**Standard Operating Procedure**

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| **Chemical name/class:** | **Crystalline Silica**  | **CAS #: 7631-86-9** |
| **PI:** |  | **Date:** |
| **Building:** |  | **Room #:** |

1. **Circumstances of Use:**

***This SOP must be customized for each lab where the airborne particles of silica containing materials are generated that create an inhalation hazard. Use this section to describe the circumstances of use, including concentration and quantity as well as identification of a designated work area.***

2. **Potential Hazards:**

 Inhaling very small (“respirable”) crystalline silica particles causes multiple disease, including silicosis, an

 incurable lung disease that can lead to disability and death. Respirable crystalline silica is also recognized as

 causing lung cancer, chronic obstructive pulmonary disease, and b

 kidney disease.

 Silica also causes damages to the lungs through prolonged or repeated inhalation exposures.

 The OSHA Permissible Exposure Limit for respirable crystalline silica is 0.05 milligrams/m3 over an 8 hour day.

3. **Engineering Controls:**

 Any activities that lead to airborne silica dust should be conducted in a chemical fume hood or controlled by utilizing other local exhaust ventilation systems with HEPA filtration.

* Use HEPA filtered vacuum systems for cleaning silica containing dust.

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| 4. | **W** | **ork Practice Controls:** |
|  |  | ***Laboratory-specific written procedures are required for work with Silica, including a designated work area****.* |
|  |  | ***It is expected that only competent persons with specific training and experience will be handling Silica where it creates an inhalation hazard.*** |
|  |  | Use wet methods where feasible to avoid producing airborne silica dust. |
|  |  | Use personal protective equipment (PPE) as required. Avoid breathing dust. |

5. **Personal protective equipment (PPE):**

 PPE: Safety glasses are recommended when handing Silica. Respiratory protection is generally not practical in most situations, with reliance on engineering controls most acceptable.

* If a respirator is required, for most situations an air-purifying respirator with dust cartridges should be utilized. Environmental Health and Safety should be contacted (687-1111) to assess your respirator needs.

6. **Transportation and Storage:**

* Store silica containing materials in a way that will not create dust. Keep away from food and drink.
* Do not permit dust to collect on walls, floors, machinery, or other surfaces.

7. **Waste Disposal:**

Handle and store following the guidelines above while accumulating wastes and awaiting chemical waste pickup. Chemical waste must be disposed of following UNC Charlotte’s Laboratory Chemical Waste Management practices: <http://safety.uncc.edu/laboratory-and-research-safety/hazardous-universal-waste>

8. **Exposures/Unintended contact:**

 Skin: No adverse effects are expected.

 Eye: Remove contact lenses. Immediately flush eyes. Seek medical advice if irritation sets in or persists. May cause an abrasive injury.

 Inhalation: Immediately move to fresh air. Seek medical assistance if discomfort or irritation sets in and persists.

 Ingestion: Ingestion is an unlikely route of exposure. If dust is swallowed, it may irritate the mouth and throat.

The work-related injury or illness report found at:

 <https://safety.uncc.edu/services/workers-compensation>

9. **Spill Procedure:**

Avoid dry sweeping. Do not use compressed air to clean spilled sand or ground silica. Use water spray/flushing or HEPA filtered vacuum cleaning systems. Wet before sweeping.

10.  **Training of personnel:**

All personnel are required to complete the UNC Charlotte EHS Laboratory Environment Training Checklist. This checklist includes an introduction to general chemical safety as well as review of the laboratory specific safety plan. Furthermore, all personnel shall read and fully adhere to this SOP when handling the chemical.

**“I have read and understand this SOP. I agree to fully adhere to its requirements.”**

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