Silica Dust Dangers and Safety Measures Meeting Kit

WHAT IS SILICA DUST AND WHERE IS IT FOUND?

Quartz, the most common form of silica, is a component of sand, stone, rock, concrete, brick, block, and mortar. Common industries and operation where crystalline silica is found include: construction, glass products, concrete products, foundries, stone products, and more.

EXPOSURE RISKS

The cutting, breaking, crushing, drilling, grinding, or abrasive blasting of these materials without proper controls will produce fine silica dust. Silica particles can hang around for an entire work shift without being visible to the naked eye.

If you do one of the following activities, you are at risk of breathing silica dust:

- Chipping, sawing, grinding, hammering, and drilling of rock, concrete, or masonry
- Crushing, loading, hauling, and dumping of rock
- Sawing, hammering, drilling, grinding, and chipping of concrete or masonry
- structures
- Demolition of concrete or masonry structures
- Power cutting or dressing stone
- Abrasive blasting and hydro blasting of concrete
- Clean-up activities such as dry sweeping or pressurized air blowing of
- concrete or sand dust
- Tunneling, excavation, and earth moving of soils with high silica content

THE RISKS / POTENTIAL HEALTH EFFECTS OF SILICA

Inhaling silica dust can cause silicosis, a serious and irreversible lung disease. It can be lethal. Silica damages the lung and causes scar tissue to form. This causes the lung tissue to become thicker. Silica exposure can also cause lung cancer.

The longer workers have been exposed to silica dust, the worse the symptoms will become. As the disease progresses workers may show noticeable symptoms such as:

- Shortness of breath
- Severe coughing
- Body weakness

SILICOSIS IS CLASSIFIED INTO THREE TYPES: CHRONIC/CLASSIC, ACCELERATED, AND ACUTE.

Chronic/classic silicosis, the most common, occurs after 15–20 years of moderate to low exposures.

Accelerated silicosis can occur after 5-10 years of high exposures to respirable crystalline silica.

Acute silicosis occurs after a few months or as long as 2 years following exposures.

MAIN ROUTES OF EXPOSURE OF SILICA

- **Inhalation:** At high concentrations: can irritate the nose and throat.
- **Skin Contact:** Not irritating.
- **Eye Contact:** May cause slight irritation as a “foreign object”.
- **Ingestion:** Not harmful.
- **Effects of Long-Term (Chronic) Exposure:** VERY TOXIC. Can cause lung damage if the dust is breathed in.
- **Carcinogenicity:** Known to cause: lung cancer.

HEALTH IMPACTS OF EXPOSURE

When very small (respirable) silica dust particles are inhaled they can penetrate deep into the lungs and cause disabling and sometimes fatal diseases of the lung and kidney. When a person inhales crystalline silica, the lungs react and develop scarring and hardening around the trapped silica particles, resulting in a disease called silicosis. Silicosis is a disabling, irreversible, and sometimes fatal lung disease for which there is no cure. Since silicosis affects lung function, it makes you susceptible to lung infections such as tuberculosis. For smokers this is more hazardous, as smoking damages the lungs and adds to the damage caused by breathing silica dust. The other bad news is that crystalline silica is also a known carcinogen which means it can cause lung cancer.

HOW TO PROTECT YOURSELF

Elimination or substitution

Eliminating the hazard by substituting a safer process or material, where possible, is the most effective control.

Engineering controls

Making physical modifications to facilities, equipment, and processes can reduce exposure.

Administrative controls

These involve changing work practices and work policies. Providing awareness tools and training also count as administrative controls. All can limit the risk of silica dust exposure.

Personal protective equipment

This is the least effective control. When used, there must always be at least one other control in place as well.

FIRST AID MEASURES FOR SILICA

Inhalation: Take precautions to ensure your own safety before attempting rescue (e.g. wear appropriate protective equipment). Move victim to fresh air.

Skin Contact: Quickly and gently blot or brush away excess chemical. Wash gently and thoroughly with lukewarm, gently flowing water and non-abrasive soap for 5 minutes.

Eye Contact: Quickly and gently blot or brush chemical off the face. Immediately flush the contaminated eye(s) with lukewarm, gently flowing water for 5 minutes, while holding the eyelid(s) open. If irritation or pain persists, see a doctor.

Ingestion: Have victim rinse mouth with water. Call a Poison Centre or doctor if the victim feels unwell.

FINAL WORD

It is important to understand the hazards that silica dust creates for the workers who are exposed to it. The hazards and health consequences have been known for decades. Use engineering controls and other effective safeguards to reduce the amount of this dust in the air to reduce overexposure.