CONSULTATION CAL OSHA SERVICE

Silica Hazard Alert

Exposures to respirable crystalline silica dust during construction activities can cause serious respiratory disease. Each year more than 300 U.S. workers die from silicosis and thousands more are diagnosed with the lung disease. It is frequently misdiagnosed, so actual numbers may be higher.

The Source:

Silica is a natural mineral that comes in several forms, some more hazardous than others. Typically, it's the crystalline forms that are of greatest concern.

Silica can be present in large quantities in certain types of rocks and sand. Construction materials made from these natural ingredients then become the source of exposure associated with several of the construction trades, such as tile roofs, masonry and concrete finishing or re-finishing.

The Types of Operations:

The following are some examples of work-operations where the Cal/OSHA 8-hour average PEL of 0.1 mg/m3 for crystalline silica can be exceeded. There may very well be other operations you do, not listed here, that can also produce excessive exposure levels, such as dry grinding on granite counter tops.

- ☐ Tuck point grinding
- ☐ Surface grinder
- ☐ Rock drill
- ☐ Broom or shovel
- ☐ Jackhammer / chipping gun
- ☐ Hand-held masonry saw
- ☐ Road mill
- ☐ Backhoe, excavator, bulldozer
- ☐ Walk-behind concrete saw
- ☐ Mixing concrete, grout, etc
- ☐ Bobcat

Where to go for more info on the types of exposures you might expect, along with some control measures:

* *http://depts.washington.edu/silica/index.html*

* *http://www.cdc.gov/niosh/topics/construction/*

The Hazard:

Breathing too much dust containing the crystalline forms of silica particles small enough to enter the deep parts of the lung can cause "silicosis", which is a scarring of the lung tissues, cancer and other forms of lung disease, including an increased risk of getting tuberculosis. It usually takes several years before you know that you have a problem. Higher exposures can produce health problems much sooner. At first, there can be no symptoms of disease, and then shortness of breath, fatigue, severe cough and chest pain can develop later on. Short of a lung transplant, silicosis can not be reversed, so best to minimize exposures now to prevent disability later in life.

Best Ways For Employees To Protect Themselves:

Knowledge, equipment and work practices:

- Ask your employer if your work can produce excessive silica dust exposure, and what control measures are to be used.
- Where possible, work with products that don't contain silica.
  - ◊ For example, there are a variety of materials such as glass beads, pumice, sawdust, steel grit, shot, and walnut shells that are available as substitutes for sandblasting operations.
- Understand the hazards and take the appropriate preventative measures.
- Minimize dust getting into the air you breath:
  - ◊ Use equipment designed to cut, saw and grind wet or use ventilation that captures the dust as it is created.
    - * Proper use and preventive maintenance is critical.

For more information call 1-800-963-9424 or go to www.dir.ca.gov/dosh 08-019V3

- ◊ Don't smoke tobacco products.
- ◊ Never use compressed air to clean dust off equipment, surfaces or your clothes. Where safely feasible, use water or a HEPA vacuum. Consider using disposable or re-usable clothing that stays at the work site.

- ◊ Minimize dust generation when working with or around silica-containing materials.
- ◊ Handle and dispose of waste materials without generating airborne dust.
  - * Use a HEPA vacuum, squeegee instead of broom, or sweeping compound, in that order

You may still have excessive exposure despite using controls, which means you may still need to use an appropriate respirator, along with a good respirator protection program. Establish defined areas beyond which protection is required. [Reference T8CCR, Section 5144 for details on respirator requirements]

Training Requirements Checklist for Employees Exposed to Dust Generated from Concrete and Masonry Materials.

Who?

- All employees and their supervision required to work with or around powered tools and equipment used to cut, grind, core, or drill concrete or masonry materials.
  - ◊ Supervisors are required to go through additional training.

When?

- Before their initial assignment in which these operations will be conducted, and
- Repeated at least annually.

What?

- Potential health effects, including silicosis, lung cancer, chronic obstructive lung disease and loss of lung function. Refer to the MSDS and the NIOSH Website.
- Methods to be used to control airborne dust exposures, such as wet-cutting, local exhaust systems, and isolation of the process.
  - ◊ These procedures will likely be new to the company, therefore ensure that the company's Code of Safe Practice(s) are updated to reflect the new operations.
- Proper use and maintenance of dust control equipment, including safe handling of collected waste.
- Good personal hygiene and housekeeping, including,
  - ◊ Not smoking tobacco products
  - ◊ Avoiding activities that can contribute to generation of airborne dust
  - ◊ Cleaning up without generating airborne dust.
- <u>For supervisors, also include</u>:
  - ◊ Identification of tasks that may result in employee exposures.
  - ◊ Implementation procedures for the control methods employees are to use.
    - * Outlining the pre-operational steps the supervisors need to go through to identify hazards is critical to preventing exposures to begin with. If the hazard can be eliminated through some sort of control, the likelihood an employee is overexposed to airborne silica dust is greatly diminished.

NOTE: Reference T8CCR Section 1530.1 for details, along with other applicable Cal/OSHA standards. 1530.1 is applicable to most concrete and masonry activities; there can be a number of other sources of silica at a construction site that can be a significant health hazard.