

# Silica

## Oregon OSHA Online Course 1245

This material is for training purposes only. Its purpose is to inform Oregon employers of best practices in occupational safety and health and general Oregon OSHA compliance requirements. This material is not a substitute for any provision of the Oregon Safety Employment Act or any standards issued by Oregon OSHA. For more information on this online course and other OR-OSHA online training, visit the [Online Course Catalog](http://www.cbs.state.or.us/osha/education.html). (<http://www.cbs.state.or.us/osha/education.html>)

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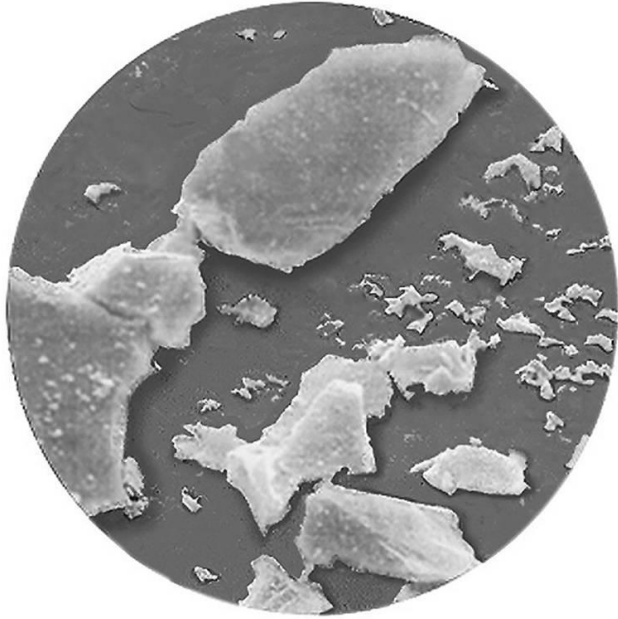


The purpose of this class is to prevent work-related illnesses and deaths from crystalline silica through identification and control.



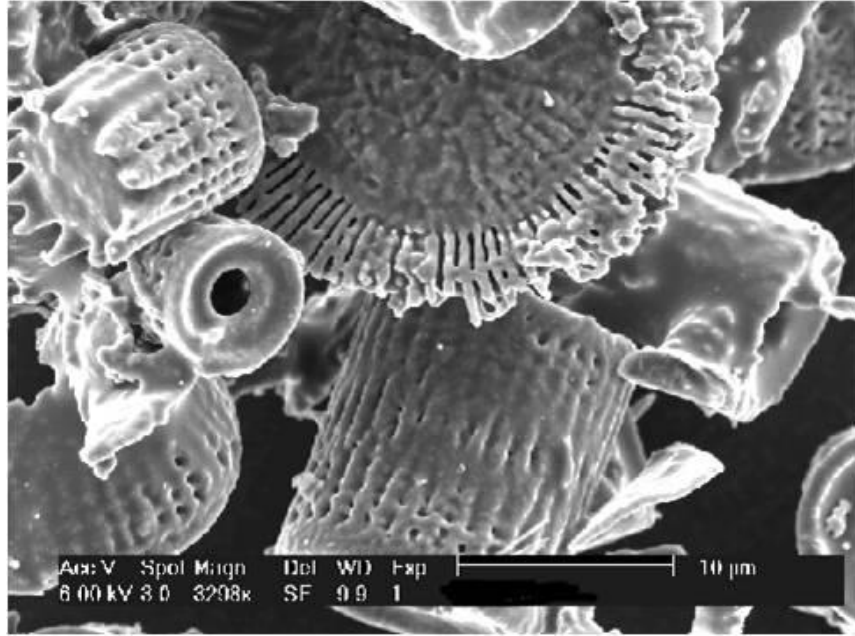
During the construction of the Hawk's Nest Tunnel, near Gauley Bridge, WVA, more than 475 workers died and 1500 were disabled because of silica exposure.

## Crystalline Silica



Crystalline silica is found in many materials, including quartz. Two forms of quartz are cristobolite and tridymite.

