

Draft

University of Washington

SILICA PROGRAM

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Environmental Health and Safety
Occupational Health and Safety

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Preface

This document establishes a campus-wide Silica Program for the University of Washington. It outlines the responsibilities of University departments, University employees and Environmental Health and Safety. This document also contains guidelines for standard operating procedures for exposure control, respiratory protection, and medical evaluations.

I. Policy Statement

A. Purpose

The University of Washington Silica Program establishes accepted practices for controlling employee exposure to silica dust and enables University departments to maintain compliance with the Washington State General Occupational Health and Safety Standard, Air Contaminants (WAC 296-62-075).

B. Scope and Application

The Silica Program applies to all University of Washington departments, employees and students as well as visiting faculty or scholars. This includes off-site facilities or leased facilities.

C. Responsibilities

University Departments have the primary responsibility for compliance and implementation of the Silica Program.

University Employees working with silica containing materials are required to know and understand the hazards associated with silica dust and follow prudent practices when working on silica containing material.

Environmental Health and Safety (EH&S) is responsible for developing and promoting the implementation of the Silica Program. EH&S will provide technical assistance, training and medical surveillance to university departments.

D. Definitions

Departments -	Academic or administrative departments of the University of Washington.
EH&S -	Environmental Health and Safety
Silica	Amorphous, crystalline or cristobalite mineral. Cas#'s 112926-00-8, 61790-53-2, 14464-46-1.
Silica Program -	Protocols and administrative activities geared toward ensuring that all University of Washington operations complies with the Washington State General Occupational Health and Safety Standard (WAC 296-62-07546).
PEL -	Permissible Exposure Limit; maximum allowable limit calculated as an 8-hour time weighted average exposure.

STEL -	Short Term Exposure Limit; maximum allowable limit calculated as a 15 minute time weighted average.
PPE	Personal Protection Equipment; includes items such as respirators, gloves, lab coats/coveralls, foot coverings, etc.

II. Hazard Assessment / Exposure Monitoring

A. General

The department performing the task shall conduct a hazard identification of the university facilities and work processes in which silica-containing material is used or disturbed. Environmental Health and Safety can be contacted for consultation and/or air monitoring for negative exposure assessment as necessary.

B. Negative Exposure Assessment

Negative Exposure Assessment must be conducted for tasks in which silica-containing material is used or disturbed. Negative Exposure Assessments will be conducted by EH&S or designee and include at least the following information:

- Location of work
- Date of assessment
- Description of process or task
- Description of material disturbed (including condition)
- Personal protection equipment and tools used during task
- Contaminant controls used
- Personal air sampling results, sample date, sample duration, sampling and analytical methods
- Name, identification number and job classification of employee monitored

EH&S will maintain exposure assessment records for at least forty years or for the duration of employment plus twenty years, whichever is longer. If monitoring results indicate personal exposure levels above the PEL, the department must develop a plan to reduce employee exposure. The plan must be submitted to EH&S for review

C. *Exposure Monitoring*

1. Initial Exposure Monitoring

As an integral part of the initial university-wide hazard assessment, EH&S will conduct representative exposure monitoring on selected individuals working with silica containing material. Both 15 minute and 8 hour samples will be taken.

2. Periodic Exposure Monitoring

Periodic monitoring is required whenever exposures are greater than or equal to the PEL or STEL. University departments are responsible for arranging and bearing the cost of periodic monitoring. However, assistance for conducting the monitoring can be requested from EH&S.

3. Termination of Exposure Monitoring

Periodic monitoring may be discontinued if results from two consecutive sampling periods taken at least seven days apart show that employee exposure is below the action level and STEL. Prior to termination, a hazard assessment must be repeated.

4. Sampling Methods

Personal exposure monitoring will be conducted using NIOSH Methods 7501, 7500, 7601, 7602 or equivalent.

D. *Reporting of Results*

EH&S will notify the department of assessment/monitoring results at least 15 days after the laboratory analysis is received. The department will then be responsible for disseminating the information to affected employees.

If monitoring results indicate personal exposure levels above the PEL and STEL, the department must develop a plan to reduce employee exposure. The plan should be reviewed by EH&S.

III. Methods of Compliance

A *Hazard Communication/ Employee Information and Training*

1. Hazard Communication

All departments must provide hazard communications information to their staff, in accordance with WAC 296-62-05409 and 296-62-05419.

All employees must be acquainted with all pertinent Material Safety Data Sheets (MSDS). If MSDS's are stored in the work area, employees must know where they are located. If MSDS information is to be retrieved via the Laboratory Safety System, each employee should be trained in use of the database. MSDS's can be requested from EH&S.

University departments must document that all staff has received Hazard Communications training.

2. Training

University departments must provide training for employees working with silica containing materials and/or supervisor staff working with silica containing material. The training must include at minimum: health hazards, required PPE (including their limitations), proper use protocols, discussions of the regulatory standard, description and purpose of medical surveillance, and emergency procedures.

