

Introduction

Working with clay is a fun and rewarding activity that has been enjoyed for thousands of years. However, there are some safety considerations that must be addressed to ensure no one in the studio develops any injuries or illnesses that might cause permanent harm and prevent them from working with clay in the future.

Hazards associated with ceramics include:

- Ergonomics – awkward body positioning and heavy lifting
- Exposure to hazardous materials including dust, mold, or toxic metals
- Abrasions and cuts



Ergonomics

Working with clay frequently involves awkward body positioning and heavy lifting. These hazards can cause painful injuries over time which can severely limit mobility.

Body Position

When throwing clay, the user is often hunched over with their arms tight against their body and their wrists bent. Maintaining this position for long periods of time can cause musculoskeletal problems. Potters often suffer from back, shoulder, and wrist problems.

Taking frequent, short breaks from the wheel can help. Moving around and stretching for a few (3-5) minutes every 30 minutes will help reduce muscle fatigue and the likelihood of developing injuries. Placing the wheel on a surface that allows the user to stand while throwing can reduce the amount of time spent hunched over.

Regardless of wheel position, being conscious of body positioning while working is always a good idea. Try to maintain good posture and neutral body positions to prevent injuries.

Sitting Posture

- Keep your feet flat on the floor, or on a footrest if they don't reach the floor.
- Keep a small gap between the back of your knees and the front of your seat.
- Keep your knees at or below the level of your hips
- Relax your shoulders and keep your forearms parallel to the floor.
- Sit back in your seat and use the backrest to support your middle and lower back or use a back-support.
- Avoid sitting in the same position for long periods.

Standing Posture

- Bear your weight primarily on the balls of your feet.
- Keep knees slightly bent and feet about shoulder-width apart
- Stand straight with your shoulders pulled backward.
- Keep your head level, your ears should be in line with your shoulders. Avoid leaning your head forward, sideways, or backward.
- Let your arms hang naturally down the sides of the body.

Lifting

Heavy lifting is a frequent hazard in the ceramic studio, clay bags, wet clay, and older kiln shelves can all be very heavy. Improper lifting can cause injuries to the back, shoulders, elbows, wrists, and/or hands. Whenever possible, limit the amount of lifting and carrying that must be done; use wheeled equipment to move items. When you must lift, maintain good posture and use proper lifting techniques to help prevent injuries.

Special care must be taken when loading kilns as this task can combine heavy lifting and awkward body positions increasing the likelihood for injury.

Four steps to proper lifting

1) **Size up the load**

- Make sure you have a clear path to your destination
- Get help if you need it

2) **Lift**

- Bring the load close to your body
- Lift with your legs, not your back
- Keep your head up, back straight, and bend at your hips

3) **Move**

- Look where you are going
- Keep the load close to your body
- Turn by shifting your feet, don't twist your body

4) **Get set and lower**

- Use your leg muscles to carry the load down
- Keep your back straight
- Make sure fingers and toes are clear before releasing the load

Hazardous Materials

Clay is most dangerous when it is in a dry state because a lot of dust can be inhaled. The dust associated with clay contains silica and may contain other hazardous chemicals/materials including asbestos and metals. Wet clay can have mold growth that may cause respiratory problems.

Dry Clay Hazards

Inhalation of large quantities of silica during the mixing of powdered clay is very hazardous and can cause silicosis or "potter's rot" after years of exposure. Silicosis is the inflammation and scarring of lung tissue caused by silica particles stuck in the lungs. The symptoms include shortness of breath, dry cough, emphysema, and a high susceptibility to lung infections such as tuberculosis.

Inhalation of large quantities of China clay powder is moderately hazardous. It can cause kaolinosis, a disease in which the lungs become mechanically clogged by the clay. China clay may also cause silicosis if it contains free silica.

Other Dry Material Hazards

Talcs can be contaminated with asbestos. Asbestos is highly toxic by inhalation and possibly by ingestion. It may cause asbestosis, lung cancer, mesothelioma, stomach cancer and intestinal cancer.

