

# WORKING SAFELY WITH CERAMICS – SILICA DUST

## Facts:

This information paper is to provide minimum guidelines and education when working with ceramics.



### What are the Risks when working with ceramics?

*What is silica, where is it found?*

Clay, slip and glazes contain silica and, when dry, produce silica dust known as Respirable Crystalline Silica (RCS or for the rest of this information sheet 'Silica Dust'). Silica Dust is also known as respirable  $\alpha$ -quartz, cristobalite, or 'free silica'. Fired ware dust contains crystalline silica. Glaze mixes can contain lead and need separate assessment.

#### The risks

Inhaling Silica Dust can lead to silicosis. Silicosis is a serious and irreversible lung disease that causes permanent disablement and early death, and it is made worse by smoking. All Silica Dust is hazardous. 'Respirable' means that the dust is invisibly fine, and gets deep into the lungs.

### Legislation and Reference:

WH&S Regulation 2008 - To provide a safe place of work.  
HSE (Health and Safety Executive)

## General Safety Tips

A risk assessment should be conducted prior to the commencement of work. This information should be attached to the Ceramics Safe Work Methods. Items to consider:

- Can the risk of inhaling Silica Dust be eliminated?
- Is the work area prepared correctly?
- Is it safe to access the area i.e. Is the dust level reduced to as low as practicable?

		Consequence				
		Insignificant No Injury 0-\$5K	Minor First Aid \$5K-\$50K	Moderate Med Treatment \$50K-\$100K	Major Serious Injuries \$100K-\$250K	Catastrophic Death More than \$250K
2. Enter Probability	Almost Certain	M	H	E	E	E
	Likely	M	H	H	E	E
	Possible	L	M	H	H	H
	Unlikely	L	L	M	M	M
	Rare	L	L	L	L	L
Recommended Action Guide						
E=Extreme Risk – Task <b>MUST NOT</b> proceed						
H=High Risk – Special Procedures Required (See USQSafe)						
M=Moderate Risk – Work Method Statement Required						
L=Low Risk – Use Routine Procedures						

1. Enter Consequence (arrow pointing to the 'Possible' row)

2. Enter Probability (arrow pointing to the 'Possible' column)

3. Find Action (arrow pointing to the 'M=Moderate Risk' row)

## Take Action

You need to minimise the amount of Silica Dust being breathed-in by reducing the amount of airborne dust. Look carefully at the control measures that can be used; (e.g. mist bottles, work trays).

You may already have the right controls in place, but are they all working properly?

When were they last checked?

Are they always used when needed?

Is the Silica Dust exposure controlled?

You will need to keep all controls in good working order.

This means mechanical controls (eg extraction, respirator), administrative controls (eg supervision, health surveillance) and operator behaviour (following instructions).

## Before, during and after

### Procedures

Wash down the workroom at the end of each day's work and clear up spills. To eliminate Silica Dust wet cleaning only. Clear up scrap and spills regularly - never let slip, clay or glaze spills dry out.

Use a Type H vacuum cleaner fitted with a HEPA filter to clear up dust if wet washing is not possible.

**Caution: Never use compressed air to move dust and dry sweeping is prohibited.**

## Training

- All users of products and equipment should be thoroughly trained on the hazards associated with Silica Dust to ensure that the risks have been reduced.

### **Information, training and supervision shall consist of;**

Telling students:

- that dust from fired ware and ash can cause silicosis, which leads to disablement and early death;
- to avoid breathing in dust;
- to do the job in the correct way;
- to always use dust suppression and extraction equipment properly;
- to keep the workplace clean;
- if equipment is not working - report it;
- to keep their protective equipment clean, and wear it properly;
- to wash dust off skin;
- to avoid cotton or knitted clothing; and
- to wet clean or if not possible to wet clean, vacuum clean, never dry sweep.

Train and supervise workers - make sure the job is performed in the right way using controls properly to reduce exposure. Include supervisors and managers in health and safety training.

Training shall include:

- how to perform task without producing dust;
- how to clean up spills;
- how to maintain and clean equipment safely;
- how to use and look after personal protective equipment (PPE); and
- what to do if something goes wrong.

Supervision means checking students:

- use the controls provided;
- follow the correct Safe work method;
- are following the rules on personal hygiene.

### Care and Maintenance

To ensure work areas is maintained and properly cleaned;

- Formal inspection and record system may needs to be established;
- Damaged or worn equipment must be immediately removed from service and a 'Danger – Do Not Operate' tag affixed, repaired or replaced;
- Products and equipment must be stored correctly, and;
- Manufacturers and staff advice on care, maintenance and inspection shall be followed.

### Environmental guidelines

Releases and wastes must be regulated within the Pollution Prevention and Control (PPC) framework. You shall consult your supervisor for the correct method and location when disposing of waste.

### Further Information

The maximum exposure limit (MEL) for silica dust is 0.3 mg/m<sup>3</sup> (averaged over eight hours). This limit should not be exceeded and exposures should be reduced as far below this level as is reasonably practicable. However, prolonged exposure to levels of silica dust below the MEL may still present a health risk.

The risk of contracting silicosis at silica dust exposures below 0.08 mg/m<sup>3</sup> (averaged over eight-hours) is extremely low. Following the precautions described in this information sheet should help to keep exposures below this level.

### Fettling of finished goods

Dry fettling in an open workshop can produce personal exposures to silica dust equivalent to 0.08 mg/m<sup>3</sup> (eight-hour TWA) (the level at which HSE recommends health surveillance due to the residual risk) and should **not** be carried out.

Where possible, ware should be finished by sponging rather than fettling to reduce exposure to silica dust.

#### *Crystalline silica concentrations in common materials*

<b>silica flour, cristobalite flour</b>	100%
<b>sand, gravel, flint</b>	more than 70%
<b>calcined diatomite</b>	25% to 65%
<b>slip, glazes, colours</b>	10% to 60% dry composition
<b>tile</b>	30 to 45%
<b>industrial grade talc</b>	up to 30% (some are silica-free)
<b>ball clay</b>	15% to 30%
<b>kaolinite</b>	less than 5%

*Source: HSE* [hseinformationservices@natbrit.com](mailto:hseinformationservices@natbrit.com)

### Record of Training

I have read and understand the information provided to me for Working Safely with Ceramics – Silica Dust and I have been issued with:

- Tea Break Talk paper – Working Safely with Ceramics – Silica Dust

_____ Employee's Name (PRINT)	_____ Employee's Signature	____/____/____ Date
_____ Trainer's Name (PRINT)	_____ Trainer's Signature	____/____/____ Date

**Document Procedure:**

- Original - to be kept on the employee's record of training
- Copy – forward to USQSafe for archive filing
- Electronic – USQSafe to record on PeopleSoft