

CR2

COSHH essentials in
ceramics: Silica

Casting

Control approach 1 General ventilation

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.

What this sheet covers

This sheet describes good practice for the control of exposure to Respirable Crystalline Silica (RCS) during casting in the ceramics industry.

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

Follow all the points, or use equally effective measures.

Main points

- Raised dust levels result from slip and clay drying out.
- Contaminated work clothing may also be a source of dust exposure, even after the task has been completed.
- Air sampling may be needed to show that control of exposure to RCS is being maintained.
- Provide health surveillance when workers are regularly exposed to RCS dust and there is a reasonable likelihood that silicosis may develop.

Hazards

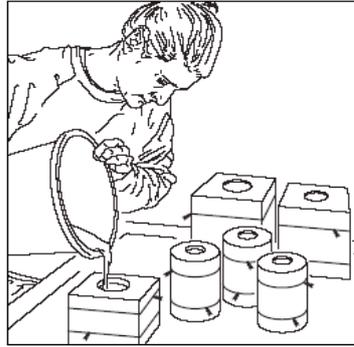
- ✓ RCS is also known as alpha-quartz, cristobalite or 'free silica', and can be wrongly labelled as 'amorphous silica'.
- ✓ RCS is hazardous by inhalation as the 'respirable' dust, which is very fine and invisible under normal lighting, can get deep into the lungs.
- ✓ The workplace exposure limit (WEL) 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.

Access to work area

- ✓ Allow access to authorised and appropriately trained people only.
- ✓ Where possible, slope floors gently towards gulleys to help dust removal by wet washing.
- ✓ Gulleys should not flow through clean areas, as there is a risk of the slurry drying out and dust becoming airborne.

Equipment and procedures

- ✓ Provide a good standard of general ventilation. Use powered fans to supply fresh air.
- ✓ Make sure that ventilation fans are switched on before starting work.
- ✓ Keep surfaces clean – never let slip or clay spills dry out.
- ✓ Remember that handling used moulds creates dust.
- ✓ Use wire rather than elastic bands to hold moulds together.
- ✓ Attach and remove mould fastenings without snapping.
- ✓ Pour slip carefully – don't trail it from one mould to the next (see illustration). Process can also be automated.
- ✓ Keep the outside of moulds clean.
- ✓ Wipe/scrub excess slip from the outside of moulds while still damp.
- ✓ Use a bin to collect scraps and damp slip.



Respiratory protective equipment (RPE)

- ✓ RPE is normally not needed.
- ✓ RPE may be needed for maintenance and cleaning.

Personal protective equipment (PPE)

- ✓ Ask your supplier to help you select the right PPE.
- ✓ Provide separate storage for clean and contaminated PPE.
- ✓ Use a contract laundry or a suitable equivalent to wash work clothing. Warn them that the dust contains silica.
- ✓ Provide clothing designed for use in potteries, eg. 'Terylene' or 'Pertex.
- ✓ Provide protective gloves suitable for both handling clay and slip containing RCS, and wet working.

Personal decontamination

- ✓ Provide warm water, mild skin cleansers, and soft paper or fabric towels for drying. Avoid abrasive cleansers.
- ✓ Provide pre-work skin creams, which will make it easier to wash dirt from the skin.
- ✓ Provide after-work creams to replace skin oils.

Caution: 'Barrier creams' are not 'liquid gloves' and they do not provide a full barrier.

Maintenance, examination and testing

- ✓ Keep moulds in a good condition to minimise the subsequent need for fettling of items.
- ✓ Clean down the equipment before starting maintenance – use wet or dustless methods.
- ✓ Carry out daily checks to look for signs of damage. Noisy or vibrating fans can indicate a problem.
- ✓ Repair faulty systems immediately, ensuring that exposure is either prevented or controlled until such time that the repair is completed.

Cleaning and housekeeping

- ✓ Throughout the day, clear up clay on floors and surfaces to prevent it drying out.
- ✓ Vacuum dry dust or use wet cleaning methods.
- ✓ Use vacuum equipment that meets at least dust Class M (medium hazard) classification to remove dust.
- ✓ Clean surfaces with water and a sponge, where possible.
- ✓ Damp down and shovel large amounts of waste carefully to avoid stirring up dust.
- ✓ Clean down equipment as soon as possible after use.
- ✓ Keep machinery and the workroom clean.
- ✓ Make sure spills can be contained and cleaned up without making dust airborne. Ensure any wet spills are cleaned up promptly so they do not dry out.
- ✓ Dispose of wastes safely.
- ✓ Wash down the workroom at the end of each day's work.

Caution: Never allow the use of brushes or compressed air for removing dust from skin and clothing. Avoid the use of brushes or compressed air for removing dust from surfaces or from inside machinery.

Health surveillance

- ✓ Provide health surveillance when workers are regularly exposed to RCS dust and there is a reasonable likelihood that silicosis may develop. See sheet G404.
- ✓ Provide health surveillance for dermatitis where there is a reasonable likelihood that dermatitis may occur in your workplace. See sheet G403.

Training and supervision

- ✓ Tell workers about the hazards associated with their work and how to prevent and recognise early signs of lung damage from exposure to RCS and dermatitis from exposure to RCS and wet working.
- ✓ Provide workers with training on operating the equipment and using the control measures correctly, and to report any faults immediately.
- ✓ Provide supervision to ensure that safe work procedures are being followed.
- ✓ Involve managers and supervisors in health and safety training.
- ✓ Training records are helpful to demonstrate what information, instruction and training has been provided.

Essential information

G409 – Exposure measurement: Air sampling

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

G403 – Health surveillance for occupational dermatitis

Employee checklist

- Do you understand the health hazards associated with your work?
- Are you sure about safe work procedures?
- Are you sure how to use all dust controls?
- Is the general ventilation working? Check the fans.
- Look for signs of wear and damage every day.
- If you find any problems, tell your supervisor. Don't just carry on working.
- Clear up slip spills promptly and put scraps into waste bins before they dry out.
- 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.
- Wash hands before starting the job, and before eating, drinking, smoking or using the lavatory.
- Follow any skin care programme provided.

Further information

COSHH Essentials sheet CR0 – Table showing Crystalline Silica concentrations in common materials

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

Preventing contact dermatitis and urticaria at work, HSE Books, INDG233(rev2), published 07/15, Introduction, www.hse.gov.uk/pubns/indg233.pdf

Health surveillance for those exposed to respirable crystalline silica (RCS) – Guidance for occupational health professionals, Published 2015, <http://www.hse.gov.uk/pubns/priced/healthsurveillance.pdf>

You can find the full COSHH essentials series at <http://www.hse.gov.uk/coshh/essentials/index.htm>

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

The British Ceramic Confederation at www.ceramfed.co.uk/

The Health and Safety Executive at <http://www.hse.gov.uk/non-metallic-minerals/heavy-clay.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

