Silicosis Meeting Kit

WHAT IS SILICOSIS?

Silicosis is a form of occupational lung disease caused by the inhalation of silica dust. The inhalation of this dust causes damage and scarring to the tissue in the lungs. OSHA lists the following adverse health effects from silicosis: lung cancer, bronchitis/chronic obstructive pulmonary disorder, increased chance of tuberculosis, and possible renal disease. They also list scleroderma which is a disease affecting skin, blood vessels, joints and skeletal muscles.

WHAT IS SILICA AND WHERE IS IT FOUND?

Crystalline silica is an important industrial material found abundantly in the earth's crust. Quartz, the most common form of silica, is a component of sand, stone, rock, concrete, brick, block, and mortar. Materials containing quartz are found in a wide variety of workplaces. Common industries and operation where crystalline silica is found include: construction, glass products, concrete products, and foundries, cut stone products, railroad track maintenance, abrasive blasting, and many more. Occupational exposure to respirable crystalline silica occurs when cutting, sawing, drilling, and crushing of concrete, brick, ceramic tiles, rock, and stone products.

WHAT DISEASES CAN SILICA DUST CAUSE

If a Worker Is Exposed to and Breathes in Silica Dust They Could Develop:

- **chronic bronchitis**
- **emphysema**
- **acute silicosis**
    - can develop after a short exposure to very high levels of silica dust, within a few weeks or years, and

causes severe inflammation and an outpouring of protein into the lung

- **accelerated silicosis**
    - can develop after exposures of 3 to 10 years to moderate to high levels of silica dust and causes inflammation, protein in the lung and scarring of the lung (fibrotic nodules)
- **chronic silicosis**
    - can develop after long term exposure to lower levels of silica dust and causes fibrotic nodules and shortness of breath
    - can include progressive massive fibrosis where the fibrotic nodules in the lung aggregate
- **lung cancer**
- **kidney damage, or**
- **scleroderma**
    - a disease of the connective tissue of the body resulting in the formation of scar tissue in the skin, joints and other organs of the body.

WORK ACTIVITIES THAT MAY REPRESENT A HIGH RISK EXPOSURE

- during fabrication and installation of composite (engineered or manufactured) stone countertops
- excavation, earth moving and drilling plant operations
- clay and stone processing machine operations
- paving and surfacing
- mining, quarrying and mineral ore treating processes
- tunnelling
- construction labouring activities
- brick, concrete or stone cutting; especially using dry methods
- abrasive blasting (blasting agent must not contain greater than 1 per cent of crystalline silica)
- foundry casting
- angle grinding, jack hammering and chiselling of concrete or masonry

- hydraulic fracturing of gas and oil wells, and
- pottery making.

RECOMMENDATIONS

NIOSH recommends the following measures to reduce exposures to respirable crystalline silica in the workplace and to prevent silicosis and deaths in construction workers:

1. Recognize when silica dust may be generated and plan ahead to eliminate or control the dust at the source. Awareness and planning are keys to prevention of silicosis.
2. Use engineering controls and containment methods such as blast-cleaning machines and cabinets, wet drilling, or wet sawing of silica-containing materials to control the hazard and protect adjacent workers from exposure.
3. Routinely maintain dust control systems to keep them in good working order.
4. Practice good personal hygiene to avoid unnecessary exposure to other worksite contaminants such as lead.
5. Wear disposable or washable protective clothes at the worksite.
6. Shower (if possible) and change into clean clothes before leaving the worksite to prevent contamination of cars, homes, and other work areas.
7. Conduct air monitoring to measure worker exposures and ensure that controls are providing adequate protection for workers.
8. Use adequate respiratory protection when source controls cannot keep silica exposures below the NIOSH REL.
9. Provide periodic medical examinations for all workers who may be exposed to respirable crystalline silica.
10. Provide workers with training that includes information about health effects, work practices, and protective equipment for respirable crystalline silica.

FINAL WORD

Efforts to prevent silicosis may be inadequate if any of the following conditions exist:

- A lack of awareness about the sources of silica exposure, the nature of silicosis, and the causes of the disease
- Failure to substitute abrasive blasting materials less toxic than those containing silica
- Inadequate engineering controls and work practices
- Inadequate respiratory protection programs for workers