

BK7

COSHH essentials in brick
and tile making: Silica

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.

Ventilated vehicle cabs

Control approach: Engineering control

What this sheet covers

This sheet describes good practice for the control of exposure to Respirable Crystalline Silica (RCS) dust when using ventilated vehicle cabs during brick manufacturing.

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

This is achieved by following good control practice (ie follow all points described in this sheet or use equally effective measures), and by reducing exposure to below the relevant workplace exposure limits (WELs).

Main points

- Brick making can produce dust containing RCS. High dust levels result during the transfer and crushing of dry clay, the movement of brick, and from ash.
- Resuspension of dust containing RCS from surfaces, including dusty workwear, boots and cab seat covers, is also a significant source of exposure.
- Use an enclosed, ventilated cab with filtered air intake when moving dry clay and sand.
- Regularly check and review all elements of your control measures to ensure they remain effective in providing adequate control.
- Provide health surveillance when workers are regularly exposed to RCS dust and there is a reasonable likelihood that COPD and/or silicosis, and dermatitis may develop.

Hazards

- ✓ Crystalline silica dust, which is fine enough to reach deep inside the lung, is known as respirable crystalline silica (RCS). Exposure to RCS can cause silicosis, where irreversible lung damage can be present before any symptoms develop. Silicosis may continue to worsen even after exposure to RCS stops. RCS can also cause other serious diseases such as chronic obstructive pulmonary disease (COPD) and lung cancer. The workplace exposure limit for RCS is detailed in HSE publication EH40/2005 Workplace Exposure Limits (see Essential information).
- ✓ RCS dust is also abrasive and drying when in contact with skin and can lead to contact dermatitis. Wet working can also lead to dermatitis.

Access to work area

- ✓ Allow access to authorised and appropriately trained people only.

Equipment and procedures

- ✓ Use water (eg from a bowser) to dampen down road surfaces to minimise dust generation.
- ✓ Select a vehicle that has an appropriate enclosed ventilated cab fitted with suitable filtered air intakes.
- ✓ Ensure a comfortable working environment for the operator. Where appropriate, provide air conditioning to reduce the likelihood of the windows being opened.
- ✓ Use high-efficiency particulate filters and pre-filters on the air intakes to stop dust getting into the cab.
- ✓ Ensure the cab door and windows are closed at all times except during entry and exit.
- ✓ Use radios, closed-circuit television (CCTV), public announcement (PA) or suitable communication system to prevent the need for the driver to open the cab door/window to communicate with colleagues.
- ✓ Provide facilities for the worker to minimise the transfer of contamination into the cab from PPE and workwear.

Respiratory protective equipment (RPE)

- ✓ RPE is normally not needed for working in a ventilated vehicle cab.
- ✓ RPE is needed for cleaning and maintenance.
- ✓ Provide RPE with an assigned protection factor (APF) of at least 20 (see sheet R3 in Essential information).
- ✓ Face fit testing is required for RPE with a tight-fitting face seal (see INDG479 in Essential information).
- ✓ Workers wearing tight fitting RPE must be clean shaven.

Personal protective equipment (PPE)

- ✓ Ask your supplier to advise on suitable PPE.
- ✓ Consult workers to ensure PPE will be suitable for them.
- ✓ Make suitable arrangements for maintenance, storage and replacement of PPE.
- ✓ Provide separate storage for clean and contaminated PPE.
- ✓ Provide coveralls that do not retain dust – synthetic rather than cotton.
- ✓ Keep any PPE clean and replace at recommended intervals.
- ✓ Use a contract laundry or a suitable equivalent to wash work clothing. Warn them that the dust contains silica. Do not allow workers to launder work clothing at home.

Personal decontamination and skin care

- ✓ Prohibit eating, drinking and smoking in contaminated areas.
- ✓ 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 replenish skin oils.
- ✓ Barrier creams are not 'liquid gloves' and do not provide a full barrier.

Maintenance, examination and testing

- ✓ Equipment can wear out quickly especially as silica-containing dusts are abrasive. Plan regular maintenance.
- ✓ Clean down the equipment before starting maintenance – use wet or dustless methods.
- ✓ Keep all equipment used for the task in effective working order. Maintain it as advised by the supplier or installer.
- ✓ Check door and window seals for damage daily – ensure they are in good condition and repair any damage immediately.
- ✓ Check pre-filters regularly and follow manufacturer's advice regarding pre-filter cleaning or changing.
- ✓ Change main filters as advised by the manufacturer or when they begin to block.
- ✓ Provide a means of ensuring adequate cabin pressure is maintained.
- ✓ Get a competent person to examine the air filtration system regularly.
- ✓ Several measures are available to check effectiveness of controls, ranging from simple qualitative (eg use of a dust lamp) to complex quantitative techniques (eg air sampling) usually for higher-risk scenarios. See sheet G409 in Essential information.

