

# CR4

## COSHH essentials in ceramics: Silica



This information will help employers (including the self-employed) comply with the Control of Substances Hazardous to Health

Regulations 2002 (COSHH), as amended, to control exposure to respirable crystalline silica (RCS) and protect workers' health.

It is also useful for trade union safety representatives.

This sheet describes good practice using general ventilation.

It covers the points you need to follow to reduce exposure to an adequate level.

It is important to follow all the points, or use equally effective measures.

### Main points

- High dust levels result from kiln work.
- Contaminated work clothing may also be a source of dust exposure.
- Keep exposure as low as possible using all the controls in this sheet. Make sure the controls work.
- Calcined flint is banned as a placer material.
- You need air sampling. See sheet G409.
- Health surveillance is usually needed. See sheet G404.

# Kiln loading (placing) and unloading

## Control approach 1 General ventilation

### Hazard

- ✓ Ceramics work can produce airborne respirable crystalline silica (RCS).
- ✓ All RCS is hazardous, causing silicosis. This is a serious lung disease causing permanent disability and early death.
- ✓ Silicosis is made worse by smoking.
- ✓ 'Respirable' means that the dust can get to the deepest parts of the lung. Such fine dust is invisible under normal lighting.
- ✓ Keep inhalation of RCS as low as possible.
- ✓ When all controls are applied properly, less than 0.1 mg/m<sup>3</sup> RCS is usually achievable (based on an 8-hour time-weighted average).

### *Crystalline silica concentrations in common materials*

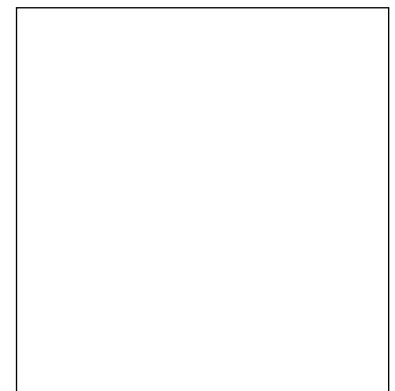
- ✓ See table in sheet CR0.

### Access and premises

- ✓ Only allow access to authorised staff.
- ✓ Floors should slope gently towards gulleys, to help dust removal by wet washing.

### Equipment

- ✓ Provide a good standard of general ventilation. Use powered fans to supply fresh air.
- ✓ Can you use clay with a lower silica content?
- ✓ Handling green, white and fired ware creates dust. Crushing scrap also creates dust. You may need respiratory protective equipment (RPE).
- ✓ Avoid hand sweeping. If this is not possible, damp down thoroughly before clearing up.



*Any illustration?*

### Maintenance, examination and testing

- ✓ Examine and test RPE thoroughly at least once every three months.
- ✓ Daily, look for signs of damage. Noisy or vibrating fans can indicate a problem.
- ✓ Get a competent engineer to examine the system thoroughly and test its performance regularly.
- ✓ Carry out air sampling to check that the controls are working well. See sheet G409.

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### Personal protective equipment (PPE)

- ✓ Ask your supplier to help you select the right PPE.
- ✓ Provide storage for clean and contaminated PPE.

### Respiratory protective equipment (RPE)

- ✓ RPE may be needed. Air sampling data will help you decide. See sheet G409.
- ✓ RPE is often needed for maintenance and some cleaning jobs.
- ✓ Powered or air-fed RPE is more comfortable to wear.
- ✓ Select RPE that suits the wearer, the job and the work environment.
- ✓ Disposable RPE is acceptable.
- ✓ Can you avoid driving vehicles while wearing RPE?

### Other protective equipment

- ✓ Provide clothing designed for use in potteries, eg 'Terylene' or 'Pertex' with side or rear fastenings. Consult Ceram - see 'Useful links'.
- ✓ Use a contract laundry or a suitable equivalent to wash work clothing. Warn them that the dust contains silica.
- ✓ Skin creams help in washing contamination from the skin. After-work creams help to replace skin oils.

**Caution: Never allow use of compressed air for removing dust from clothing.**

### Health surveillance

- ✓ You need health surveillance unless exposure to RCS is well below the limit. See sheet G404.
- ✓ Consult an occupational health professional - see 'Useful links'.

