



# **Health & Safety Policy**

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## Introduction

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Participating in ceramic art and pottery exposes ceramic artists and potters to a wide variety of hazards. Most ceramic artist and potters are aware of some of the dangers inherent in this art form, from inhaling raw materials in powdered form, injuries from repetitive movement or the high risk of burns through the various firing methods to name but a few.

This policy was primarily created for the evaluation and risk assessment of any Scottish Pottery Association workshops and events. The hazards and risks identified in this document are not an exhaustive list of all foreseeable hazards and risks associated with the creation of ceramic art and pottery and the Scottish Potters Association and their representatives cannot be held liable for any injury, damage or loss resulting from any omission to the hazards and risks identified in this document. For full guidance on health and safety matters associated with the creation of ceramic art and pottery, members should refer, in the first instance to the Health and Safety Executive and associated Government guidance available at <http://www.hse.gov.uk>.

As part of our commitment to the health and safety of our members and our partnership organisations for workshops and events, the Scottish Potters Association operates a policy of strict adherence of the current Government guidance, rules and regulations relating to the Covid-19 pandemic or any other communicable or transmissible diseases or public health matters applicable at the time of the workshop or event.

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## Our policy

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- Seek to promote, set and maintain the highest appropriate standards for health and safety matters. This will be achieved by aspiring to the best practice for health and safety and welfare for all our members and visitors.
- To manage health and safety risks.
- To provide clear instructions and information as well as provide adequate training to ensure all participants are competent for the task set.
- To provide personal protective equipment when necessary.
- To consult with the relevant people on matters affecting their health before attending workshops.
- To provide and maintain safe equipment.
- To maintain a safe and healthy working environment.
- To ensure the safe handling and use of hazardous substances.
- To implement emergency procedures including evacuation in the case of fire and other significant incidents.
- To review and revise this policy on a regular basis.

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## Arrangements for health and safety

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### Risk assessment

- We will complete relevant risk assessments and take action.
- We will review risk assessments if conditions change.

### Training

- We will give Committee members and all volunteer helpers, health and safety induction and provide appropriate training, including (Covid-19 guidance for health and safety measures).
- We will provide personal protective equipment.

### Consultation

- We will consult with our members routinely on health and safety matters as they arise and address any issues.

## Evacuation

- We will make sure that all escape routes are known to us and are well signed and kept clear at all times when using public/private venues.
- We will follow evacuation plans when using public/private venues.

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## Risk assessments

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Prior to any workshop or event organised by the Scottish Potters Association, a full risk assessment will be carried out to identify all foreseeable risks of injury or damage to property.

All participants involved in, or persons in attendance, will be briefed on the safety measures to be implemented during the workshop or event. This briefing will be carried out by the member of the committee providing Health and Safety responsibilities for the workshop or event.

The risk assessment and safety briefing are there to make everyone aware of the potential dangers and the steps to be taken to ensure everyone's safety. The health and safety of all participants from demonstrators, helpers and members taking part in events and workshops organised by the Scottish Potters Association is a priority.

There are many dangers and hazards involved in pottery and it is every participant's responsibility to ensure that they are aware of the contents of the risk assessment, adhere to the safety briefing given and use their own common sense to look after themselves and their safety during these events.

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## Disclaimer

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All members attending practical workshops will be required to read and sign a disclaimer acknowledging that they have been given access to the relevant risk assessment, have received a safety brief, acknowledge the risks involved in the event and will not hold the Scottish Potters Association liable for personal injuries or damage to property arising from the event.

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## Failure to follow health and safety guidance

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At any event organised or overseen by the Scottish Potters Association, failure to listen to the safety briefing or to follow the safety advice given, including refusal to adhere to set procedures or refusal to use or wear appropriate safety equipment, may result in the Scottish Potters Association, or their Health and Safety representative on the day asking participants to leave the event.

The decision of the Health and Safety representative at the workshop or event to exclude a member may be objected to by that member using the complaints procedures set out in our Complaints Policy.

In the event that any participant is asked to leave a workshop or other event as a result of a failure to follow safety procedures, guidance or to use safety equipment, no refunds will be given unless a subsequent complaint is upheld.

