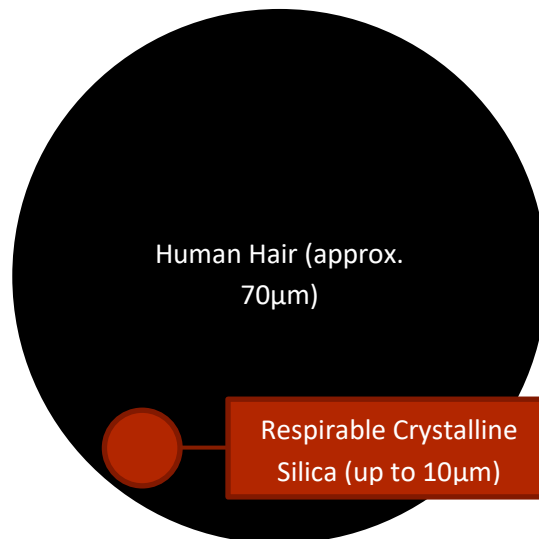


1 WHAT IS RESPIRABLE CRYSTALLINE SILICA?

Silica is silicon dioxide, a naturally occurring and widely abundant mineral that forms the major component of most rocks and soils. There are non-crystalline and crystalline forms of silicon dioxide. Though the most common type of crystalline silica is quartz, it is a common mineral found in:

- Most rocks, sands, and clays products such as concrete, mortar, brick, blocks, pavers, tiles, natural and composite stone bench tops
- Cement-based materials such as fibre-cement sheeting and autoclaved-aerated concrete.

Undisturbed, silica in its crystalline form doesn't pose a health hazard, however when it is disturbed by processes such as cutting, crushing, drilling, polishing, sawing or grinding, and becomes airborne a portion of that dust cloud is classed as respirable. Respirable portions of Crystalline Silica are just fractions the size of a human hair, and are invisible to the naked eye.



2 WHAT THREAT DOES RCS POSE?

Due to the particles being so small, they penetrate the alveoli; the part of the lung which is responsible for exchanging oxygen and carbon dioxide between the lung and the body's blood supply. The dust damages the lung tissue, where the immune system attacks it, causing both scarring and inflammation. Over time, the scar tissue builds up, causing shortness of breath and a range of other health issues.

SILICA FACT SHEET	Document No.: WEB-REF-01	Version No.: 1A
Upload Date: 29 th June 2020	Uncontrolled Version	Page 1 of 2

RCS is associated with the following health effects:

HEALTH EFFECT	ADDITIONAL COMMENTS
Chronic Bronchitis	Inflammation of the airways resulting in cough and irritation
Emphysema	Destruction of the lung tissue and loss of surface area for the exchange of oxygen and carbon dioxide between the lungs and the blood.
Acute Silicosis	Extremely high dust exposures can result in severe inflammation and an outpouring of protein into the lung after just a few months or years of exposure.
Accelerated silicosis	Can develop after exposures of 3 to 10 years to moderate to high levels of exposure to RCS and causes inflammation and scarring of the lung.
Chronic silicosis	Develops 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	Occurs with heavy exposure to silica but smokers have a higher risk
Kidney Damage	May require dialysis if severe
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.

3 HOW TO CONTROL RCS HAZARDS

Without the use of expert air monitoring equipment, it is near impossible to pinpoint the level of RCS in a given environment.

The two most effective ways to mitigate the risk of RCS in the workplace are either to eliminate the need to cut or abrade silica-containing products in the workplace (i.e. ordering the product that is the right shape or size); or substituting materials with others containing less/no silica.

These options are often quite difficult to implement effectively due to cost and availability, and a mixture of the following methods are more popular:

ENGINEERING	Local exhaust ventilation, dust suppression systems such as wet cutting, dust collection attachments on tools.
ADMINISTRATION	Good housekeeping procedures are adopted, dusty working areas are excluded to those that are not working directly, shift rotation
RPE	Respiratory protective equipment is fit tested and worn during and surrounding activities where RCS is present.

Respiratory protection should be applied in accordance with *AS/NZS 1715 – Selection, use and maintenance of respiratory protective equipment*.