



SILICA

WHAT IS SILICA?

Silicon dioxide, also known as silica, is one of the most abundant compounds in the earth's crust. It is commonly found in rocks, sand, soil and in some living organisms.

As well as being used in glass manufacture and ceramics, silica is frequently found as a dust during mining, construction and excavation.

Silica can be found in many forms, including crystalline silica such as quartz. This has an arranged molecular structure that can pose a serious health hazard if the particles are inhaled.

WHEN IS SILICA DANGEROUS?

The effects of a single short-term exposure to dust containing a high concentration of silica are usually minor and rarely cause permanent injury. As with exposure to most forms of dust, symptoms can include irritated eyes, nose, throat and lungs.

Repeated and prolonged exposure to low to high concentrations of respirable crystalline silica, however, can cause permanent injury and lead to serious lung disease such as silicosis.

Silicosis can result from breathing respirable crystalline silica over a period of years, or following short-term exposure to extremely high concentrations. An example of this is when rocks containing the substance are ground up during mining or quarrying operations.

Such exposure is extremely unlikely nowadays, given modern work practices.

Silicosis occurs when crystalline silica is deposited in the air sacs of the lungs. This causes inflammation, which can result in scarring and calcification, and eventually reduced lung capacity.

The risk and the severity of damage varies greatly and depends on the size and shape of the particles, the concentration of particles and the length of time that the person is exposed.

WHAT ARE THE SYMPTOMS OF SILICOSIS?

Silicosis can vary from mild to severe. Typically, the symptoms do not develop until after 20 or more years of constant exposure.

The early symptoms include shortness of breath, a dry cough and a general feeling of ill health. As the disease progresses the symptoms may become more severe.

Silicosis may be linked to heart failure, since the heart has to work harder to pump blood through the scarred lung tissue. Another common complication is increased susceptibility to lung infections, particularly tuberculosis.

WHO IS AT RISK?

Exposure to potentially harmful levels of silica is typically a hazard for workers in specific occupations. These include mining, quarrying, foundries, abrasive blasting, construction and demolition, as well as the manufacture of stone, clay and glass products.

For the general community, the risk of exposure to respirable crystalline silica is very low.

IS THERE ANY TREATMENT?

There is no effective cure for silicosis. Treatment is aimed at relieving symptoms, managing complications and preventing infections.

HOW CAN THE RISK BE REDUCED?

Exposure to harmful levels of crystalline silica dust is not expected to occur outside the workplace. Within the workplace, exposure can be reduced by changes in work practices, engineering controls to achieve dust containment and suppression, and the use of suitable personal protection equipment.

For more information:

- Call SafeWork NSW on 13 10 50
- [Abrasive blasting: Code of practice](#)
- [Tunnels under construction: Code of practice](#)
- [How to manage work health and safety risks](#)
- [Managing risks of hazardous chemicals in the workplace: Code of practice](#)
- [Worksafe QLD Silica and the Lung](#)

Information sourced from:

- [Safe Environments Respirable Crystalline Silica](#)
 - [Queensland Department of Health](#)
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This publication may contain information about the regulation and enforcement of work health and safety in NSW. It may include some of your obligations under some of the legislation that SafeWork NSW administers. To ensure you comply with your legal obligations you must refer to the appropriate legislation.

Information on the latest laws can be checked by visiting the NSW legislation website www.legislation.nsw.gov.au

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