

New Silica Standard

1926.1153

1910.1053



What is Silica?

What Industries Impacted?

What?

- Silicon dioxide (SiO_2)
- Major component of sand, rock & mineral ores



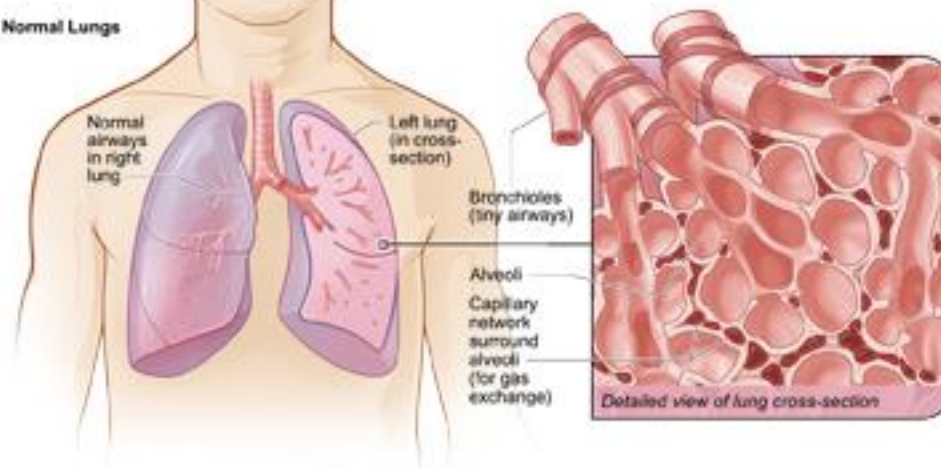
Industries

- Foundries
- Abrasive blasting
- Paint mfg.
- Glass mfg.
- Concrete mfg.
- Brick making
- China and pottery
- Plumbing fixtures
- Construction (highway, masonry, concrete, tuckpointing, rock drilling)

Hazards of Silica

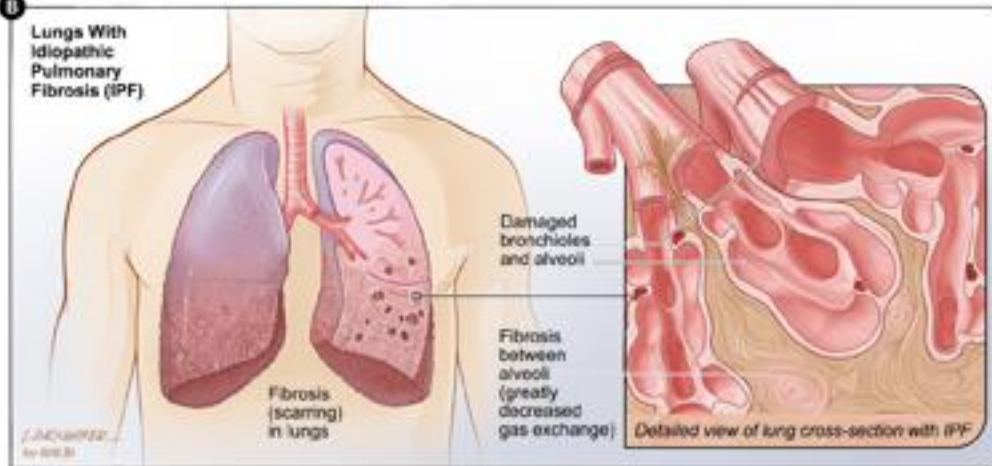
- Irreversible fibrotic lung disease.
- Progression can occur after exposure ends
- Three types of silicosis
 - Chronic
 - Accelerated
 - Acute
- Chronic Obstructive Pulmonary Disease (COPD)
- TB
- Lung Cancer

A Normal Lungs



B

**Lungs With
Idiopathic
Pulmonary
Fibrosis (IPF)**



PEL/AL

- PEL – 50 $\mu\text{g}/\text{m}^3$ 8-hour TWA
- AL – 25 $\mu\text{g}/\text{m}^3$ 8-hour TWA