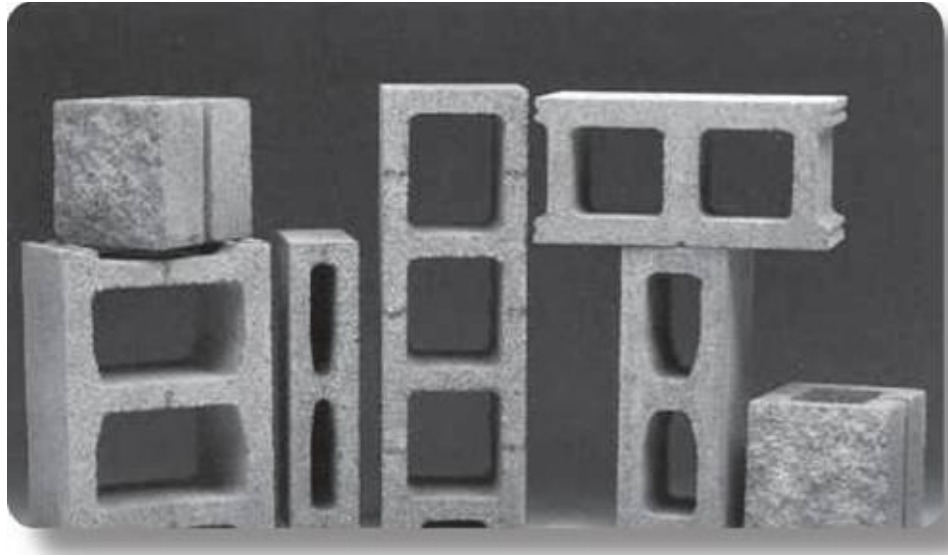
In this class, the word “silica” will mean crystalline silica.



Amorphous silica is found in many materials, including diatomaceous earth.

Amorphous silica does not cause the same health effects as crystalline silica.

High heat and pressure can change amorphous silica to crystalline silica.



These building materials may contain silica:

Bricks

Pavement

Concrete

Portland cement

Boards

Tile

Granite



These materials may also contain silica:

Abrasives

Paints

Coal dust

Polishing compound

Cleansers

Porcelain

Filter Aids

Sand

Fly Ash

Soapstone

Soil



Trade names or common names of some materials that may contain silica include:

Min-U-Sil

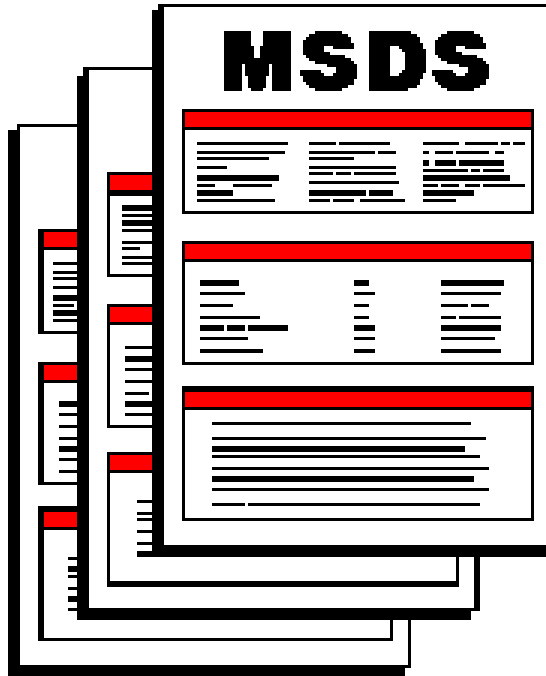
DQ12

Sil-CO-Sil

Snowit

HardiPlank

Monokote



It is important to check the label and Material Safety Data Sheet. Remember --- the words quartz, cristobolite and tridymite mean crystalline silica is present.



Jobs that may put silica in the air are found in agriculture, construction, mining, and general industry.



Construction jobs that may put silica in the air include tuckpointing, grinding, sawing, drilling and tunneling.



A job in general industry that may put silica in the air is abrasive blasting.



A job in agriculture that may put silica in the air is harvesting.



Jobs in mining that may put silica in the air are loading, hauling, and dumping.



