

Using Silica-Based Clay Safely

Clay Handling

General Information For Teachers

Clay contains silica which is a designated substance under the Occupational Health and Safety Act. When silica is airborne, it can be hazardous. Therefore, precautions must be taken to keep clay dust to a minimum. Anyone who will be in the art room when clay is present needs to understand proper handling procedures. Place a sign on the art room door when using clay and notify cleaning staff that clay containing silica is being used so that appropriate precautions can take place.

Include lessons on clay safety as part of the curriculum unit and continually stress the importance of **keeping clay dust to an absolute minimum**.

- *Clay containing silica should only be used by an art specialist who has knowledge of potential hazards when using silica-based clay (see appendices for HDSB Admin Procedures: [Clay Handling and Storage](#) & [Handling and Cleaning Clay in Classrooms](#))*
- Only clay (Pottery Supply House Clay Body 400, PSH Clay Body 700, silica-free: PSH Clay Body 1 and COPPR clay) on the HDSB tender list may be used
- Ensure the material safety data sheet (MSDS) has been reviewed prior to use and is readily available throughout the unit

On Arrival of Clay in the Building

- Informed staff receiving the clay shipment shall inspect the shipment for excessive dust accumulation; If observed, wipe down the boxed of clay with a damp cloth prior to being brought into the building

Room Requirements and Expectations

- Clay will be limited to as few rooms as possible in a school
- Never use clay in carpeted areas
- Student tabletops/desks must be cleared of instructional materials
- Classrooms must be free of clutter and tidy for cleaning at the end of the day

Designated Areas should be created for the following:

- boxed clay
- slip
- student work in progress
- student work awaiting firing

Personal Protective Equipment must be available if required:

- Hair should be tied back, loose clothing secure, and sleeves rolled up
- Cover open cuts (wear nitrile gloves) when working with clay and glazes
- Plastic aprons should be worn to avoid getting clay dust on clothing and must be wiped down after each use
- Students wearing contact lenses should wear safety goggles / glasses to avoid dust exposure
- In the event of skin sensitivity, nitrile gloves are recommended

Requirements when using Clay:

- Never eat or drink when using clay
- Clay must only be manipulated when wet
- Wet clay often with a spray bottle to reduce the amount of dust particles in the air
- Leftover clay should be clearly labelled and stored in a covered wet pail or plastic bag

- Cover all work surfaces with newspaper or newsprint. Use a spray bottle containing water to dampen the paper; Place the work boards (e.g., plastic tray, Masonite board) on top of the paper
- Clay should **never be sanded or carved** once it is dried; If edges or surfaces need to be smoothed, use a damp disposable cloth or paper towel

Slip

- To avoid problems with drying clay, purchase slip in large 10 L pails and scoop into smaller containers for individual use

Storing Sculptures

- Tables and shelves are to be moistened with a spray bottle prior to storing sculptures
- Moisten sculptures before transport
- In order to keep clay moist between classes and before completion, wrap entire sculpture in plastic

Cleaning Procedures

- Caretaking staff **must be made aware in advance** that silica-based clay will be used so that appropriate arrangements can be made for prioritized cleaning of the room; cleaning will be modified when clay is being used
- Sweeping should NEVER happen
- Use wet disposable cloths or wet sponges to clean surfaces and thoroughly rinse sponge after cleanup
- Clean up moist clay spills from floor and desks immediately with a wet cloth, before they dry up
- If there is dry clay on a surface, wipe with a wet sponge
- At the end of each class, desks must be sponged down with a wet sponge and then re-sponged using a drop of soap on the sponge
- Use a wet mop on the floor when clay is in use

- Tools must be cleaned by washing in warm water at the end of every period OR, if time is a problem, put into the a large bucket to soak for teacher to clean later; Tools must be cleaned before storing
- Masonite or plastic boards, if used to work or wedge on, must be washed at the end of each period
- Do not put clay down the sink—put in the slip bucket and keep covered with a tight lid
- Wipe down shelves where clay projects (both wet and dry) are stored with a wet cloth/sponge to keep dust down
- Wipe drying racks/shelves with a damp cloth/sponge after clay is moved for firing
- Students and teacher should clean hands, including under the nails, thoroughly with soap and water after working with clay
- All cleaning cloths, paper towels and dampened newspaper should be sealed/covered at all times in waste receptacles for disposal in the regular garbage

Accidental Spillage/Release

When dried clay has fallen and broken apart, the potential for silica dust to become airborne exists. Should this occur, follow these steps:

Small Spill:

- Move students away from the spill and restrict access to the area
- Don PPE- protective eyewear and N95 disposable dust mask
- Wet down spill with a spray bottle
- Collect spilled material and dispose of in a plastic garbage bag – seal and place in waste receptacle

Large Spill:

- Clear the room immediately
- Shut down mechanical ventilation
- Call Health and Safety Department

- Clean up to be performed by Facility Services Staff

DO NOT re-enter the room until the all clear has been given by the Health and Safety Department.

