OHBA Safety Pages

Silica

Submitted by David Davidson

What Is Silicosis? Silicosis is lung damage caused by breathing dust containing extremely fine particles of crystalline silica. Crystalline silica is found in materials such as concrete, masonry, rock, ceramic tile, and drywall joint compound. When these materials are cut, ground, or sanded they can leave a fine dust suspended in the air. Breathing in these fine particles can produce lung damage.

How Do Construction Workers Get Exposed? Silica is a basic component of soil, sand and granite. Most crystalline silica comes in the form of quartz. Common sand can be as much as 100 percent quartz, therefore there are many ways to be exposed at construction sites. Silica occurs in many commonly used building products including mortar, grout, cement, stucco, plaster, bricks/blocks, rocks/stones, ceramic tile, drywall joint compound, and fiber-cement board (used for siding), as well as sandblasting materials.

Some Activities In Which Silica Dust May Be Present In The Air:

- Masonry work (e.g. mixing mortar, cutting brick/block, tuck pointing, etc.)
- Concrete work (e.g. sawing, grinding, drilling, jack-hammering, etc.)
- Dry sweeping of concrete, mortar and sand
- Sanding/finishing drywall joints
- Sawing fiber-cement board, stone or tile
- Demolition of concrete and masonry structures or plaster ceiling/walls
- Loading, hauling and dumping rock/stones as well as back fill against foundation walls, etc.

How Can Silica Exposure Be Reduced or Eliminated? The key to silicosis prevention is to prevent silica dust from becoming airborne. The Occupational Safety and Health Administration (OSHA) requires administrative or engineering controls be used whenever possible. A simple control may work: Example: A water hose to wet dust down at the point of generation. Some additional steps you can take to protect yourself:

- Conducting an Industrial Hygiene (IH) survey should be your first step in determining this hazard in your normal work operations. An IH survey should be done to determine air concentrations of respirable crystalline silica. From this data an employer can determine the proper protection plan for their employees. These IH surveys can be conducted by your workers' compensation provider, OR-OSHA or a safety consulting firm.
- Always use the dust control systems, which are available for many types of dust generating equipment, and keep it in good maintenance.
- When sawing concrete or masonry, use saws that provide water to the blade.
- Use local exhaust ventilation to prevent dust from being released into the air.
- Minimize exposures to nearby workers by using good work practices.
- Use abrasives containing less than 1 percent crystalline silica during abrasive blasting to prevent harmful quartz dust from being released in the air.
- The use of respirators should be considered a last resort when engineering or administrative controls are not possible or insufficient to achieve acceptable limits of exposure. Respirators should only be used in the absence of other dust control methods. Employees using respirators must be included in a Respiratory Protection Program that is compliant to 29 CFR 1910.134, *Respiratory Protection*, as adopted by the Oregon Occupational Safety & Health Division (OR-OSHA). This program should include medical screening, fit-testing, employee training, employee exposure data, and a cartridge change-out schedule. Refer to the manufacturer to determine a filter change out schedule.

SAFETY PAGE MEETING GUIDE Topic: Silica

Employer: _____ Project: _____

Date: _____ Time: _____ Shift: _____

Number in crew: _____ Number attending: _____

Safety or Health issues discussed. Include recent accident investigations and hazards involving tools, equipment, the work environment, work practices and any Safety or Health recommendations:

_____

_____

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_____

Follow up on recommendations from last safety meeting:

_____

_____

Record of those attending:

Name: (please print)	Signature:	Company:
1.		
2.		
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12.		

Supervisor's remarks: _____

Supervisor: _____ _ _____

(Print) (Signature)

Silica-related website resources:

- **OSHA (Occupational Safety and Health Administration)**
  www.osha.gov/SLTC/silicacrystalline/
- **NIOSH (National Institute for Occupational Safety and Health)**
  www.cdc.gov/niosh/topics/silica/default.html
- **eLCOSH (Electronic Library of Construction Safety and Health)**
  www.cdc.gov/elcosh/docs/hazard/chemical_silica.html
- **MSHA (Mine Safety and Health Administration)**
  www.msha.gov/S&HINFO/SILICO/SILICO.HTM
- **NAHB (National Association of Home Builders)** www.nahb.org/SAFETY