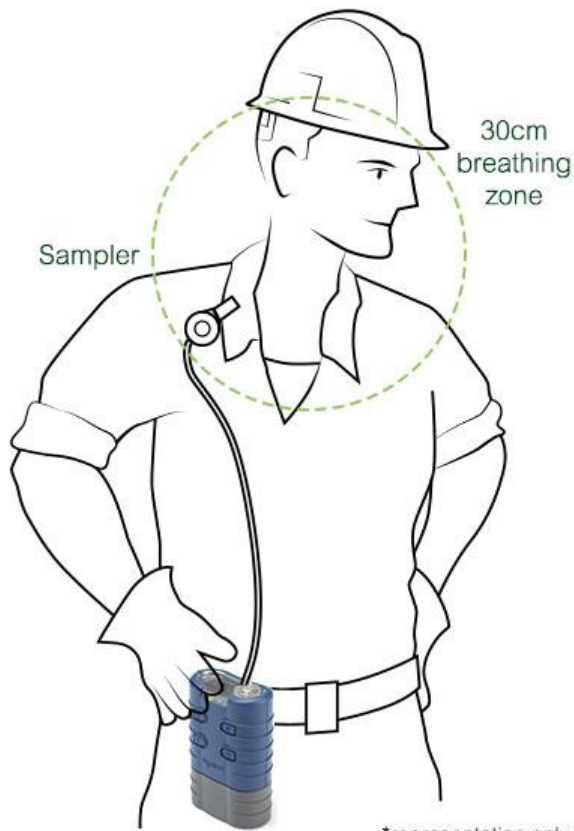
Exposure Assessment

- Assess exposure if expected to be \geq AL
- 8-hour TWA BZ samples
- Determine exposure on basis of ≥ 1 air samples that reflect exposures of employees
 - On each shift
 - For each job classification
 - In each work area
 - Representative sampling OK, include highest exposure

Exposure Assessment

- Initial assessment
 - Not required if objective data of no exposure
- Periodic
 - $< \text{AL}$ Discontinue
 - $\geq \text{AL} \leq \text{PEL}$ – every six months
 - $> \text{PEL}$ – every 3 months
 - Performance option – assess exposure for each employee sufficient to characterize exposures
- Reassess

Breathing Zone



- A half sphere projecting out from the face
- Forward from the shoulders

Sampling Method

- OSHA ID-142; NMAM 7500, NMAM 7602, NMAM 7603, MSHA P2, MSHA P-7
 - Media: 5 μ m PVC filter
 - Aluminum cyclone
 - Flow rate: 2.5 liters/minute
- Don't allow sample to be inverted
- Keep a "blank" sample for quality control



Construction Specific Operations

- NO exposure assessment IF....
 - Table 1 operation
 - Engineering controls implemented
 - Work practices implements
 - Respiratory protection worn

Construction Specific Operations

| | | | |
|---|---|--------|--------|
| (ii) Handheld power saws (any blade diameter) | <p>Use saw equipped with integrated water delivery system that continuously feeds water to the blade.</p> <p>Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.</p> <ul style="list-style-type: none">– When used outdoors.– When used indoors or in an enclosed area. | None | APF 10 |
| | | APF 10 | APF 10 |

Employee Notification

- Each employee affected notified within 5 working days (construction)
- Each employee affected notified within 15 working days (general industry)
- OR post the results for all affected employees
- > PEL include corrective action

Observation of Monitoring

- Affected employees
- Designated representatives
- PPE provided to observer

Regulated Area vs Control Plan

Regulated Area (Mfg.)

