

<b>Nuisance Dust, MMMF and Regulated Chemical Control</b>	S.O.P. 5E		Page 1 of 7
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STANDARD OPERATING PROCEDURE			

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### I. SCOPE AND PURPOSE

- A. To develop procedures to ensure the health and safety of B.I.S.T. personnel working in and around environments contaminated with nuisance dust and/or regulated chemical substances.
- B. To develop and provide a medical surveillance program that is consistent in its enforcement and value in relation to the contaminant.

### II. RELATED PROCEDURES AND RESOURCES

- A. S.O.P. 2C, Project Hazard Control
- B. S.O.P. 3G, Personal Protective Equipment
- C. S.O.P. 5F, Respiratory Protection
- D. S.O.P. 5G, Hazard Communication
- E. S.O.P. 8A, Asbestos Abatement Procedures
- E. S.O.P. 8B, Lead Abatement Procedures
- F. 29 CFR 1910.1017 Vinyl Chloride
- G. 29 CFR 1910.1028 Benzene
- H. 29 CFR 1926.1101 Asbestos

### III. DEFINITIONS

- A. **Action Level (AL)** - OSHA mandated level of contaminant in the air; the action level is approximately half of the Permissible Exposure Level (PEL) and usually triggers institution of some control measures (i.e., more frequent monitoring, training, implementation of engineering controls, etc.); the AL is always an eight-hour time weighted average.

- B. **Ceiling Value (C)** - Level of a contaminant in the air that should not be exceeded at any time, the ceiling level is an instantaneous reading and has no qualifiers
- C. **Chemical Abstract Service Registry Number (CAS #)** - Unique number given to a chemical when introduced into study, a chemical may have several synonyms, but only one CAS#.
- D. **Excursion Limit (EL)** - OSHA mandated airborne concentration of a contaminant that is not to be exceeded when the sample is collected over a specific time period, which is always less than 8 hours. Time periods are always specified.
- E. **Permissible Exposure Limit (PEL)** - OSHA mandated level of contaminant in air that is not to be exceeded. PEL's can be based on 8-hour averages or instantaneous readings; the time constraint of a PEL will always be stated in the standard when setting.
- F. **Short Term Exposure Limit (STEL)** - A short-term (usually 15 minutes) time-weighted concentration of contaminant in air that cannot be exceeded. Most STEL's are based on 15-minute sampling time, but most specify the time limit.
- G. **Time Weighted Average (TWA)** - Concentration of a contaminant in air that is averaged for an 8-hour work day, 40-hour work week over an average working lifetime; when used in conjunction with PEL, shall not be exceeded when measured over an average 8-hour work day according to OSHA-mandate.

#### IV. PERSONNEL RESPONSIBILITY

- A. Supervisor
  - 1. It is the responsibility of the supervisor to know the requirements of this procedure.
  - 2. No employee shall enter or be directed to enter an area where a known release of a regulated Chemical has occurred, until:
    - a. Notification of the Safety Director or their designated representative has taken place, and
    - b. Sampling of the Regulated Chemical has occurred and the exposure level has been established, or
    - c. Employees are provided a supplied air respirator system, and
    - c. A written plan has been established, medical monitoring instituted, specific training of personnel has been conducted and successfully completed by all effected employees.
- B. Employee
  - 1. It is the responsibility of the employee to report to their supervisor any suspected exposure to a chemical/s in the workplace.
  - 2. It is the responsibility of the employee to follow the requirements of this procedure.

#### V. BENZENE

- A. Concentration Limits:
  - 1. PEL = 1 ppm TWA
  - 2. AL = 0.5 ppm TWA
  - 3. STEL = 5 ppm STEL (15 min.)

- B. Compliance Program:
1. When employee exposures are over PEL, written engineering and work practice controls will be implemented to reduce exposure to lowest level, as well as a schedule for implementation.
  2. All employees exposed to benzene in an emergency situation, will be immediately entered into a medical monitoring program.
    - a. All employees exposed are required to provide, at no cost to them, a urine sample for purposes of performing a urine phenol test.
    - b. Upon receipt of the results of the test, at the request of the employee and with no charge to the employee, a consultation with an Occupational Physician will be scheduled at a mutually agreed upon time and location.
- C. Access to Medical Records - Copies of the plan will be available within 30 days upon receipt of a written request by the Asst Secretary, the Director, copies will be made immediately to effected employees or to the employees designated representative at their request.
- D. Exposure Monitoring: Initially, monitoring is required 30 days after introduction into the workplace; if levels are above AL, annually; above PEL, semi-annually. STEL monitoring shall be conducted as necessary, after spills.
- E. Medical Monitoring: Initial and annual exam required when exposed above the AL for 30 plus days per year, or when exposed above the PEL for 10 plus days per year, and medical monitoring shall be performed after emergencies. Medical removal is a provision of the standard. Medical records including monitoring records will be maintained for length of employment plus thirty years.
- F. Regulated Area: When levels exceed the PEL or STEL a regulated area is required to be established. Only company personnel authorized, trained and wearing proper PPE allowed in regulated areas.
- G. Personal Protective Equipment Restrictions: Supplied at no cost to employee and of type to prevent eye contact and limit dermal contact. Half-face mask with organic vapor cartridges is the minimally acceptable protection when levels are less than or equal to 10 ppm.
- H. Training: Initially and annually when levels exceed the AL. Training shall be in accordance with the Hazard Communication standard and shall incorporate Hazard Communication Standard, appendices and description of medical program.