Diseases related to silica include:

- Silicosis
- Chronic obstructive pulmonary disease
- Bronchitis
- Collagen vascular disease
- Tuberculosis
- Lung cancer

Lung Specimen: Silicosis



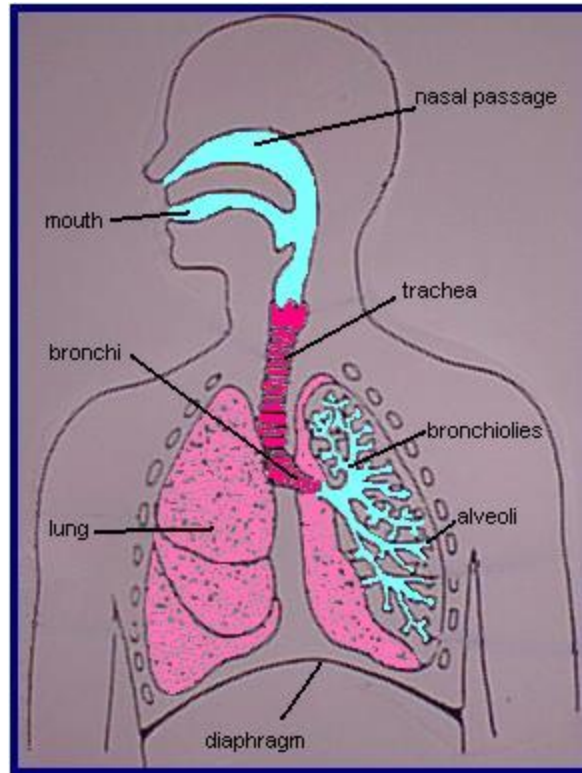
Lung Specimen: Normal



Silicosis can be disabling or fatal. Lung capacity is reduced by tumors and scarring.

Symptoms include:

- Shortness of breath
- Coughing
- Wheezing
- Bronchitis
- Asthma



Silica enters the body through the nose and the mouth. It settles in the lungs.



Exposure to silica can be measured by air sampling.

Air sampling can be performed by Oregon OSHA Consultation, or any other qualified person.



Oregon OSHA may inspect for silica hazards:

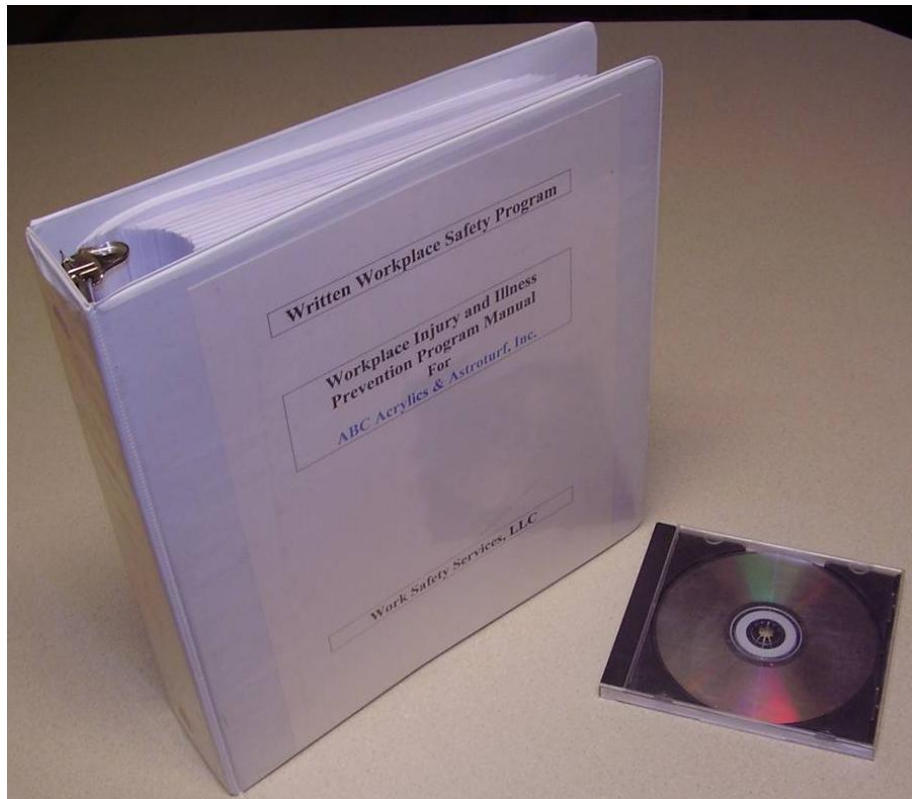
- When there is visible dust and employees appear to be inadequately protected. For example, during construction or demolition.
- During Scheduled Inspections
- During Local Silica Emphasis Program Inspections
- Based on Complaints or Referrals



