

# CR0

COSHH essentials in  
ceramics: Silica

## Advice for managers

**The Control of Substances Hazardous to Health Regulations 2002 (COSHH) require employers to ensure that exposure is prevented or, where this is not reasonably practicable, adequately controlled. This guidance gives practical advice on how this can be achieved by applying the principles of good practice for the control of exposure to substances hazardous to health, as required by COSHH.**

**It is aimed at people whose responsibilities include the management of substances hazardous to health at work (eg. occupational health specialists, anyone undertaking COSHH assessments, and supervisors). It is also useful for trade union and employee safety representatives. It will help you carry out COSHH assessments, review existing assessments, deliver training and supervise activities involving substances hazardous to health.**

**This guidance is issued by the Health and Safety Executive. Following the guidance is not compulsory, unless specifically stated, 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.**

**See Essential information near the end of the sheet.**

### Introduction

The Health and Safety Executive has produced these advice sheets to help employers assess and control health risks from hazardous substances. For some common tasks, the sheets take account of the health hazard (and exposure potential) of substances used or produced, to identify an approach appropriate to control the risks.

The CR series (listed below) describes good practice for the control of exposure to Respirable Crystalline Silica (RCS) present in dry mineral powders used in the ceramics industry.

|     |                                      |
|-----|--------------------------------------|
| CR1 | Glaze and colour preparation         |
| CR2 | Casting                              |
| CR3 | Dry fettling                         |
| CR4 | Kiln loading (placing) and unloading |
| CR5 | Spraying glazes and colours          |

Common materials that contain crystalline silica include clay, slip and glazes, at concentrations given in the table below.

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

Processes, where products made from these materials are worked on, can generate dry dusts containing RCS (eg. dry fettling, polishing and grinding fired ware) and aerosol mists containing RCS (eg. glaze spraying). Resuspension of dust containing RCS from surfaces, including from clothing, is a significant source of exposure even after the task has been completed, so cleaning and housekeeping are important.

### What the sheets cover

Reducing exposure to an adequate level always involves a mixture of equipment and ways of working. This means employers should:

- choose the most effective and reliable control measures;
- ensure they are used properly by instructing, training and supervising workers;
- ensure they keep on working by maintaining the control measures; and,
- check and review all elements of control measures regularly for their continued effectiveness.

Each sheet gives advice on how to achieve this for a particular task.

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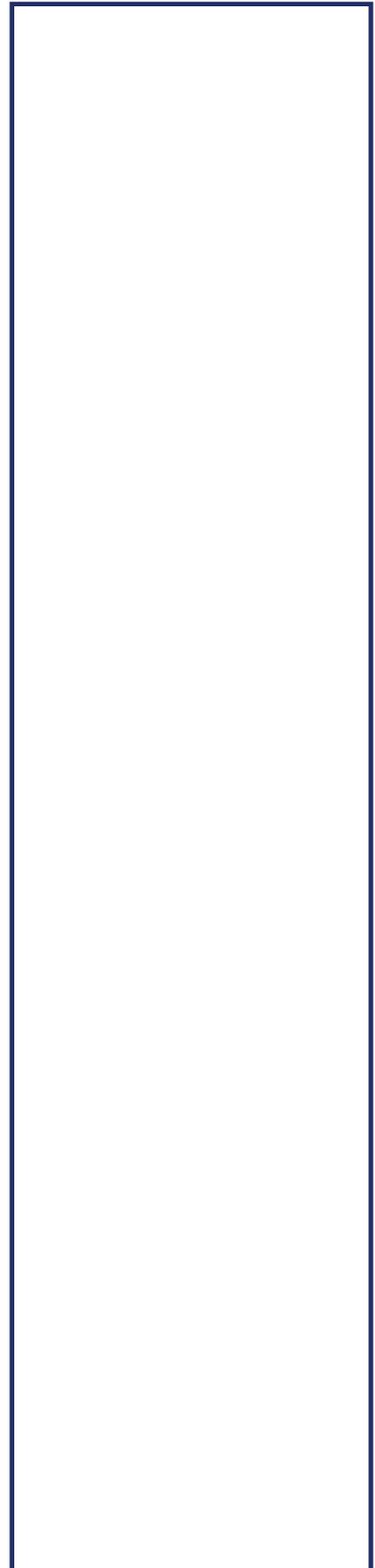
## Hazards

