
Hazards in the Workplace

Fact Sheet: Silica Dust and Respiratory disease

With the boom in construction going on around Sydney, we often see workers in excavators digging in a cloud of dust. Or you may see construction workers drilling or cutting into concrete with no respiratory protection.

These workers are at high risk of developing *silicosis*, a serious lung disease caused by the accumulation of silica dust in the lungs. The scarring of the lungs and its stiffening will obstruct breathing and cause shortness of breath. This can lead to permanent heart and lung disease.

WHAT IS SILICA DUST?

Silica is the main component in sand and in rocks like sandstone and granite. Many workplaces are not aware that common building products such as clay bricks, concrete, tiles and fibro cement products contain silica. Silica dust is usually created when such building products, sandstone or rocks are cut, drilled or worked on in a way that creates fine particles of silica in the air. It is breathing in this crystalline form (quartz) of silica that causes silicosis.

WHO IS AFFECTED?

Silicosis is not a naturally occurring disease. Its development is directly associated with workplace exposure to silica dust. Workers who are mostly at risk include those engaged in tunneling and excavation work, road building, demolition work as well as those in slate, granite cutting industries and some manufacturing processes.

HEALTH AFFECTS OF SILICA DUST

Initial exposure to silica dust will cause irritation of the eyes, nose and throat like most other dusts. However, if excessive amounts of silica dust are breathed into the lungs over a period of time, it can cause damage to the lung tissue. Other than some breathlessness during exercise, the disease can remain free of symptoms for 10-20 years after exposure.

The most common form of silicosis develops after long exposure to relatively low concentrations. Once the disease has begun, it will progress slowly but relentlessly even if the worker is removed from further exposure. There is no medical treatment for silicosis. People with silicosis are also at greater risk of developing lung cancer. In 1996 the International Agency for Research on Cancer classified crystalline silica dust as a human carcinogen (Group 1).

HOW TO CONTROL SILICA DUST AT WORK

The only effective protection against silicosis is to prevent silica dust in the air. Under their obligations in the Occupational Health and Safety Act, employers must take measures to ensure that workers are not exposed to silica dust. There a number of simple control measures that can be taken.

- Use a water hose to wet dust down at the point of dust generation. Water can be used through non-electric cutting or grinding tools to reduce the dust in the air.
- If it has to be a dry process, a dust control system with a suitable capture velocity can be used to extract silica dust.
- Encourage good work practices to minimise exposures to nearby workers or the public, in some cases.

Dust levels in the air should be monitored by a competent person. The exposure limit for silica dust (respirable quartz) is 0.1 mg/m³. However, exposure levels in settings like construction sites are highly variable and air sampling alone is not enough to indicate the health risks from airborne silica dust.

In some building work, silica dust problems can be eliminated by using pre-built materials for plumbing and wiring.

Respirators should not be the primary method of protecting against silica dust. A suitable type of respirator may be used until adequate dust controls are put in place. Workers must be trained in their proper use and maintenance.

ARE MEDICAL TESTS NECESSARY?

The disease is difficult to detect at the early stages because of the absence of symptoms. However, chest x-rays can help identify some of the cases and hopefully reduce the severity of disease.

As a preventive measure, medical monitoring should be available to those workers in occupations where they may be exposed to crystalline silica. These should be done before job placement and at least every 3 years thereafter. High-risk jobs should be given annual medical examinations.

This Fact Sheet is courtesy of the Workers Health Centre