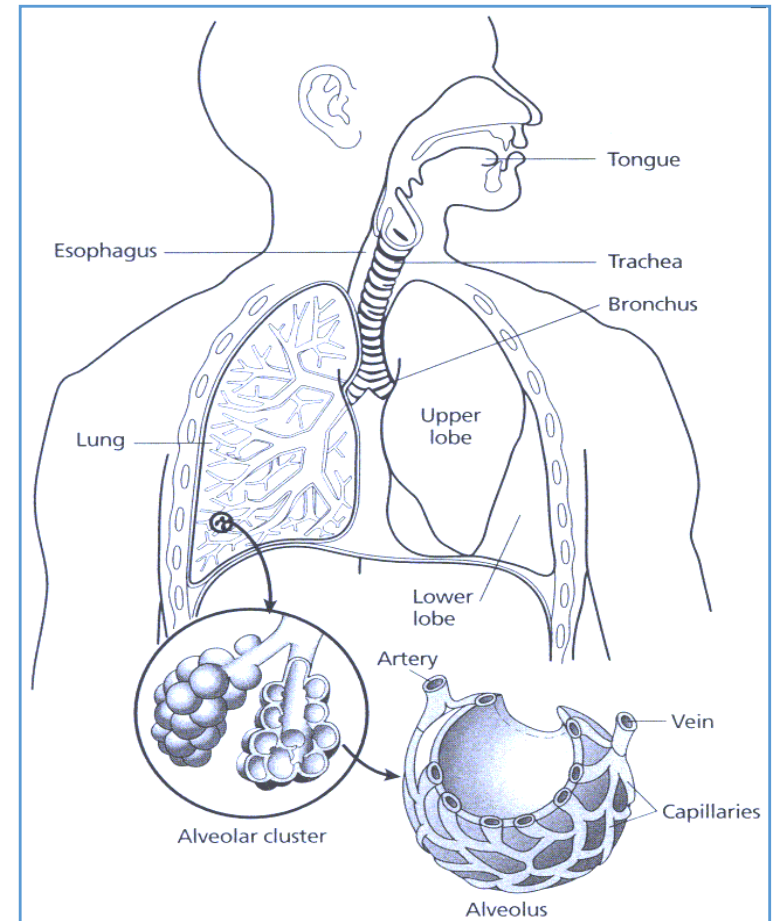
# What is Crystalline Silica?

- Industrial Material Found in Earth's Crust (70%)
- 100 times smaller than ordinary sand on a beach
- Classified as Group One Human Carcinogen by (International Agency for Research on Cancer (IARC) in 1997
- Warning for cancer risk must be included on SDS of silica-containing products



# How Are Workers Exposed?

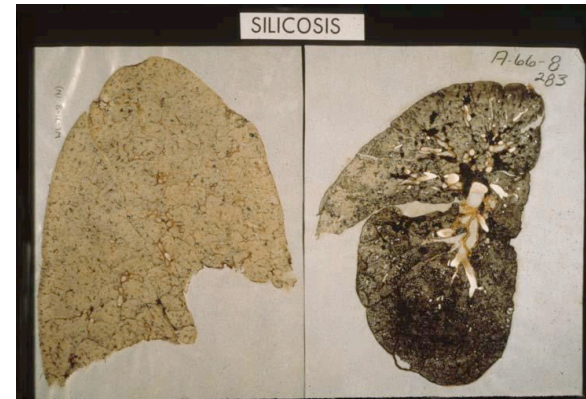
- Inhaled by workers during work activities such as cutting, sawing, grinding, drilling, and crushing the materials
- Respirable dust means the particle is small enough to penetrate the respiratory system (can't be expelled)



# What are Health Affects of Silica?

- Silica exposure can cause:

- Silicosis
- Lung cancer
- Kidney disease
- COPD



- Stages

- Three types of silicosis: Chronic (15-20+ yrs), Accelerated (5-10 yrs), and Acute (months-2 yrs)



# What are Changes to “Current” Exposure Limits

Entity	Current Limit	New Limit
OSHA General Industry	100 ug/m <sup>3</sup> (Permissible Exposure Limit)	50 ug/m <sup>3</sup> (Permissible Exposure Limit)
OSHA Construction / Shipyard	250 ug/m <sup>3</sup> (Permissible Exposure Limit)	50 ug/m <sup>3</sup> (Permissible Exposure Limit)
NIOSH	50 ug/m <sup>3</sup> Recommended Exposure Limit	
ACGIH	25 ug/m <sup>3</sup> (Threshold Limit Value)	



# What is Timeline?

Area	Date For Compliance	Codified
General Industry / Maritime	6/23/18 Comply with most requirements	29 CFR 1910.1053
Construction / Shipyard	6/23/17 Achieve most requirements (can adopt "Table 1" controls in lieu of exposure monitoring)	29 CFR 1926.1153



# What are the Same Elements?

The following elements are the same for both general industry & Construction:

- Methods of Compliance
- Hazard Communication
- Training
- Housekeeping
- Recordkeeping



# What are the Different Elements?

The following elements are different for general industry & Construction:

- Exposure Assessment
- Medical Surveillance
- Respiratory Protection





# What are Unique Elements?

The following elements are unique to either general industry or Construction:

- Competent Person: Construction
- Restricted Area: Construction
- Regulated Area: General Industry



# Monitoring Exposure (GI)

Initial Monitoring Conducted to assess 8 hr Time Weighted Average for silica exposure of representative employees for each job classification (picking EE with highest expected exposure)

