

Reducing Exposure to Crystalline Silica Dust Part 2

Adapted from information by the National Institute for Occupational Safety and Health

Last month we covered recommendations from the National Institute for Occupational Safety and Health (NIOSH) regarding crystalline silica dust during rock drilling procedures. Breathing crystalline silica dust can cause a variety of health problems including lung cancer, kidney disease, reduced lung function, and other disorders. Silicosis, a deadly lung disease with no treatment or cure, is also caused by the inhalation of crystalline silica dust.



At least 1.7 million U.S. workers in the construction, sandblasting, and mining industries are exposed to crystalline silica on the jobsite.

Although many workers in the mining industry are familiar with the hazards of silica dust and silicosis, those working in construction are also at risk.

After conducting several studies on the matter, NIOSH developed the following engineering control and work practice suggestions for keeping this dangerous dust out of the air.

Engineering Controls

Wet drilling systems pump water through the drill stem to prevent dust from being released into the air. The drill operator controls the flow by using a control valve. Raising the water flow will improve dust capture; however, too much water can cause operational problems.

Dry collection systems use an enclosure around the area where the drill stem enters the ground. The enclosure is made by hanging a rubber or cloth shroud from the underside of the drill deck. The enclosure is connected to a dust collector with a fan outside of the filter opposite the drill hole. The fan creates negative pressure inside the enclosure capturing dust as it leaves the hole during drilling.

If possible, use rock drilling equipment with enclosed positive-pressure cabs with air conditioning and a filtered air supply to separate the operator from dust. Older cabs can be retrofitted with systems to filter, heat, and cool the air.

Personal Hygiene, Protective Clothing, and Work Practices

Encourage employees to wash their hands and face before eating, drinking, or smoking. It is equally important to discourage eating, drinking, or using tobacco in the work area.

Another prevention method includes changing into disposable or washable work clothes at the jobsite. If possible, workers should shower and change into clean clothes before leaving the jobsite to avoid contaminating cars, homes, and other areas. If showering or changing into clean clothes at the jobsite is not possible, use a vacuum with a high-efficiency



filter to remove dust from clothes. Use a water hose to remove dust from equipment. **Do not use compressed air to remove dust from clothing or equipment!**

Proper training in the use of dust control systems and work procedures will help rock drilling professionals and assistants prevent their exposure to crystalline silica dust.

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