An employer may be cited under rules for General Industry or Construction, including rules for:

- PPE
- Hazard Communication
- Air Contaminants

The Air Contaminants Rule includes a list of Permissible Exposure Limits (PELs).



An effective silica program includes:

- Air monitoring
- Medical surveillance
- Training
- Sampling data available to workers
- Respiratory protection program
- Washing facilities/ clothes changing areas
- Recordkeeping
- Exposures below the PEL
- Housekeeping
- Regulated areas
- Construction – safety & health program



Control Measures include:

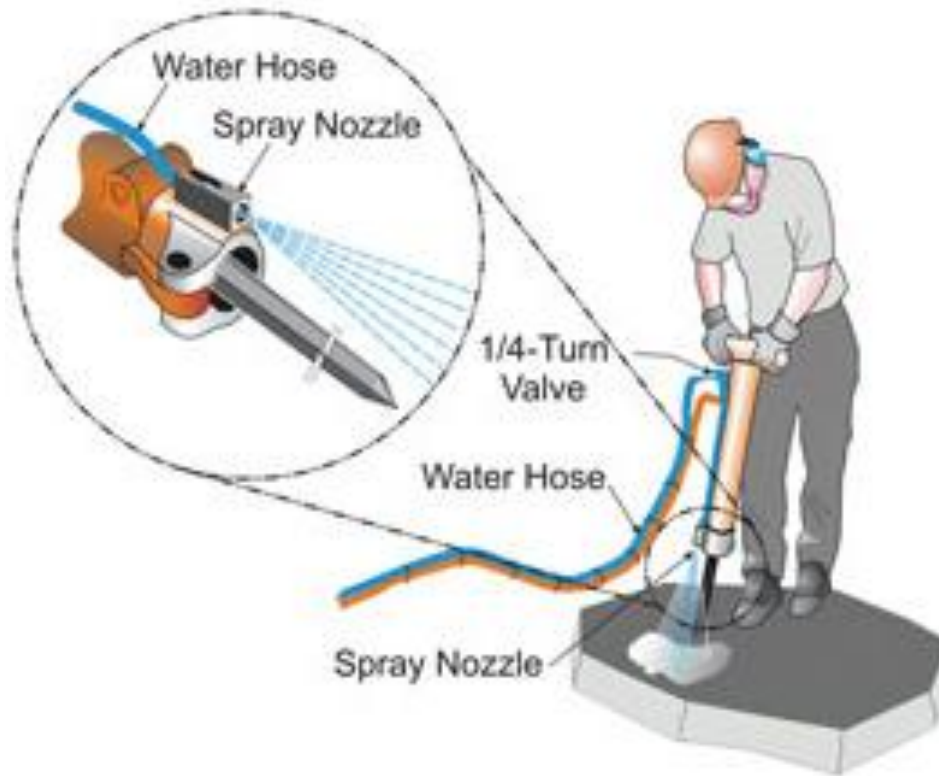
- Elimination/Substitution
- Engineering
- Management
- PPE

More than one control measure may be necessary to protect workers from exposure.



Examples of Elimination/Substitution include:

- Using materials that do not contain crystalline silica
- Using shears instead of saws when cutting Hardi-Plank



Examples of Engineering Controls include:

- Use of water to control dust
- Ventilation



Examples of Administrative Controls include:

- Scheduling
- Washing hands and changing clothes
- Housekeeping
- Regulated areas
- Signs and labels
- Medical monitoring



Examples of PPE include:

- Respirators
- Gloves
- Tyvek suits



If you think you have contact with Silica:

- Has your work practice been evaluated?
- Has your protection been assessed?

Don't know the answers to those questions?

Call the Safety & Health Hotline at **800-922-2689** or your worker compensation insurance.