

Reducing the risk of exposure to crystalline silica dust for horse trainers and riding coaches

Exposure to crystalline silica dust in riding arenas presents health hazards for horse trainers and riding coaches. This bulletin explains the hazards, suggests options for preventing worker exposure, and discusses the need for an exposure control plan.

Equestrian riding instructors, coaches, and trainers are at an increased risk for several respiratory conditions if they work primarily in a riding arena or round pen with sand footing.

Nearly every riding arena contains sand of some type, either as part of the subsurface, the base, or the footing itself. Almost all sand contains crystalline silica. As the horses work, they disturb the silica, which produces a fine, airborne silica dust. Workers, riders, and horses inhale the dust.

Health hazards posed by crystalline silica dust exposure

Crystalline silica dust exposure has been linked to lung cancer. In one case, a trainer was exposed to crystalline silica dust while working 7 to 12 horses a day in a sand longeing arena for more than 20 years. The trainer died of lung cancer. In a published case report, the authors stated that crystalline silica dust exposure was the likely cause of the trainer's lung cancer.

The prolonged breathing of crystalline silica dust can also cause silicosis, a disabling, sometimes fatal lung disease. The fine particles are deposited in the lungs, causing thickening and scarring of the



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lung tissue. There is no cure for this entirely preventable disease.

Respirable dust of all kinds may also contribute to chronic obstructive pulmonary disease (COPD) in both humans and horses.

How to prevent worker exposure

By law, as an employer you must do everything reasonably possible to eliminate worker exposure

to respirable crystalline silica. You can effectively control worker exposure by doing the following:

- Eliminate silica or substitute it with safer footing materials.
- Use medium-coarse, washed sand in footing materials rather than fine sand. Medium-coarse, washed sand is less likely to produce excessive dust.
- Use watering systems. Regular watering can help reduce airborne dust levels and is both inexpensive and environmentally safe. Options range from manual watering to built-in, automated systems.
- Use dust-control products. These products work by holding particles together. Examples include oils, waxes, salts, polymers, and alkanes.

Note that coarser sand and alternative footing materials will eventually break down and produce dust. It's important to maintain the footing materials by regularly dragging and watering them. Footing materials should also be completely replaced periodically to help prevent worker exposure in the long term.

Crystalline silica dust requires an exposure control plan

Crystalline silica is a human carcinogen, so employers must take special precautions to protect workers. If workers are exposed to a carcinogen, section 5.57 of the Occupational Health and Safety Regulation requires employers to implement an exposure control plan (ECP) to maintain workers' exposure as low as reasonably achievable below the exposure limit. The eight-hour exposure limit for respirable crystalline silica is 0.025 mg/m³. As a general rule, if dust is visible in the air, workers are overexposed.

An ECP includes elements such as:

- A statement of purpose and responsibilities
- Risk identification, assessment, and control
- Written work procedures
- Education and training
- Documentation

The ECP must be reviewed at least once a year and updated as necessary by the employer and a worker health and safety representative.

For more information

Occupational Health and Safety Regulation

- [Section 5.54, Exposure control plan](#)
- [Section 5.57, Designated substances](#)
- [Section 6.112.2, Elimination or control of exposure](#) (to respirable crystalline silica and rock dust)

Resources from other organizations

- [A case report of lung cancer in a horse trainer caused by exposure to respirable crystalline silica: an exposure assessment](#) (Safety and Health at Work)
- [Riding arena footing material selection and management](#) (PennState Extension)