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## Responsibilities for health and safety

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Overall and final responsibility for health and safety:

- The Chair and the Health and Safety Coordinator.

Day-to-day responsibility for ensuring this policy is put into practice:

- The Health and Safety Coordinator.

To ensure health and safety standards are maintained/improved, the following committee members have responsibility in the stated areas:

- The Chair and the Health and Safety Coordinator.
  - Safety, information, instruction and supervision, consulting members, accidents, emergency procedures, fire and evacuation, first aid kit.
- The Health and Safety Coordinator.
  - Health and Safety information, instruction and supervision, risk assessments, emergency procedures, fire and evacuation.
- Fran Marquis
  - maintaining SPA equipment in her care.

All members should:

- co-operate with the Committee and on health and safety matters;
- take reasonable care of their own health and safety; and
- report all health and safety concerns to an appropriate person (as detailed above).

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## Conclusions

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Overall a common-sense approach should be adopted in all aspects of pottery and firing of pots. This policy is by no means a full extensive guide to reducing all risks involved in our chosen art but may be used as a reference.

In fulfilling the commitments and applying the above principles the Chair, Committee members and Sub-Committee Members will provide the necessary resources to ensure that a safe and healthy working environment is maintained and fully endorse this policy.

This policy will be reviewed and revised on a regular basis.

Date - 20/02/2021

## Annex: Potential hazards

The specific hazards and precautions can be divided into three main areas as follows:

- Working with clay
- Glazing and colourants
- Firing

### Clay

Clay materials composed of hydrated aluminium silicate often containing large amounts of crystalline silica. Other impurities may include organic matter or sulphur compounds. Sometimes grog, sand, talc and small amounts of minerals such as barium carbonate and metal oxides are added to modify the clay's properties.

Clay is made by mixing dry clay with water in a clay mixer. Clay slip is made by adding talcs which can be contaminated by fibrous asbestos or similar materials. Knowing how it is made can identify many of the hazards involved in its use.

#### Hazards

- There have been known cases of silicosis or 'potters rot' from chronic inhalation of large amounts of free silica during clay mixing. Symptoms of silicosis include shortness of breath, dry cough, emphysema and high susceptibility to lung infections such as tuberculosis. The disease may take years to develop.
- Chronic installation of Kaolin is moderately hazardous and can result in Kaolinosis, a disease in which the lungs become mechanically clogged.
- Asbestos is extremely toxic by inhalation and possibly by ingestion. It may cause asbestosis, lung cancer, stomach cancer and intestinal cancer.
- Sand, perlite, grog and vermiculite contain free silica and are, therefore, highly toxic by inhalation. Vermiculite is also frequently contaminated with asbestos.
- Bags of clay and glaze materials can be very heavy, and lifting can cause back problems or injury.
- Throwing on a potter's wheel for a long period of time can result in carpal tunnel syndrome because of the awkward position of the wrists. Pain numbness and pins and needles in the thumb and first three fingers are common symptoms. Back problems can occur from bending over the potter's wheel for a long period of time.
- Clay scraps on the floor, bench or other surfaces can dry and pulverise producing an inhalation hazard due to the presence of free silica. Similarly, reconditioning clay by pulverisation and sanding finished greenware can create very high concentrations of hazardous silica dust.

#### Precautions

- Use premixed clay to avoid exposure to large quantities of clay dust. This will be the case in the majority of workshop events involving the SPA.
- Wear separate work clothes while in the studio. Choose clothes of material and design that don't trap dust. Wash these clothes regularly and separately from other laundry bearing in mind that clay is also bad for your washing machine.
- Avoid contact of clay with broken skin. Plasters should be used to cover the broken area of skin. Use a skin moisturiser.
- To prevent back problems, always lift heavy objects with knees bent and or use trolley equipment.
- When positioning yourself at the wheel ensure the most comfortable position possible.
- Keep wrists in an unflexed position as much as possible to prevent carpal tunnel syndrome. Take frequent breaks.
- Finish greenware while still wet or damp with a fine sponge instead of sanding when dry. Do not sand greenware containing fibrous talc.
- Wet mop floors and work surfaces daily to minimise dust levels and prevent dry scraps from becoming pulverised.