Glazes used to color or finish clay pieces frequently include hazardous chemicals. These can include cobalt, barium, lithium, cadmium, chromium, arsenic, titanium, lead, and nickel. These metals can be toxic when inhaled and can cause cancers and birth defects. The metals may be toxic or irritating to the skin.

Wet Clay Hazards

Molds that grow in wet clay can cause respiratory problems similar to pneumonia or asthma-type allergies. The molds can also cause skin problems, particularly if there are pre-existing skin conditions.

Respiratory problems can also result from inhalation of powders that develop when aged clay dries.

Handling cold, wet clay can cause abrasion and drying of the hands, particularly the fingertips. This is a result of the mechanical friction or rubbing of the clay particles on the hands, the oil absorbing ability of the clay, and the harmful effects from prolonged exposure to cold water.

Hazard Prevention

There are ways to reduce or remove hazards in the studio. It is important that everyone, staff, students, and visitors, have the hazards explained to them before they work or spend time in the studio. Everyone should be told what hazards are present and how to safely use the space to prevent or reduce exposure.

Keeping the studio clean is very important to reduce exposure to hazardous materials in the studio. Use wet methods when cleaning (for example, spray counters with a liquid before wiping them and mop the floor instead of dry sweeping).

Inhalation Hazard Prevention

Limiting the movement of dry dust can help prevent hazards that result from inhalation. Frequent cleaning with wet methods will greatly reduce exposure to inhalation hazards.

- Use premixed clay to avoid exposure to large amounts of clay dust
- Wipe down the rims of jars and containers to prevent build-up of dried materials.
- Launder student aprons frequently to remove dry clay, which can increase silica exposure.
- Replace metal containing products with healthier and environmentally friendly non-metal versions.
- Install properly designed local exhaust ventilation to capture dust and airborne contaminants in areas where they are generated, this is especially important in areas where dry powders are mixed.
- Do not work in the studio if there are issues with airflow in the room or the air handling system in the building.

Contact Hazard Prevention

As mentioned above, some of the materials used in the studio can cause skin irritation or damage.

- Wear gloves when working with glazes.
- Do not touch your face while working in the studio.
- Wash hands and any exposed body parts after any spills or splashes and when leaving the studio.

Ingestion Hazard Prevention

Some metals that may be present in glazes can cause cancer and birth defects if they enter the body.

- Never eat or drink in the studio
- Do not apply make-up or handle contact lenses in the studio
- Wash hands when leaving the studio and again before eating and drinking.

Studio Waste

Because of the hazards addressed above, most waste from the studio must be discarded as hazardous waste to protect the environment. **Do not put glaze residues down the sink or in the regular trash.**

Used glazes must be stored in 5-gallon buckets and wastewater generated from washing measuring items must be placed in the drum outside the glaze weight room. These containers must be labeled “Hazardous Waste”. The containers should only be opened for filling and must not be overfilled. Leave at least one inch of space at the top of the container.

The Environmental Health & Safety Department (EH&S) will supply waste containers and labels. When waste containers are full (one inch of space at the top) request a waste pick-up using the form found on the EH&S website, inside.ewu.edu/ehs.

Anyone responsible for the operation of a ceramics studio on campus must attend annual hazardous waste training from EH&S. This training is required to make sure that the university follows all state and federal regulations.

References and Related Information

EWU Health & Safety

Environmental Health & Safety: <https://inside.edu.edu/ehs>

Studio Health & Safety

Ceramics Writing from Jayne Shatz, Ergonomics in the Ceramic Studio:

<http://jayneshatzwritings.blogspot.com/2009/10/ergonomics-in-ceramic-studio.html>

Spinning Pots, Potter Posture and How to Prevent Back Pain: <https://spinningpots.com/potter-posture-and-how-to-prevent-back-pain/>

Princeton University EH&S, Art Safety, Ceramics: <https://ehs.princeton.edu/health-safety-the-campus-community/art-theater-safety/art-safety/ceramics>

Revision History

Rev	Affected Page(s)	Change Description
0	All	Release 9/15/2012
1	All	Formatting changes on all pages, 5/29/2014
2	All	Reviewed all, 12/10/2015
3	All	Update to new format, 4/28/2017
4	All	Update and edit all information, add reference info, 4/28/2020