### Cleaning and housekeeping

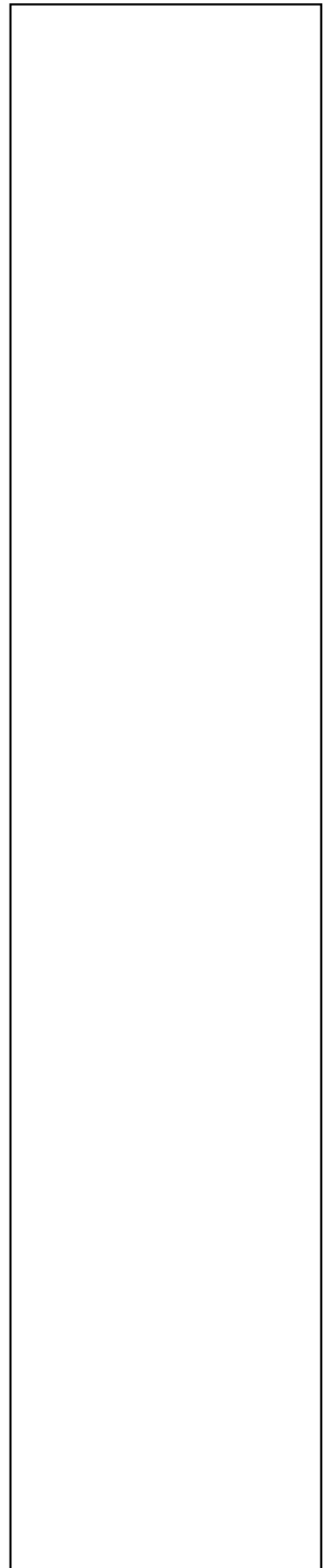
- ✓ Throughout the day, clear up scrap.
- ✓ Wash down the workroom at the end of each day's work and clear up sludge.
- ✓ Use a Type H vacuum cleaner fitted with a HEPA filter to clear up dust eg. on overhead fittings.
- ✓ Keep vehicle routes clean or damp to avoid raising dust.

**Caution: Never use compressed air to move dust.**

**Dry sweeping is prohibited.**

### Training and supervision

- ✓ Tell workers that silica dust can cause serious lung diseases.
- ✓ Working in the right way and using the controls correctly is important for exposure control. Train and supervise workers. See sheet CR0.



### Further information

- *General ventilation in the workplace: Guidance for employers* HSG202 HSE Books 2000 ISBN 0 7176 1793 9
- *Respiratory protective equipment at work: A practical guide* HSG53 (Third edition) HSE Books 2005 ISBN 0 7176 2904 X
- *Silica and lead: Control of exposure in the pottery industry* Guidance HSE Books 1992 ISBN 0 11 882044 3
- *Control of substances hazardous to health in the production of pottery. The Control of Substances Hazardous to Health Regulations 1994. The Control of Lead at Work Regulations 1998. The Workplace (Health, Safety and Welfare) Regulations 1992. Approved Code of Practice L60* HSE Books 1995 ISBN 0 7176 0849 2
- *Control of exposure to silica dust in small potteries* Ceramics Information Sheet CEIS2 HSE 2002 Web only version available at [www.hse.gov.uk/pubns/ceramdex.htm](http://www.hse.gov.uk/pubns/ceramdex.htm)
- *Health surveillance: A ceramics industry booklet* Leaflet IACL100 HSE Books 1996 (single copy free)
- Also see *COSHH essentials for foundries: Silica. Furnace relining* FD14 at [www.hse.gov.uk/pubns](http://www.hse.gov.uk/pubns)
- For environmental guidelines see sheet CRO

### Useful links

- The British Ceramics Confederation (BCC) may advise on health and safety consultants and training providers. Website: [www.ceramfed.co.uk](http://www.ceramfed.co.uk)
- Contact Ceram for advice on detailed equipment design. Website: [www.ceram.co.uk](http://www.ceram.co.uk)
- HSE priced and free publications are available from HSE Books Tel: 01787 881165 Website: [www.hsebooks.co.uk](http://www.hsebooks.co.uk).
- HSE free leaflets can be downloaded from HSE's website: [www.hse.gov.uk/pubns](http://www.hse.gov.uk/pubns).
- For information about health and safety ring HSE's Infoline Tel: 0845 345 0055 Textphone: 0845 408 9577 e-mail: [hse.infoline@natbrit.com](mailto:hse.infoline@natbrit.com).
- Contact the British Occupational Hygiene Society (BOHS) on 01332 298101 or at [www.bohs.org](http://www.bohs.org) for lists of qualified hygienists who can help you.
- Look in the Yellow Pages under 'Health and safety consultants' and 'Health authorities and services' for 'occupational health'.
- Also see [www.nhsplus.nhs.uk](http://www.nhsplus.nhs.uk).

### Employee checklist

- Check your RPE works properly every time you use it.
- Wet-clean surfaces only.
- Look for signs of leaks, wear and damage every day.
- If you find any problems, tell your supervisor. Don't just carry on working.
- Make suggestions to improve the effectiveness of dust control.
- Co-operate with health surveillance.
- Use, maintain and store your protective equipment in accordance with instructions.
- Use skin creams provided as instructed.

This guidance is issued by the Health and Safety Executive. Following the guidance is not compulsory and you are free to take other action. But if you do follow the guidance you will normally be doing enough to comply with the law. Health and safety inspectors seek to secure compliance with the law and may refer to this guidance as illustrating good practice.