Standard Operating Procedure

Title: _SOP-005 Bench Grinder_

_PI:_ Art Erdman    _Lab Location:_ Mayo G217

_Issue Date:_ 7/8/13    _Revision Date:_ NA

_Prepared by:_ Marlina Komarek    _Approved by:_ 

_Hazard Identification:_

   Physical Danger

_Exposure Assessment:_

   **Motions**
   
   - Rotating Motion
     In bench grinder operation, the grinding wheel is a source of rotating motion. Rotating elements could grip loose clothing, gloves, hair, or appendages which could result in severe injury. Rotating elements can also propel poorly secured items across a room.

   - In-Running Nip Points
     The assembly and table surrounding the exposed grinding wheel is a source of in-running nip points. Clothing, hair, or appendages could get caught and pinched in these points resulting in severe injury.

   **Actions**

   - Shearing
     The shearing action of the bench grinder is performed by the grinding wheel when it rotates. The grinding wheel is rough. The shearing action can produce sparks and dust. Sparks may be propelled into the air by friction between the wheel and the work piece and could cause serious harm.

_Control Plan:_

   - Read and become familiar with machine’s operating procedures before operating
   - Always know where the power off switch is located in case of emergency
   - Always turn switch to off position when not operating machine
   - Always disconnect the machine from the power source before servicing, repairing, or making any adjustments
• Wear safety glasses at all times while operating the bench grinder to protect eyes from any dust, debris, or sparks
• Wear ear plugs or noise cancelling headphones while operating this machine
• Wear a dust or face mask to prevent the inhalation of dust while operating the machine
• Do not wear gloves, necktie, jewelry, or loose clothing, as they could get caught in the rotating elements of the machine
• Tie up long hair or wear protective hair covering to prevent hair from getting caught in the rotating elements of the machine
• Always hold the work piece firmly when operating this machine. Never grind loose work.
• Make sure to keep hands far enough away from the grinding wheel in motion.

**Experimental Procedures:**

• Put on all safety equipment and tie back loose hair or clothing before operating machine
• Check to make sure all parts of machine are working and functioning properly
• Based on material, choose the wheel that you will be using
  - The materials designated for each wheel are labeled on the machine.
• Make sure all safety equipment is on correctly and put safety guards into position
• Start machine by pushing switch into on position
• Place work piece against desired grinding wheel and grind until desired finish
  - Make sure to have firm grip on work piece at all times while operating machine
• When finished, remove work piece immediately and turn off bench grinder by pushing switch into the off position
• Clean machine after use and dispose of debris (see Waste Management Procedures)

For other inquiries, see GrinderBuffer Manual.

**Waste Management Procedures:**

When finished with the bench grinder, always clean the area. There should be no chips filings, or dust on the work table or floor. Dustpan, handbroom, regular broom, paper towels and cleaning solution can be found in G217-09.

Place all wrenches, clamps, raw materials, and vice grips back in the appropriate place.

**Spill and Accident Procedures:**

If an accident occurs, report immediately to the lab supervisor (G217-05) or other appropriate staff member. If no one is around, dial 911 on the landline phone near the door of G217-09 to reach the campus police. The lab first aid kit is located on the wall near the sink. A first aid pamphlet from DEHS is located in all of the MDC’s first aid kits.