Monitoring	Result	Action
Initial	Below Action Level	Discontinue Monitoring for Employee
Initial	Above Action Level / Below PEL	Repeat monitoring within 6 mo.
Most Recent	Above Action Level / Below PEL	Repeat monitoring within 6 mo.
Most Recent	Above PEL	Repeat within 3 mon.
Subsequent	Below Action Level	Repeat monitoring within 6 mo. until 2 consecutive are < AL ... then discontinue monitoring



# Monitoring Exposure (C)

- Two Options: 1) Table 1 or 2) exposure assessment
- Table 1 provides a chart with specific equipment and tasks with accompanying control methods
  - **Employers who follow Table 1 correctly are NOT required to measure worker exposure to silica and are NOT subject to PEL! Otherwise 50 ug/m<sup>3</sup> PEL and 25 ug/3 AL apply.**
  - Table 1 lists 18 equipment/tasks with
    - Engineering & Work Practice Control Methods, and
    - Required Respiratory Protection and Minimum Assigned Protection Factor (APF) for shifts <4 hr and those > 4 hrs
    - Explains when to use respiratory protection



# Table 1 Task Example

Equipment/task	Engineering & WPCM	Resp protection and APF
Handheld power saw	<ul style="list-style-type: none"><li>- Use saw equipped with integrated water delivery system that continuously feeds water to the blade</li><li>- Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions</li></ul>	<p>&lt; 4 hrs: none if used outdoors, &lt; 4 hrs: APF 10 if used indoors or in an enclosed area</p> <p>&gt; 4 hrs: APF 10 whether indoors or outdoors</p>



# Construction Tasks Not in Table 1

- For tasks not listed in Table 1, or if Employer does not fully implement controls and PPE:
  - Must ensure no exposures above 50 ug/m<sup>3</sup> PEL
  - Must assess EE exposure if  $\geq$  AL following either “performance option” or “scheduled monitoring option” ... if exposures  $>$  PEL, repeat within 3 mo. If  $>$  AL and  $<$  PEL, repeat within 6 mo.
  - Reassess as needed whenever changes in production, equipment, etc.



# Respiratory Protection (GI & C)

- Exposure exceeds PEL (GI & C)
  - When control methods in use (work practice, engineering)
  - Control methods infeasible during maintenance and repair
  - Employee is in regulated area
- Construction
  - Table 1 says use respirator
  - Task is not listed in Table 1 and assessment shows respirator needed
  - Table 1 not fully implemented



# Medical Surveillance Differences

- General Industry
  - Medical surveillance available at no cost to EE exposed to respirable CS at or above AL for 30+ days/yr
- Construction
  - Medical surveillance at no cost for workers who wear respirator 30+ days/yr.



# Medical Surveillance

- 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 respiratory system dysfunction and TB,
  - smoking status and history,
  - physical exam,
  - chest X-ray,
  - pulmonary function test,
  - testing for latent TB infection.





# Medical Surveillance

- PLHCP must explain exam results to worker and any limitations on exposure, and provide written medical opinion to ER within 30 days that includes:
  - Date of exam
  - Statement that exam meets requirements of standard
  - Any recommended limitations on worker's use of respirators
  - IF employee provides written authorization, info on any recommended limitations to worker's RCS exposure, a statement that worker should be examined by specialist if chest X-ray is 1/0 or higher by B reader
- Employer must ensure worker gets copy of written medical opinion within 30 days.



# Regulated Area (GI)

- 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
- 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.



# Regulated Area (GI)

- 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**



# Competent Person (C)

- Must be designated by employer who can identify existing and foreseeable silica hazards & take prompt corrective action to eliminate them
- Have knowledge and ability to fulfill responsibilities of exposure control plan
- Receive training to perform duties



# Methods of Compliance (GI & C)

- Use hierarchy of controls
- Elimination, substitution, engineering controls, work practice controls, personal protective equipment
- Implement written exposure control plan
  - Description of tasks that involve exposure to silica
  - Description of engineering controls, work practices, respiratory protection to limit exposure for tasks
  - Description of housekeeping measures used to limit exposure
  - For Construction, the competent person should conduct regular inspection of job site and access to exposed areas should be restricted



# Training/Communication (GI & C)

- 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
- 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



# Recordkeeping (GI & C)

- Exposure measurements
  - Keep for 30 years
- Objective data (if used)
  - Keep for as long as you rely on record
- Medical records
  - If employed for more than 1 year then keep for employment plus 30 years. If employed less than 1 year then for term of employment & provide to employee on departure
- Safety Data Sheets
  - 30 years
- Training
  - None under standard, but HazCom has rules



# How Do I Prepare?

- **START SAMPLING**
  - Know your exposure limits for the work your employees perform
  - Use consulting firms to ensure accuracy
- **ASSESS YOUR DATA**
  - Use data to determine corrective measures
- **DESIGN HEALTH PROGRAMS**
  - Seek professional assistance if necessary
  - Develop programs that include medical evaluations, surveillance, and exposure monitoring
- **EDUCATE YOURSELF**
  - Know the rule and guidance from OSHA
  - Be aware of national consensus standards and application of these “best practices”





# How Do I Defend Myself From Litigation?

- Implement a Health Program that Reduces Exposure to the Legal Limits Before Trigger Date
- Institute Internal Auditing Procedures for Your Health Program
- Join Industry Groups to Maintain Awareness
- Train Your Workforce
- Develop Policies & Procedures
- Be Defensive against OSHA citations, toxic tort lawsuits, and worker's compensation claims



# Questions?

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