

Silica Exposure

Summary

University Facilities (UF)

Internal Standard: 04.F.01.01

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Approved by: Todd Barnette

This procedure establishes official Standard Managing Silica Exposure.

Background

Crystalline silica (silicon dioxide, SiO₂) is a common mineral found in many naturally occurring and man-made materials. Silica is found in the earth's crust, and is a component of soil, sand, stone, rock, concrete, brick, block, mortar, and plaster. It is also found in paints, plasters, joint compound, drywall, ceiling tiles, ceramic tiles, and grout.

There are known health effects from exposure to respirable crystalline silica. Most common is *silicosis*, an incurable disease where silica has caused scarring in the lungs. Silica can also cause chronic obstructive pulmonary disease (COPD), chronic bronchitis, emphysema, and chronic airway obstruction. It can make you more susceptible to tuberculosis. There are non-respiratory diseases associated with silica exposure, such as kidney disease, scleroderma, lupus, and rheumatoid arthritis.

Clemson's number one goal is to *not generate any silica containing dusts above the Permissible Exposure Limit*. This allows us to ensure that no one is exposed above acceptable, safe levels – not the worker performing the task, nor faculty, staff, or students passing by the work area. It also reduces our compliance needs to a few easily manageable tasks.

Whenever possible, silica hazards will be eliminated from the workplace by engineering, work practice, or administrative controls. Only if this is not possible, or those controls do not provide enough protection, will Clemson use PPE.

This program applies to all Faculty, Staff, Student, **Contractors, or Sub-contractors** whose activities could generate silica containing dusts and are working in or on Clemson owned or operated properties.

Construction/maintenance activities causing silica exposure

- Abrasive blasting
- Jack hammering
- Concrete crushing
- Rock breaking (e.g., using hoe rams)
- Rock drilling
- Mixing of concrete or grout
- Concrete drilling
- Sawing concrete or bricks
- Chipping or scarifying concrete
- Rock crushing
- Moving or dumping piles of concrete, rock or sand
- Demolition of concrete or brick
- Using coatings containing silica
- Removing coatings containing silica
- Dry sweeping of debris

Controlling exposures

In addition to protecting employees working with silica containing materials, building occupants, staff, students, and the public must be protected from the generation of silica dust. Visible dust must not leave the worksite where it might expose passers-by.

Outdoors engineering controls (wet cutting or HEPA vacuum) and barricades/tape sufficiently distant from the work should be enough to protect passers-by.



Indoors, additional measures may be necessary to protect building occupants.

First, building occupants must be notified of projects.

Scheduling project outside of normal working hours when area is less occupied is advisable. Barrier tape or plastic sheeting must be used to separate the worksite from the rest of the building. Signs must be posted at the entrance to the worksite to prevent access.

Please see [Managing Silica Exposure](#) for our full plan.

For each University employee working with materials containing crystalline silica, Clemson will fully and properly implement the engineering controls, work practices, and respiratory protection specified. OSHA has a list of tasks and equipment they have already approved. Tasks/equipment **not** on this list will have to be evaluated; contact ES (EHS@clemson.edu) for assistance.