## VI. Vinyl Chloride

- A. Concentration:
1. PEL = 1 ppm TWA
  2. AL = 0.5 ppm TWA
  3. STEL = 5 ppm TWA
- B. Compliance Program: Required and shall include particular attention to engineering controls or if not feasible, then work practice controls.
- C. Exposure Monitoring:
1. Check with facility Safety or Environmental department for area

- monitoring data.
- 2. If no monitoring data is available perform initial monitoring.
  - a. If levels are above AL, monitor quarterly
  - b. If levels are above PEL, then conduct monthly monitoring.
- D. Medical Monitoring: Initial and annual medical monitoring shall be conducted, unless exposure of more than 10 years, then conduct semi annual medical monitoring.
- E. Regulated Area: Is required when levels exceed PEL. Signage is also required.
- F. PPE Restriction: Chemical cartridge with full-face piece is acceptable when levels are less than 10 ppm. Prevent skin contact with liquid through use of impermeable clothing.
- G. Training: Shall include hazards of vinyl chloride, operations exposure, monitoring programs, medical surveillance, emergency procedures, recognition of health effects and review of the standard.
- H. Other: Maintain monitoring records for 30 years and medical monitoring records for 30 years or length of employment plus 20 years, whichever is longer.

**VII. WORKING WITH MAN-MADE MINERAL FIBERS (MMMMF), NUISANCE DUST AND CRYSTALLINE SILICA (AS CRYSTOBALITE)**

- A. Respiratory Protection
  - 1. Employees working with M.M.M.F., Nuisance Dust or Crystalline Silica (as crystobalite) shall use respiratory protection; type of respiratory protection is dependent upon possible exposure.
  - 1. 3M 8210 N95 or equivalent shall be used under conditions with natural draft ventilation in large open areas with work procedures not creating a visible dust cloud.
  - 2. Half face, dual cartridge, HEPA Filter Respirator, at a minimum, shall be used under conditions such as:
    - a. Confined Space
    - b. Using power equipment to cut or any activity creating a visible dust cloud.
    - c. Removal of R.C.F. after in service use.
  - 3. Full-face negative air or in extreme cases a PAPR should be utilized to maximize respiratory protection.
  - 4. The Safety department in concert with Project Management shall determine the appropriate respiratory protection to be utilized.
- B. Recommended Work Practices
  - 1. Fiber Glass
    - a. Wear Loose Clothing - Wearing long sleeved shirts and blouses, loose at the neck and wrists, along with long pants and caps will protect skin areas from coming in contact with glass fiber. Loose clothing also helps prevent fiber from rubbing into the skin. Depending on job conditions, gloves may be necessary.
    - b. Prevent Dust - Dust collection systems should be used whenever fiberglass exposure may exceed either established particulate

standards or recommended fiber standards. Operations such as sawing, machining and/or blowing fiberglass have the potential for high exposures.

- c. Protect Eyes - Safety glasses, goggles, or face shields should be worn whenever fiberglass materials are being handled or applied.
  - d. Don't rub or Scratch Skin - If fiberglass particles and fibers accumulate on exposed skin areas, do not rub or scratch. Remove the material by washing the skin thoroughly but gently with warm water and mild soap. Using a good commercial skin cream or lotion after washing may be helpful.
  - e. Respirators - Acceptable respirators are those such as the 3M Model 8210 N95 respirators or their equivalent. Consult individual manufacturers specifications for specific recommendations on use of respirators.
  - f. Wash Work Clothing Separately - Work clothing worn in areas where exposure to fiberglass, if possible, should be washed separately from other household laundry to prevent fiber from being transferred to other clothing. Rinse the washing machine thoroughly before it is used again. If there is a lot of fiber on clothing, it is best to presoak and rinse the garments prior to washing.
  - g. Keep Work Areas Clean - Avoid unnecessary handling of scrap materials by keeping waste disposal equipment as close to working areas as possible. Don't let scrap material and debris pile up on the floors and other surfaces. Follow an organized housekeeping program at all times
2. Ceramic Refractory Fiber
- a. Installation
    - i. Wear long-sleeved, loose fitting clothing, gloves and eye protection.
    - ii. Use of disposable coveralls is recommended, but not required.
    - iii. Use of a disposable, NIOSH approved respirator for protection against nuisance dusts (3M 8210 N95 or Equivalent).
    - iv. Wash all exposed areas gently with soap and warm water after handling.
    - v. Wash all work clothes separately from other clothing and rinse washing machine thorough after use.
  - b. Removal - Ceramic Fiber refractory products, which have been in service at elevated temperatures (over 1900° F), may undergo conversion to Crystobalite. Because of unanswered questions concerning the Health effects of Crystobalite, particular care should be taken to minimize generation of dust during the removal of refractory ceramic fiber linings. Adherence to proper methods of dust suppression and control is imperative. The following work

