Mining & Quarrying
OCCUPATIONAL HEALTH & SAFETY COMMITTEE

MAQOHSC SAFETY SNAPSHOT

Crystalline Silica

Commonly occurs in nature as the mineral quartz, and is found in granite, sandstone, quartzite, various other rocks and sand. Workers who inhale very small crystalline silica particles are at risk for silicosis.

SILICOSIS

Silicosis is the oldest Occupational Disease.

Silicosis results in permanent lung damage.

Silica dust particles become trapped in lung tissue causing inflammation and scarring and reducing the lungs ability to take in oxygen.

Symptoms of silicosis can include shortness of breath, cough and fatigue and may or may not be obviously attributable to silica.

Workers exposed to airborne crystalline silica also are at increased risk for lung cancer, chronic obstructive pulmonary disease (COPD) and kidney disease.

SILICOSIS

Is a Preventable Disease.

Fit Testing Workers Respiratory Protection

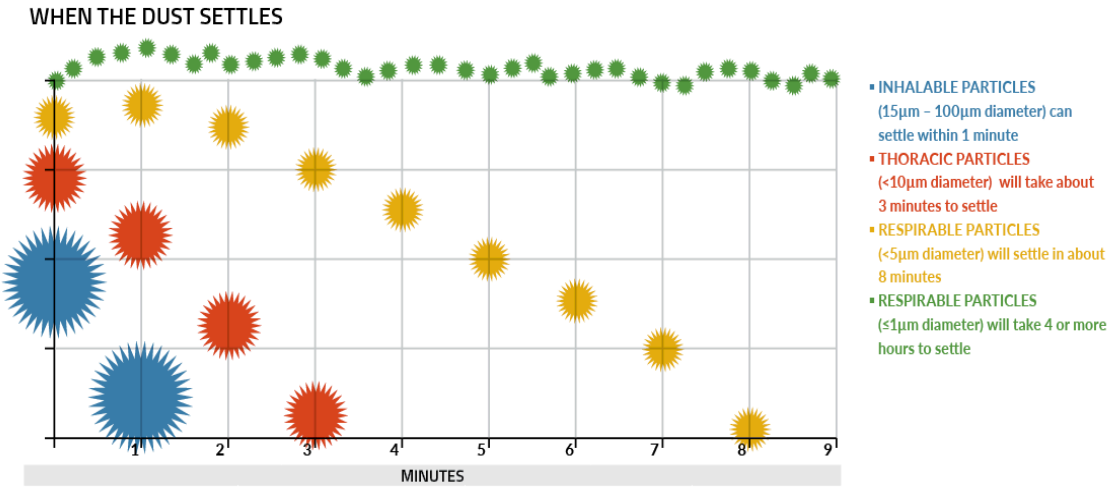
- AS/NZS1715 does not require fit test administrators to be certified.
- Administrators should be competent and know how to conduct a test.
- Administrators must be able to recognise invalid tests.
- Administrators must be able to properly clean and maintain equipment.

Quantitative Fit Test

A quantitative fit test (QNFT) can be used to fit-test any tight fitting respirator. It involves using an instrument to measure leakage around the face seal and produce a numerical result called a “fit factor”. There are two accepted QNFT test protocols.

- **Generated aerosol** uses a non-hazardous aerosol such as corn oil generated in a test chamber.
- **Condensation nuclei counter** (CNC) uses ambient aerosol and doesn’t require a test chamber eg Portacount.

A fit factor of a least 100 is required for half mask respirators and a minimum fit factor of 500 or 1000 for a full face piece negative-pressure respirator depending on the protection factor required in use.



No Dust is Good Dust

Mining & Quarrying
OCCUPATIONAL HEALTH & SAFETY COMMITTEE

MAQOHSC SAFETY SNAPSHOT

Who Should be Fit Tested?

All workers exposed to respirable crystalline silica must be fit tested to protect them from occupational dust exposure that can cause adverse respiratory health issues.

Workers Respiratory Protection Education

All workers exposed to respirable crystalline silica must be trained in the use and maintenance of respiratory protection.

New Workers & Young Workers

New and Young workers must be fit tested and trained in respiratory protection before starting any works where there is potential of being exposed to respirable dust and crystalline silica.

Qualitative Fit Test (QLFT)

A QLFT method uses seven exercises performed for 1 minute each.

- Normal Breathing
- Deep Breathing
- Moving head side to side
- Moving head up and down
- Bending over (or jogging in place if fit test unit doesn't permit bending at the waist)
- Talking
- Normal Breathing again

A qualitative fit test (QLFT) may only be used to fit test:

- Negative pressure, air purifying respirators, as long as they'll only be used in atmospheres where the hazard is at less than 10 times the permissible workplace exposure standard.
- Tight fitting face pieces used with powered atmosphere-supplying respirators

QLFT is pass/fail and relies on the user's senses using of the AS/NZS1715 accepted

Fit Testing can be conducted in three main ways:

- **A competent individual** such as an occupational health nurse or occupational hygienist. This option is ideal for individuals or business who do not have in-house expertise or resources and would like to include fit testing as part of their annual health monitoring.

- **Purchasing** a Qualitative Fit Test Kit and participating in Qualitative Fit Test Training. This is ideal for businesses with in-house resources with a high turnover of staff, are in remote **locations**, have multiple shifts, contract workers, shut downs, seasonal requirements, urgent or short notice requirements, also ideal for up skilling staff and improving engagement in respiratory protection programs.

- **Develop** a comprehensive PPE programme including respiratory protection this should include the provision of fit testing as part of the program.

No Dust is Good Dust