Training must be provided to employees at the time of their initial assignment and whenever a new exposure to silica is introduced into their work area.

University departments must document that all staff has received all safety training.

B *Exposure Control*

University departments must institute feasible administrative and engineering controls to reduce and maintain employee exposures at or below the PEL and STEL. When engineering and work practice controls cannot reduce employee exposure below the standards, controls will be supplemented with appropriate personal protection equipment.

1. *Pre-project planning*

EH&S will review capital projects potential exposure issues via the Capital Projects Office Review Process. However, the primary responsibility of insuring that silica-containing building material is handled so as not to pose a health hazard to university employees rests with the Project Manager.

The responsible person for each maintenance or minor alterations project must ensure that the tasks involved will not disturb lead containing material. If silica-containing material will be disturbed, a workplan for working with

the material is required. The workplan must contain information for proper handling of the material, contaminant control measures, personal protective equipment to be used, and proper disposal procedures.

2. *Administrative/engineering controls*

Where silica exposures above the PEL has been documented, administrative and/or engineering controls will be implemented where feasible. Follow up exposure assessments will be conducted to determine the effectiveness of the control measures.

Engineering and work practice controls can include but not be restricted to:

- keep material wet during the process to reduce dust levels
- using engineering controls such as HEPA vacuum attachments

C. *Personal Protective Equipment*

All employees must wear Personal Protective Equipment while performing tasks involving silica containing material. University departments must make available all appropriate protective equipment. The proper level of protection depends on the task and tools used to perform the task. If applicable exposure monitoring data is available, the level of PPE should reflect the expected level of exposure.

University departments shall assure that protective equipment and clothing contaminated with silica is cleaned prior to reuse. University departments shall assure that no employee takes home contaminated clothing or equipment. University departments must use pre-approved laundries to clean silica-contaminated clothing and must notify the launder of the contamination.

University departments must repair or replace all damaged PPE.

D. *Respiratory Protection*

Respiratory Protection will be used only after all administrative or engineering controls has been determined to be impractical.

All employees using respirators must receive respiratory protection training, medical evaluation and respirator fit test as per the University of Washington Respiratory Protection Program.

Respirator selection must be in accordance with Table 1 of WAC 296-62-07540 (7).

Respirators must be used during:

- periods necessary to install feasible engineering and work-practice controls
- work operations for which the employer establishes that engineering controls are not feasible
- work operations for which feasible controls are not yet sufficient to reduce exposure to below the action level.

F. *Hygiene Protection*

Where silica-containing materials are used or impacted and there is a risk of worker contamination, the University shall provide:

- Designated change areas at the worksite for staff to remove contaminated clothing
- Washing facility at the worksite for washing hands and face.
- On site showers where airborne lead levels are above the PEL.
- Eating areas away from the work-site.

Employees working with silica-containing materials must:

- Wash hands and face before leaving the work site
- Eat, drink, smoke and apply cosmetics outside of the worksite and after proper decontamination
- Clothing contaminated with lead must be bagged and marked as lead contaminated clothing. Contaminated clothing must be sent to a laundry facility licensed to handle such material.

G. *Emergencies*

University departments must have a contingency plan in case of emergencies. These plans should include at least the emergency contacts, phone numbers, emergency response protocols and/or checklists.

IV. Medical Surveillance/Medical Removal

A. *Medical Surveillance*

Medical surveillance activities will be coordinated by Campus Health Services.

Medical surveillance will be provided for all employees:

- exposed to concentrations at or exceeding the PEL or STEL
- who develop signs and symptoms resulting from exposure
- exposed to silica in an emergency situation

Medical surveillance includes employee assessment by use of a medical questionnaire and/or medical examination. Information will be made available to exposed employees within 15 days of the medical assessment and medical records will be retained for 30 years from the last day of employment at the University of Washington.

The hospital emergency departments will provide emergency health care for exposures causing acute distress.

B. *Medical Removal*

Employees reporting health effects attributed to workplace exposure to silica must be evaluated by Campus Health Services. In lieu of Campus Health Services, employees may choose to be evaluated by a physician of their choice. A medical opinion regarding removal from workplace exposure must be presented to the employee within 15 days. A copy of the medical opinion will be given to Environmental Health and Safety and the employee's supervisor.

Alterations of work assignment will be managed by the supervisor in collaboration with the area personnel representative.

The employee has the right to obtain a second opinion from a physician of his or her choice. Differing opinions will be reconciled on a case by case basis. The reconciliation will be conducted by representatives from Campus Health Services, Labor Relations, Risk Management, employee representative and EH&S.

V. Record Keeping

University departments must maintain a record of safety training received by each employee, emergency/spill response plans, exposure assessments and control measures. EH&S will maintain records of hazard assessments and air monitoring data, respiratory protection training and fit tests, regulated areas.

Records will be kept for at least the following periods:

- hazard assessments and air monitoring data – 30 years
- medical records – employment plus 30 years