practices are recommended:

- i. Use Respirators - Certain manufacturers have recommended different types of respiratory protection. Consult individual recommendations of manufacturers.
  - ii. Spray With Water - During removal or repair, the area being removed or repaired should be wetted with water, preferable containing a wetting agent (detergent), to suppress dusting. Dust collection apparatus should be used.
  - iii. Wear Protective Clothing - This is designed to minimize significant dust retention and should be used and vacuum-cleaned prior to removal. Use of cotton and wool clothing, which tends to retain dust, should be avoided.
  - iv. Use Dustless Methods of Cleaning - Such as wet vacuuming or washing down with water. Cleaning with compressed air blowing or dry sweeping is prohibited. Light dust may be swept using dirt suppressing sweeping compounds. Apprise employees prior to removing furnace lining. Each employee shall be informed of the possible hazards, proper conditions and precautions for safe handling.
  - v. Inform Employees of MSDS - Each employee shall be advised of the location of such information. Company generated "Material Safety Data Sheets (MSDS)" or generic MSDS are acceptable for most applications.
3. Mineral Wool Fiber
- a. Wear Loose Clothing - Wearing long-sleeved shirts and blouses, loose at the neck and wrists, along with long pants and hard hats, will protect skin areas from coming in contact with mineral wool fiber. Loose clothing prevents fiber from rubbing into the skin. Depending on job conditions, gloves may be necessary.
  - b. Prevent Airborne Dust - Dust collection systems should be used whenever mineral wool fiber exposures may exceed either established dust standards or recommended fiber standards. Operations such as sawing, machining and/or blowing mineral wool fiber have the greater potential for high exposures.
  - c. Protect Eyes - Safety glasses, goggles or face shields should be worn whenever mineral wool fiber materials are being applied overhead or in areas where loose particles or fibers may get into the eyes.
  - d. Don't rub or Scratch Skin - If mineral wool particles and fibers accumulate on exposed skin areas, do not rub or scratch. Remove the material by washing the skin thoroughly but gently with warm water and mild soap. Using a good commercial skin cream or lotion after washing may be helpful.
  - e. Wear Respirators - If there is a possibility that airborne mineral wool fiber concentrations, can exceed safe working levels or if

respiratory discomfort is experienced, respirators should be worn. Acceptable respirators are those specifically approved by NIOSH for protection against dust. Examples are 3M 8210 N95 or equivalent. An appropriate fit-testing program must be

incorporated in the respiratory protection program

- f. Wash Clothes Separately - Work clothing worn in areas where exposure to mineral wool fiber is possible should be washed separately from other household laundry to prevent fiber from being transferred to other clothing. Rinse the washing machine thoroughly before it is used again. If there is a lot of fiber on clothing, it is best to presoak and rinse the garments prior to washing.
- g. Keep Work Areas Clean - Avoid unnecessary handling of scrap materials by keeping waste disposal equipment as close to working areas as possible. Do not let scrap material and debris pile up on floors and other surfaces. Follow and organized housekeeping program at all times.

C. Monitoring

1. Sampling Methods:

- a. B.I.S.T. will contract a third party industrial hygienist to conduct area and personnel monitoring of jobsites on an as needed basis.

D. OSHA Permissible Exposure Limits (PEL):

- 1. Calcium Silica = 10mg/m<sup>3</sup> TLV (total)
- 2. Fibrous Glass = 10mg/m<sup>3</sup> TLV (total)
- 3. Mineral Wool = 10mg/m<sup>3</sup> TLV (total)
- 4. Perlite = 10mg/m<sup>3</sup> TLV (total)

**NOTE:** OSHA currently classifies the above as nuisance dust. Nuisance dust 5.0 mg/m<sup>3</sup> PEL: (respirable) 15 mg/m<sup>3</sup> PEL (total 10.00 mg/m<sup>3</sup> TLV (total) Crystalline Silica (as crystobalite) .05 mg/m<sup>3</sup> TLV (respirable)

**VIII. ASBESTOS**

Refer to S.O.P. 8A for standard work practices.

**IX. LEAD**

Refer to S.O.P. 8C for standard work practices.