Guild of Enamellers Guide Lines to Health and Safety for Enamellers

These notes are set out as a guide to some of the potential hazards which may be encountered whilst enamelling. The Guild of Enamellers and author of this update can take no responsibility for any omissions or misinterpretation of these notes. It is up to the individual to check on the potential hazards of the equipment and materials being used by getting the required information from their supplier.

The potential hazards laid out below are very different when comparing enamelling for eight hours a day once a month, to those enamelling eight hours a day every day of the week. The longer the exposure to enamel dust or chemical fumes, the greater the hazard and risk to health. On the other hand, a kiln burns in a second, so vigilance is always needed. Do not get distracted and never leave a kiln while you have something in it.

For these notes, 'Health' has been separated from 'Safety', but obviously the two work hand in hand.

HEALTH: Skin – Ingestion – Inhalation - Eyes

SAFETY: Cleanliness – Clothing – Polishing – Masks - Goggles

HEALTH

SKIN

Burns

- The kiln is hot inside and out, as is anything touching it. Keep hot enamelled pieces in the kiln area until cool enough to handle with bare hands and don't be impatient.
- Use heat protective gloves and avoid wearing synthetic materials as these can melt and exacerbate a burn by sticking to the affected area. Wear enclosed shoes and avoid synthetic materials which can melt if a trivet is dropped and lands on them.
- If skin is burnt, keep affected area under, preferably, cold running water for at least 10 minutes, and seek medical help if in doubt.
- Acid Burns: Use vinyl gloves and protective clothing when etching or pickling and keep a bowl of water nearby. Wash immediately if splashed. Wear safety goggles when using concentrated acids.
- Chemicals: Ferric Salts stain the fingers very effectively, so wear vinyl gloves when etching. The same applies when handling Nitric or Sulphuric acid but please try to avoid using these as there are far safer methods of achieving suitable result without them. Acid can be used to strip enamel from metal, but abrasion is a far safer method.

- Cuts: Enamel shards make very sharp implements.
- Take care when using a glass fibre brush. These can give rise to invisible splinters which are very painful and difficult to see and to remove.

INGESTION

- Enamel powder is ‘glass’ and should never be ingested.
- Never have food or drink in the work area.
- Always wash hands after handling enamel, especially before eating.
- Not everyone has the luxury of a workshop. Be extra vigilant if enamelling in a makeshift area such as a kitchen. Ensure all surfaces are suitably covered and enamels are stored safely.
- If grinding and washing enamel, always collect the ‘washings’ in a bucket and do not empty it into the sink or drain. Dispose of safely in a dustbin or similar.
- When handling enamels or chemicals always wash your hands before eating or starting another activity.

INHALATION

Wet laying

- Using ground enamel in water and wet process liquid enamels are less hazardous than ‘sieving’. If doing a lot of sieving is normal practice it is advisable to wear a mask (FFP2 or FFP3) to cut down inhalation of enamel particles.
- Put a ‘lid’ on your sifter to reduce dust which can hang in the air for up to 2 hours.
- Protection is necessary however, because sieving enamels can lead to inhalation of metallic elements such as Lead or Cadmium if using enamels containing these metals. Hence wear a suitable mask, FFP2 but preferably FFP3, which are available from tool and pottery suppliers, among others.

Etching

- Ferric Nitrate and Ferric Chloride present a low hazard potential when it comes to inhalation of fumes although it can cause irritation and should therefore be avoided.
- Concentrated Nitric Acid however gives off hazardous fumes and should be used only with very good ventilation and it’s use preferably avoided.
- Use vinyl gloves or have water close by, and protect your clothes.

Kilns

- There is a low risk from metallic fumes issuing from a kiln when firing at a temperature of under 1000 degrees Centigrade
- Most metals vaporise at much higher temperatures than the average kiln can produce.
- More care should be taken with painting oil fumes or wax burn out.
- Beware of Carbon Monoxide and the fumes from Natural Gas or bottled gas. Good ventilation is imperative and it is advisable to have a carbon monoxide monitor available.

Grinding & Polishing

- Use wet pumice powder to cut down on dust.
- Try to use polishing compounds which do not contain crystalline silica (Risk of Silicosis).
- Protect eyes with safety goggles.

Soldering

- Avoid solders which contain Cadmium or Lead.
- Avoid fluxes which contain Fluoride or Colophony.
- Ask your supplier for details, all suppliers should give such details on request.

Metal Cleaning

- Safety pickle (bought as a powder), salt and vinegar or citric acid is safer than using strong acids as less fumes are given off.
- Good ventilation is common sense.

EYES

- A hot kiln gives off infra-red radiation which can cause cataracts. It is very hazardous to spend time looking into a hot kiln (especially through a 'peep' hole in the kiln door) without wearing special glasses.
- Safety glasses are available with ANSI shade 1.7 lenses, which cut down infra-red.
- Heat from the kiln will also dry out the surface of the cornea which is very detrimental.
- Wear eye protection when polishing or using any moving machinery.
- Do not forget that enamels can 'ping' off and shatter at any time.
- Always protect the eyes when using chemicals/acids etc.

SAFETY

Safety in the workplace and home workshop is mostly common sense.

- Ensure all your equipment is in a good state of repair and fit for purpose.
- Cleanliness is essential.
- When working with children, all enamels used should be lead free.
- Enamels should not be stored in the kitchen, even if it's being used as a workroom.
- Always clean up the work bench area before and after you start work.
- Be tidy, do not leave clutter around.

- Wear an apron, (preferably plastic coated if using chemicals) to protect your clothes from splashes, dust etc.
- When polishing, do not wear loose clothing i.e. scarves, ties, floppy sleeves, loose jewellery and always tie long hair back.
- Wear the correct type of mask when polishing or sifting to prevent inhalation of particles or fumes.
- When polishing wear glasses and or safety goggles to protect the eyes.
- Second hand kilns should be checked by a qualified electrician and preferably PAT tested.
- It is advisable to have a fire extinguisher suitable for electrical fires to hand.
- Have a First Aid Kit nearby and ensure it is properly stocked and in date.

For further information on Health and Safety please refer to the following:

- www.coshh-essentials.org.uk
- Ask your suppliers, check catalogues & labels
- Institute of Vitreous Enamellers
- Teaching books usually have a section on H&S

These notes are intended as guidance for good practice only. The Guild of Enamellers and the author of this update has taken all reasonable precautions to ensure the accuracy of information offered, but cannot take responsibility for any omissions, accidental inaccuracies or misprinted information.