Pottery Wheel

- Sturdy shoes must be worn to protect feet
- Sit before turning on the wheel and turn off the wheel before getting off
- Ensure the wheel is grounded at the electrical outlet (e.g., 3-pronged)
- Ensure electric cords are out of the way
- Keep water away from electrical plugs
- Centre of gravity should be above the wheel head
- Hair must be tied back and jewellery must be taken off, especially necklaces or bracelets that could come into contact with the wheel
- Pottery wheel and tools must be cleaned thoroughly with a damp cloth/sponge when finished to avoid dust

Kiln Use

General Kiln Use

- No paper or other flammable/combustible materials within 1 metre of the kiln and never place materials on top of the kiln
- Kiln should be locked when running if it is not in a locked kiln room

- Use asbestos-free heat resistant mitts/gloves, which cover up to mid-forearm
- Tinted goggles/glasses must be worn if checking the pyrometric cone
- Use a timer as well as a pyrometric cone designed to automatically turn off the kiln
- An apron should be worn when loading and unloading the kiln
- Where possible, fire only overnight to avoid exposure to fumes
- A fire extinguisher must be in the immediate area of the kiln, with the monthly inspection noted
- Kiln Wash is made of a high concentration of silica and quartz and should NOT be used; an alternative is silica-free kiln wash available through the Pottery Supply House
- Only use metal shelving in a kiln room

Before Using Kiln

- Use kiln only if you have read instruction manual or have received training
- Adhere to temperature recommendations
- Check shelving to ensure it is clean, in good condition, and is secure
- Before loading clay, make sure clay is dry—if there is moisture, it may explode due to escaping steam
- Before loading kiln, ensure power is off or the kiln is unplugged
- Secure lid in an upright position to avoid it falling and causing serious injury—do not use kiln if the lid cannot be secured

Loading of the Kiln

- Do not load when the kiln is hot

- Ensure that there is a one inch clearance around the bottom of the venting holes in the floor
- Make sure no material is in contact with the thermocouple
- Close the lid tightly
- Check to make sure the lid is secure
- If the kiln is in a classroom area, it must be secured with a padlock (pass the chain through the lid handle and lower handle, attach padlock, place the key in a secure place)
- While kiln is hot, lock the kiln room door

Firing up the Kiln

- Plug the kiln into the receptacle and turn on power
- Switch on the ventilation exhaust fan, ensure that it is set for both the heating and cooling periods, and ensure that it is operating correctly
- If the ventilation fan is temperature controlled, set it to run at all times when the kiln is on (e.g., set it to 18 degrees celsius so that it runs continuously) as ventilation needs to run to catch fumes
- On the control panel, set temperature and cycle timing
- Monitor kiln if being fired during the day; check kiln first thing in morning if fired overnight

While the Kiln is Firing

- Serious burns can result if the kiln is touched or the lid is opened during firing
- Only open the kiln when it has reached room temperature

Unloading the Kiln

- Do not open lid until the internal temperature is back to room temperature
- When unloading the kiln, be aware of sharp shards from breakage
- Turn the breaker off when the kiln is not being used

Cleaning a Kiln

- Kilns should only be vacuumed (using a Hepa Vacuum) by a qualified kiln inspector (e.g., Pottery Supply House); Teachers should not do this themselves

Glazing Information

Using Glazes

- Use only pre-mixed glazes on the tender list, purchased from the Pottery Supply House (Glazes must be “lead free” and correspond with the appropriate clay they are designed for)
- Brushes used for glazing should be carefully washed at the end of each class
- If glazes are being poured, do it in a way that will require the least cleanup (e.g., over a second bowl)--No glaze should go down the drain
- Any excess glaze can be wiped with paper towels and put in regular garbage
- Glazes must not be sprayed
- Any glaze that gets on hands should be cleaned off immediately

Glazing Cleanup

- Desks should be washed well with a wet cloth/sponge and then again with a wet sponge and a drop of dispenser soap
- Students should wash hands thoroughly with soap and water when cleanup is completed