

## RESPIRABLE CRYSTALLINE SILICA SAFETY IN THE SCHOOL OF ART

### Respirable Crystalline Silica

Crystalline silica is commonly found in sand, rock, concrete/cement, brick, mortar, porcelain, clays, ceramic, plaster and many other art-related products. When these materials are manipulated in such a way that they create dust, some fraction of that dust may include particles small enough to become respirable. Respirable sized particles can reach the deeper recesses of the lungs. The inhalation of respirable crystalline silica over time can cause adverse health effects, the most common of which is silicosis (marked by inflammation and scarring of the lungs).

### Other Potential Health Effects

- Lung cancer - Silica has been classified as a human lung carcinogen
- Bronchitis/Chronic Obstructive Pulmonary Disorder
- Tuberculosis - Silicosis makes an individual more susceptible to TB
- Scleroderma - A disease affecting skin, blood vessels, joints and skeletal muscles
- Possible renal disease

### Possible Silica-Containing Processes

- Clay mixing and glazing
- Cement/concrete mixing
- Sculpting materials containing stone/mineral
  - This includes chipping, sanding, grinding or other techniques that manipulate a material and generate dust
- Using sand/plaster molds
- Stucco and Fresco

### Reducing Exposure

Exposure to respirable crystalline silica can be reduced by:

- Eliminating the use of materials containing crystalline silica or finding alternative products that contain less silica. You can find this information in the materials Safety Data Sheet (SDS).
  - Avoid products and materials that contain **Sand, Quartz, Cristobalite, and Tridymite**, as these are all polymorphs of silica.
- Using wet methods for processes such as cutting, grinding, crushing or sanding of materials that may contain silica to keep dust generation at a minimum.
- Using engineering controls such as local exhaust ventilation or dust extractors with an attached HEPA filter to minimize inhalation exposures of airborne dust.
- Using a vacuum with a HEPA filter or wet mop/sponge to clean areas that are used for potential silica-containing materials. **NEVER** clean these areas by dry sweeping or with compressed air.
- Purchasing pre-mixed materials or performing any mixing techniques in outdoor/well-ventilated areas.
- Using a respirator as directed in Yale University's [Respiratory Protection Program](#). Please contact your safety advisor if you are wearing a respirator and have not been trained and fit tested by the University.



Please contact Environmental Health and Safety at 203-785-3550 or [ehs@yale.edu](mailto:ehs@yale.edu) if you have any questions or work with silica-containing products and an evaluation of this work has not been performed.