



SAFETY MATTERS

Safety Matters is intended to promote discussions of safety issues among underground construction professionals. You should always read and understand the operator's manual before operating any equipment. For additional information, please e-mail safety@ditchwitch.com.

TOPIC: CRYSTALLINE SILICA DUST

Potential Hazards

- Lung damage
- Death

Precautions

- For operations that may create airborne crystalline silica, dust suppression methods should be used, such as water spray or wet cutting.
- Respirators should be used to limit exposure where suppression methods aren't available or sufficient. Respirators should be approved for protection against crystalline silica-containing dust. Do not alter the respirator in any way. Learn the proper way to use a respirator.
- Exposure to crystalline silica should be monitored periodically to ensure limits are not exceeding OSHA's permissible exposure limit.
- Persons frequently exposed to crystalline silica dust should obtain regular medical exams to monitor the health of the lungs.
- After exposure to airborne crystalline silica, replace and wash clothing to prevent spreading to vehicles, furniture, etc.

Information/Facts

- Crystalline silica is the basic component of sand, quartz and granite rock.
- Airborne crystalline silica is produced by activities such as cutting or drilling concrete and asphalt, sandblasting, demolition, quarrying, and maintaining filters involved in this work.
- Silicosis is the disease most associated with crystalline silica exposure; it is incurable but preventable. Silicosis is a debilitating and often fatal lung disease among workers that are employed in occupations that expose workers to silica dust.
- A worker's lungs may react more severely to silica sand that has been freshly fractured (sawed, hammered, or treated in a way that produces airborne dust). This factor may contribute to the development of acute and accelerated forms of silicosis. Chronic silicosis can occur after ten or more years of exposure to crystalline silica at relatively low concentrations.
- Accelerated silicosis can result from exposure to high concentrations of crystalline silica, and symptoms may develop five to ten years after the initial exposure.
- Acute silicosis can occur where exposure concentrations are the highest and can cause symptoms to develop within a few weeks to four or five years after the initial exposure.

- Symptoms of silicosis include shortness of breath after exercising and a harsh, dry cough. Patients may have more trouble breathing and cough up blood as the disease progresses. Patients with advanced silicosis may have trouble sleeping and experience chest pain, hoarseness, and loss of appetite. Silicosis patients are at high risk for tuberculosis.
- The current OSHA permissible exposure limit (PEL) for respirable crystalline silica (quartz) is 100 µg/m³ as an 8-hour time-weighted average (TWA) [29 CFR1910.1000]. The NIOSH recommended exposure limit (REL) for respirable crystalline silica is 50 µg/m³ as a TWA for up to 10 hours/day during a 40-hour workweek [NIOSH 1974b].
- The National Institute for Occupational Safety and Health (NIOSH) reports that each year more than 250 die from silicosis, and hundreds more are disabled. There is no cure for the disease, but it is 100-percent preventable.