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## Glazes

Glazes used to colour or finish clay pieces are a mixture of silica, fluxes and colourants. Common fluxes including lead, barium, lithium, calcium and sodium are used to lower the melting point of silica. The actual colourants which are an assortment of metal oxides usually account for less than 5% of the glaze by weight.

The use of any of these chemicals must be researched prior to use. For example lead compounds were used quite extensively in potteries during the 1800s but resulted in many potters being poisoned by the highly toxic lead content.

An assortment of metal oxides or other metal compounds produce particular colours when fired. These are added in such small amounts to the glaze that they aren't usually a great hazard. Luster or metallic glazes are fired in a reduction atmosphere. These glazes can contain mercury, arsenic, highly toxic solvents, such as aromatic or chlorinated hydrocarbons and oils such as lavender oil. The common metals are often resinates of gold, platinum, silver, and copper.

Some underglazes and overglazes use mineral spirits as the vehicle instead of water.

Glaze components are weighed, sorted and mixed with water. These materials are often in fine powdered form and result in high dust exposure. Glazes can be dipped, brushed, poured or sprayed on the ceramic piece.

### Hazards

- Lead compounds are highly toxic by inhalation or ingestion. Symptoms of lead poisoning include: damage to the peripheral nervous system, brain, kidney or gastrointestinal system as well as anaemia, chromosomal damage, birth defects and miscarriages.
- Any glazes containing lead must be marked "lead safe". This means that the finished ware, if fired properly, will not release lead into food or drink. The actual glaze is still hazardous to handle and fire and may contain lead. Adequate control over firing conditions is very difficult especially in craft studios.
- Other fluxes such as barium and lithium are also highly toxic by inhalation, but less so than lead.
- Certain colourants components of particular metals are known as, or are probably, human carcinogens include arsenic, beryllium, cadmium, chromium nickel and uranium. Others are highly toxic by inhalation.
- Free silica occurs in many of the clays, plant ash, flint, quartz feldspars, talc etc. used in glazes. Weighing and mixing glazes can result in the inhalation of these toxic materials.
- Soda ash, potassium carbonate, alkaline feldspars and fluorspar used in glazes are skin irritants.
- Spray application of glazes is very hazardous because of the potential inhalation of glaze mist.
- Dipping, pouring and brushing certain glazes may cause skin irritation and accidental ingestion due to careless personal hygiene habits.
- Glaze containing solvents are both flammable and hazardous.

### Precautions

- Use lead-free glazes. If the glaze does not state 'lead-free' or 'lead-less' on the label assume it contains lead until proven otherwise.
- Lead glazes should only be used on non-foodware items. Extensive testing is required on any functional pottery where a glaze containing lead has been used.
- Where possible do not use colourants that are known to be human carcinogens and avoid probable human carcinogens. There is no known safe level of exposure to carcinogens.
- The wearing of a respirator or mask when weighing and mixing powders is necessary.
- Wet glazes are not an inhalation hazard. Good housekeeping procedures on clean up of spills reduce the risk of inhalation or ingestion of toxic dust. Wet mop spilled powders.
- Gloves should be worn while handling wet or dry glazes.

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- Good ventilation or local exhaust ventilation should be available when applying solvent containing glazes.
- Basic personal hygiene rules should be followed including restricting eating, drinking or smoking in the work area and wearing personal protective equipment such as gloves and separate work clothes or coveralls. Wash hands after work.

## Kilns

Electric kilns and fuel-fire kilns are used to heat the pottery to the desired firing temperature. The most common type are the electric kilns. Heating elements heat the kiln as the electric current passes through the coils. The temperature rises until the kiln is shut off.

Fuel-fire kilns are heated by burning gas, oil, wood, charcoal or other materials. Propane gas is used most often. The fuels produce carbon monoxide and other combustion gases. Fuel-fired kilns are usually vented from the top through a chimney.

Firing temperatures can vary from very low for Raku and bisqueware to very high temperatures for stoneware and even higher for certain porcelains.

The early stages of bisque firing involves the oxidation of organic clay matter to carbon monoxide and other combustion gases. Sulphur breaks down later producing highly irritating sulphur oxides. Also nitrates and nitrogen containing organic matter breakdown to nitrogen oxides.