- Exposure > PEL
- Demarcation
- Limit access
- Respirators provided
- Work clothing provided if gross contamination potential

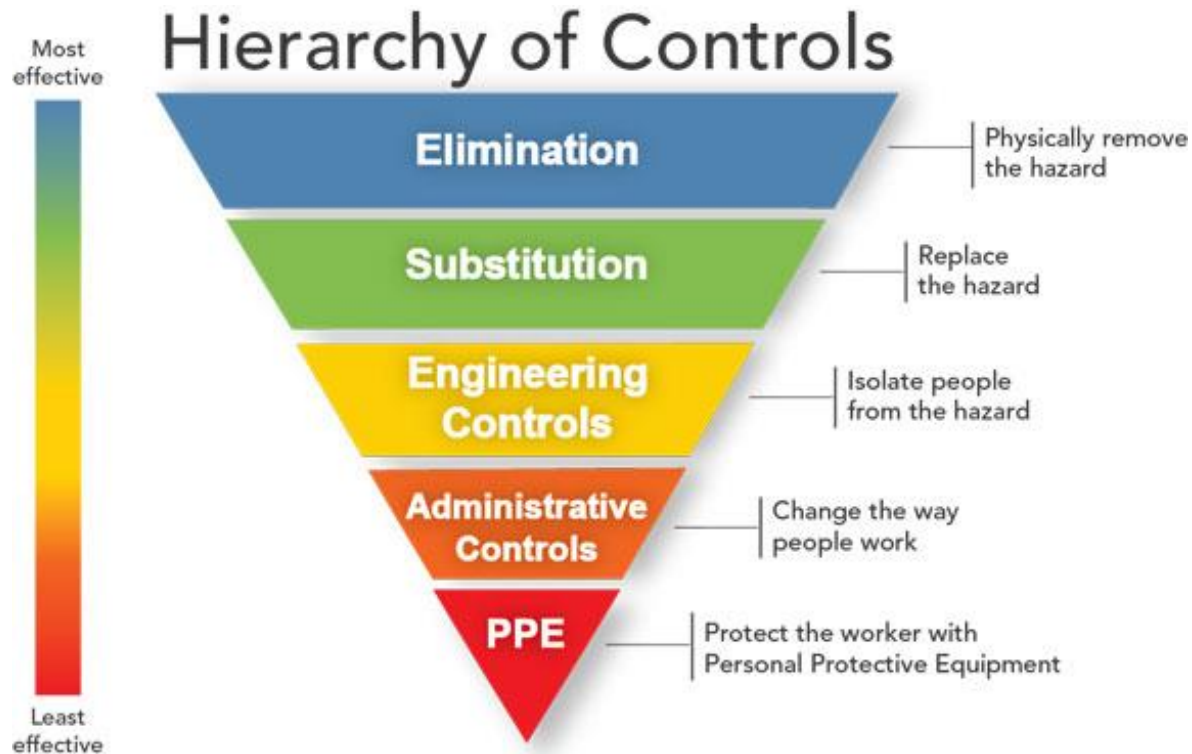
Written Access Control Plan (Construction)

- Competent person ID presence/location
- Procedures to notify and mark
- Inform other contractors
- Provisions to limit access
- Procedures to provide respirators
- PPE
- Annual review & update
- Available

Compliance

- Engineering controls
- Work practice controls
- Control exposures <PEL
- If not feasible, reduce to lowest feasible level
 - Supplement with respirators
- Table 1 for construction
- Abrasive blasting – Ventilation 1910.94; 1915.34
mechanical paint removers and 1915 Subpart I PPE

Hierarchy of Controls

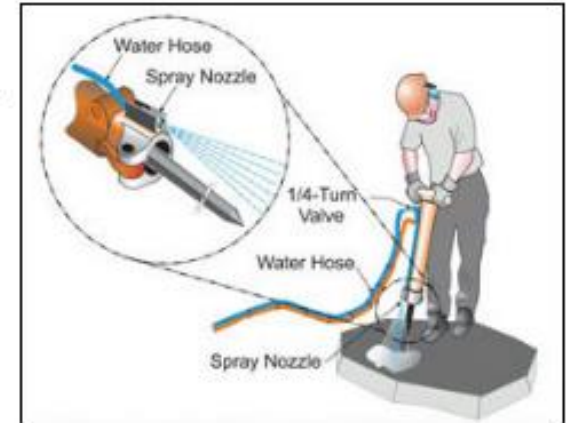


Engineering Controls

- Built into the design of the equipment or process to reduce the hazard
 - Wetting down work operations
 - Local exhaust ventilation
 - “Process isolation”
- Requires maintenance and proper use every time



Figure 1. Grinder in use with the control in place.