Cleaning and housekeeping

- ✓ Vacuum dry dust or use wet cleaning methods.
- ✓ Keep the inside of the cab clean – clean at least once a week using vacuum equipment.
- ✓ Use vacuum equipment that meets at least the dust class M (medium hazard) classification.
- ✓ Keep vehicles clean - wash vehicles and use water wheel cleaning regularly.
- ✓ Wash down roadways regularly and limit vehicle speed.
- ✓ Clean up spills promptly to avoid the spread of contamination and/or slurry drying out.
- ✓ Avoid the use of brushes or compressed air for removing dust from clothing, surfaces or machinery, eg cab air filters.

Health surveillance

- ✓ Provide health surveillance when workers are regularly exposed to RCS dust and there is a reasonable likelihood that COPD and/or silicosis may develop. See sheet G404 in Essential information.
- ✓ Provide health surveillance for dermatitis where there is a reasonable likelihood that dermatitis may occur in your workplace. See sheet G403 in Essential information.
- ✓ Workers undertaking the task described in this sheet will normally need health surveillance.
- ✓ You will need to take advice from a competent occupational health professional (a doctor or nurse) when setting up a health surveillance programme.

Training and supervision

- ✓ Tell workers about the hazards associated with their work and how to recognise early signs of lung damage and dermatitis from exposure to RCS.

- ✓ Provide workers with training on:
 - working safely with hazardous substances;
 - when and how to use controls;
 - how to check they are working;
 - what to do if something goes wrong.
- ✓ Provide supervision – ensure that safe work procedures are 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

G403 – Health surveillance for occupational dermatitis.
www.hse.gov.uk/pubns/guidance/g403.pdf

G404 – Health surveillance for those exposed to respirable crystalline silica (RCS). <https://www.hse.gov.uk/pubns/guidance/g404.pdf>

G409 – Exposure measurement: Air sampling.
www.hse.gov.uk/pubns/guidance/g409.pdf

R3 – UK Standard Assigned Protection Factor 20 (APF 20)
www.hse.gov.uk/pubns/guidance/rpe3.pdf

Guidance on respiratory protective equipment (RPE) fit testing Leaflet INDG479(rev1) HSE 2019 www.hse.gov.uk/pubns/indg479.htm

EH40/2005 – Workplace exposure limits
www.hse.gov.uk/pubns/books/eh40.htm

Further information

You can find the full COSHH essentials series at
<https://www.hse.gov.uk/pubns/guidance/bkseries.htm>

BK0 - Advice for managers.
<https://www.hse.gov.uk/pubns/guidance/bk0.pdf>

Control of exposure to silica dust - A guide for employees INDG463.
<https://www.hse.gov.uk/pubns/indg463.pdf>

Respiratory protective equipment at work: A practical guide HSG53 (Fourth edition) HSE 2013 www.hse.gov.uk/pubns/books/hsg53.htm

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>

The dust lamp: A simple tool for observing the presence of airborne particles MDHS82.
<https://www.hse.gov.uk/pubns/mdhs/pdfs/mdhs82-2.pdf>

Control of substances hazardous to health: The Control of Substances Hazardous to Health Regulations 2002. Approved Code of Practice and guidance L5 (Sixth edition) HSE 2013
<https://www.hse.gov.uk/pubns/books/l5.htm>

Institute of Local Exhaust Ventilation Engineers Accredited members
Institute of Local Exhaust Ventilation Engineers (ILEVE) | CIBSE

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

Information on health and safety in the brick manufacturing industry can be obtained from the British Ceramic Confederation at www.ceramfed.co.uk

British Occupational Hygiene Society (BOHS) Directory of Occupational Hygiene Services
<https://www.bohs.org/information-guidance/>

For information about health and safety visit <https://books.hse.gov.uk> or 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@williamslea.com

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 controls?
- If you find any problems, tell your supervisor. Don't just carry on working.
- Check that the air filters are not heavily dust laden or blocked.
- Look for signs of wear and damage to the door and window seals.
- Close cab doors and windows.
- Switch on the cab ventilation system before setting off.
- Use the communication system in place instead of opening the door or window.
- Co-operate with health surveillance.
- Use, maintain and store your protective equipment in accordance with instructions. Do not take PPE home for laundering.
- Check that any RPE works properly every time you use it. Look for signs of leaks, wear and damage.
- Wash hands before eating, drinking, smoking, using the lavatory and after work.
- Follow any skin care programme provided. Never use solvents to clean your skin.