- ✓ RCS is also known as alpha-quartz, cristobalite or 'free silica', and can be wrongly labelled as 'amorphous silica'.
- ✓ RCS is hazardous by inhalation as the 'respirable' dust, which is very fine and invisible under normal lighting, can get deep into the lungs.
- ✓ The workplace exposure limit (WEL) for RCS is detailed in HSE publication **EH40/2005 Workplace Exposure Limits**
- ✓ Inhaling RCS can lead to:
  - Silicosis, which is a serious and irreversible lung disease that can cause permanent disablement and early death. There is an increased risk of lung cancer in workers who have silicosis.
  - Chronic obstructive pulmonary disease (COPD), which is a group of lung diseases, including bronchitis and emphysema, that results in severe breathlessness, prolonged coughing, chronic disability and can lead to death. The risk of COPD is increased by smoking.
- ✓ RCS dust is also abrasive and drying when in contact with skin, and can lead to contact dermatitis.

### To use the advice sheets:

- ✓ Consider the processes/tasks and hazardous substances in your workplace.
- ✓ Look for opportunities to substitute with less hazardous substances, use smaller amounts of the hazardous substances, or use them in a form that reduces the likelihood of dust being generated which could be inhaled.
- ✓ Examine the advice sheets for each of the tasks.
- ✓ Examine the essential information sheets listed on each advice sheet.
- ✓ Compare operations in your workplace with recommendations in the advice sheets for all of the relevant tasks.
- ✓ Document findings (this forms part of your risk assessment).
- ✓ Document any actions you need to take, covering: issues identified, planned actions, target completion date, person responsible, status of issue and review of effectiveness.
- ✓ Keep these documents as a written record of your actions to prevent exposure of workers to hazardous substances.

If you are in doubt, seek expert help. You may have to change old working practices or implement new controls. Decide how best to make any changes required 'across the board'.



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## Essential information

You can find the full COSHH essentials series at [www.hse.gov.uk/coshh/index.htm](http://www.hse.gov.uk/coshh/index.htm)

G-series: General Guidance COSHH Essentials sheets:  
<http://www.hse.gov.uk/pubns/guidance/gseries.htm>

Including:

G403 – Health surveillance for occupational dermatitis

G404 – Health surveillance for those exposed to respirable crystalline silica (RCS)

G406 – New and existing engineering control systems

G409 – Exposure measurement: Air sampling

Occupational Safety and Health Consultants Register:  
<http://www.oshcr.org/>

*Controlling airborne contaminants at work: A guide to local exhaust ventilation (LEV)*, HSG258  
<http://www.hse.gov.uk/pubns/books/hsg258.htm>

*Respiratory protective equipment at work – A practical guide*, HSG53, <http://www.hse.gov.uk/pubns/books/hsg53.htm>

## Further information

Lucideon (formerly Ceram) can advise on detailed equipment design:  
<http://www.lucideon.com/>

Information on health and safety in the ceramics industry can be obtained from:

The British Ceramic Confederation at [www.ceramfed.co.uk](http://www.ceramfed.co.uk)

The Health & Safety Executive at <http://www.hse.gov.uk/non-metallic-minerals/ceramics.htm>

For information about health and safety visit <https://books.hse.gov.uk> or <http://www.hse.gov.uk>

You can view HSE guidance online and order priced publications from the website. HSE priced publications are also available from bookshops.

To report inconsistencies or inaccuracies in this guidance, email: [commissioning@wlt.com](mailto:commissioning@wlt.com)