Controls



Compliance

- Cleaning
 - HEPA and wet methods
 - Compressed air, dry sweeping and dry brushing prohibited
- Employee rotation prohibited



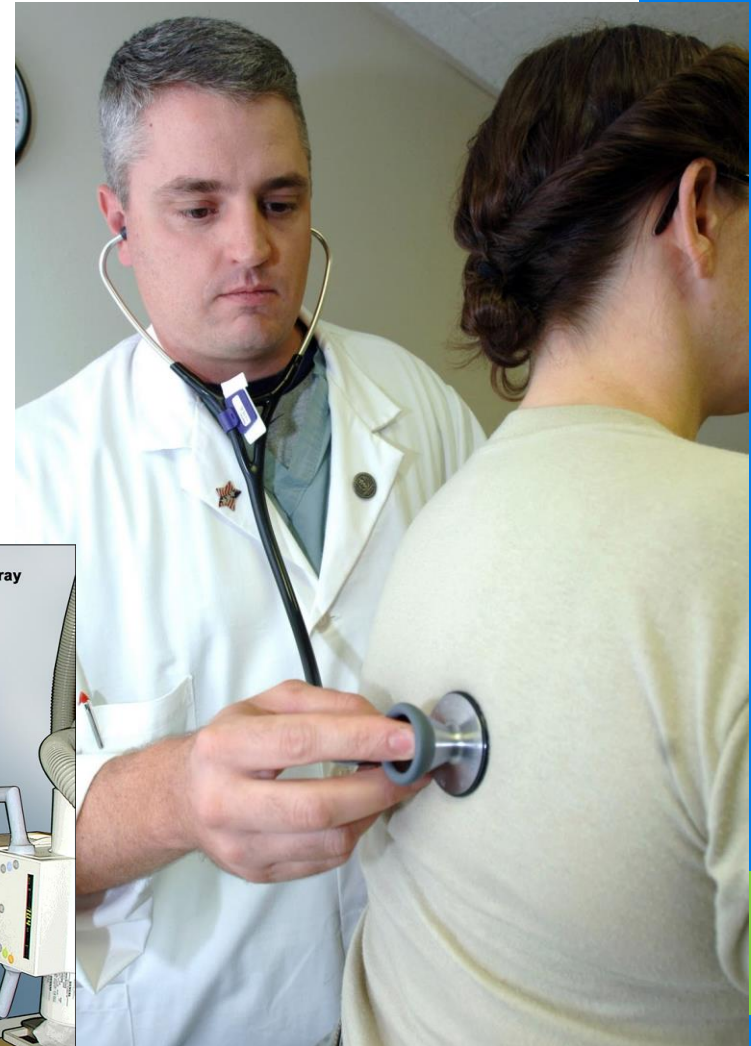
Respiratory Protection

- Comply with 1910.134
- Usage
- Written program



Medical Surveillance - Content

- PLHCP
- Medical and work history
- Physical exam
- Chest x-ray
- Pulmonary function test
- Additional exams



Hazard Communication

HAZARD COMMUNICATION STANDARD

- Employee communication
- Labels
- SDS
- Employees demonstrate knowledge
 - Operations
 - Procedures
 - Standard
 - Medical Surveillance



Recordkeeping

- Air monitoring data
 - Specific information
- Objective Data
 - Specific information
- Medical Surveillance
 - Specific information
 - 1910.1020



Effective Dates

- Manufacturing
 - June 23, 2018 Program Requirements
 - June 23, 2020 – Medical Surveillance Requirements
 - June 23, 2021 – Hydraulic Fracturing engineering controls
- Construction
 - June 23, 2017 Program and Medical Requirements
 - June 23, 2018 Laboratory Analysis Compliance

Your Next Steps

1. Conduct exposure assessments
 1. Or use Table of Control Methods and Respirators if in Construction
2. Develop written exposure control plan
3. Designate a competent person (construction)
4. Develop employee training program
5. Implement medical surveillance if required
6. Recordkeeping
7. Join Safex for a Silica Compliance Course

Questions?

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