Cornish stone, crude feldspars, low grade fire clays, fluor spar etc. can release toxic gases and fumes during these firings. Carbonates, chlorine and fluoride are broken down to release carbon dioxide, chlorine and fluorine gas.

At or above stoneware firing temperature, lead, antimony, cadmium, selenium and precious metals vaporise and the metal fumes can either escape from the kiln, settle inside the kiln or on ceramic pots in the kiln. Nitrogen oxide and ozone can be generated from oxygen and nitrogen in the air.

## Hazards

- Many of the compounds given off during firing are highly toxic by inhalation. Inhalation of large amounts of these gases can result in severe acute or chronic lung problems. Long-term inhalation of low levels of these gases can cause chronic bronchitis and emphysema. Fluorine gas can also cause bone and teeth problems.
- Mini metal fumes generated at high temperatures are highly toxic by inhalation. Since lead vaporises at a relatively low temperature it is especially hazardous.
- Carbon monoxide from fuel fired kilns or the combustion of organic matter in clays is highly toxic by inhalation and can cause oxygen starvation. One symptom of carbon monoxide poisoning is an intense frontal headache, unrelieved by analgesics.
- Hot kilns produce infrared radiation, which is hazardous to the eyes. There have been reports of cataracts, from years of looking inside the hot kilns.
- Heat produced from even small electric cones can cause fires in the presence of combustible material or flammable liquid.
- If an electric kiln fails to shut off, the heating elements melt which can cause fires. Gas kilns also generate a lot of heat and room temperatures can exceed 38°C.
- Kilns generate excessive heat and can cause thermal burns.

## Precautions

- Protective eye goggles or handheld shields should be used when looking into an operating kiln.
- Do not use lead compounds at stoneware temperatures since the lead will vaporise.
- Combustible or flammable materials must not be stored in the kiln area.

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- Always check that the kiln has shut off.
- If gas leaks are suspected, shut off the gas at source, shut off power to kiln room at the circuit breaker and ventilate area. Test cylinders or gas pipes for leaks with soapy water or use an approved leak detection solution.
- The kiln room should be well ventilated during firing.

## Special processes

While most glaze firings refer to firing a glaze-coated pot in the kiln, special processes are sometimes used. Salt glazing and raku firing are two examples.

### Salt Glazing

This process involves throwing wet salt, sodium chloride, into the heated kiln while the bisque ware is being fired. Wet salt at high temperatures decomposes into sodium and chlorine. The sodium reacts with the bisque ware to form a glaze. Large amounts of hydrogen chloride gas and possibly chlorine are also formed.

Sodium carbonate also known as washing soda can also be used. Carbon dioxide is generated instead of hydrogen chloride.

### Hazards

- Hydrogen chloride gas is highly toxic by inhalation. Health effects are both similar and more irritating compared with most other kiln gases.
- Hydrogen chloride and water vapour form hydrochloric acid, which can corrode metal fittings in the area.

### Precautions

- Substitute safer sodium carbonate for sodium chloride.
- Sodium chloride salt glazing should only be done outdoors. Kilns should be equipped with canopy hoods and chimney stacks tall enough to disperse the hydrogen chloride safely.
- All gas piping and metal fixtures should be routinely checked for corrosion.

### Raku Firing

Raku involves first firing bisqued ware at a low temperature in a regular gas kiln and then removing the still hot pieces and placing them in sawdust, leaves or other organic material for a reduction phase. There are many different types of alternative Raku firings.

### Hazards

- Refer to the hazards and safety precautions used with gas kilns.
- The reduction step produces large amounts of smoke and carbon monoxide.
- Treated wood or other materials can yield an exposure to highly toxic preservatives or pesticides, such as arsenic chromium compounds.

### Precautions

- Raku should only be done outdoors in a well-ventilated area because of the smoke. Be careful to not locate a raku kiln near either doors or open windows of buildings.
- Do not use materials that have been treated with preservatives or pesticides for reduction in fees.
- The appropriate personal protective clothing and equipment should be utilised during the firing. Pots are extremely hot, and caution should be taken to prevent any burns.