

CN8

COSHH essentials in construction: 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, supervisors and 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.

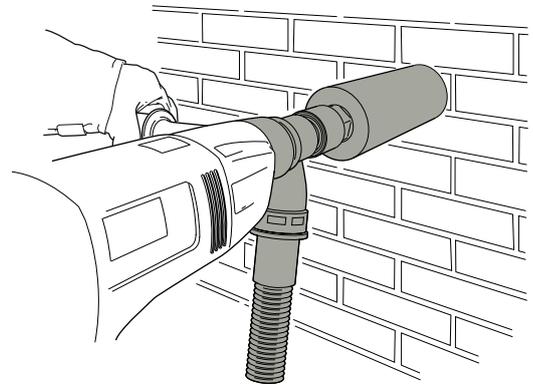
Diamond coring/ hole cutting

Control approach Engineering and RPE

What this Sheet Covers

This sheet describes good control practice when diamond coring and hole cutting concrete and similar materials.

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.



Hazards

- ✓ This type of work can create very high levels of dust.
- ✓ The dust may contain respirable crystalline silica (RCS).
- ✓ Breathing this dust can cause serious lung diseases like silicosis, chronic obstructive pulmonary disease (COPD) and even lung cancer.
- ✓ These diseases cause permanent disability and early death.
- ✓ Skin contact with dusts and prolonged or frequent contact with water may cause dermatitis.
- ✓ A good standard of control is needed because of the risk to health.

Before starting

- ✓ Before starting work consider:
 - Can you design/plan the work to limit the number of holes needed?

Access to work area

- ✓ Allow access to authorised and appropriately trained people only.
- ✓ Limit the number of people near the work.

Equipment and procedures

For dry coring holes in brick

- ✓ Choose the correct drill unit and right size diamond bit/hole cutter.
- ✓ Where reasonably practicable use an on-tool extraction system with:
 - an extraction hood;
 - an M or H Class extraction unit;
 - the correct hoses/connections;
 - spare waste collection bags where needed.
- ✓ Make sure the waste collection bag gets emptied regularly.

For wet coring holes in concrete

- ✓ Choose the correct drill unit.
- ✓ Choose the right size diamond bit/hole cutter.
- ✓ Use a drill unit with a water suppression attachment.
- ✓ Ensure that there is enough water for the amount of work and it flows at the rate needed.
- ✓ Use a water main connection if possible, otherwise use a pressurised water container.
- ✓ Regularly re-fill containers, make sure a supply of spare water is in easy reach and make sure containers are at the right pressure.
- ✓ Protect water against freezing in cold weather.
- ✓ Consider how you will control the slurry created by the work.
- ✓ Clean up as soon as possible. Hose down and wet brush.
- ✓ Provide a secure base plate where necessary.

For all coring/hole cutting (where applicable)

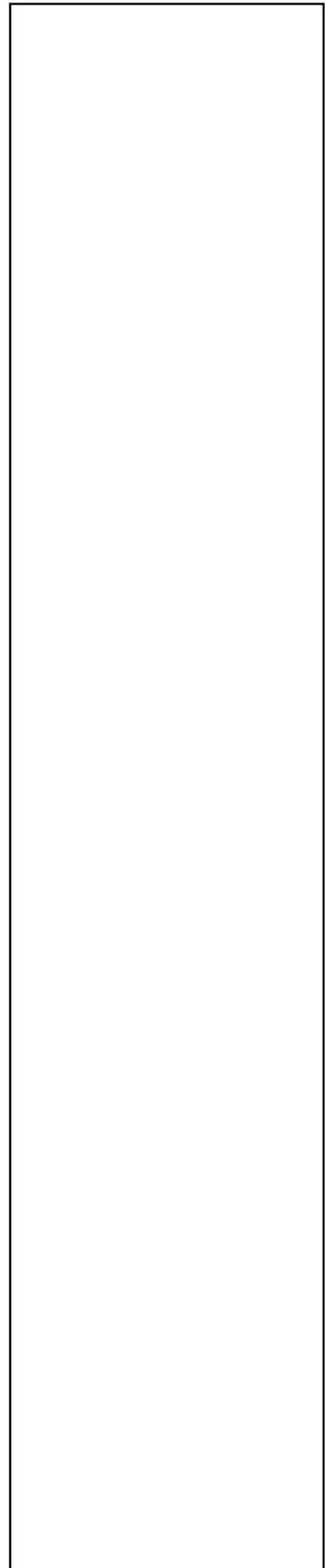
- ✓ Ensure the cabling and extraction hose are of the right lengths.
- ✓ Position cable safely to limit trip risks.
- ✓ Make sure the electricity supply is safe and any extraction is switched on.
- ✓ Hose connections should be tight fitting and secure without obvious leaks.
- ✓ Be aware of the location of utilities (electricity, gas, water).
- ✓ Start drilling on a slow speed/power to reduce dust. Increase speed when the bit is cutting around its entire blade.
- ✓ Rotate those doing the work where a lot of drilling is involved.

Respiratory protective equipment (RPE)

- ✓ For dry coring for more than 15–20 minutes over a day, and for long periods of wet coring in enclosed spaces, provide RPE with a UK Standard Assigned Protection Factor (APF) of at least 20.
- ✓ Fit testing is required for RPE with a tight fitting face seal.
- ✓ Workers wearing tight fitting RPE should be clean shaven, trained how to fit it properly and how to look after it.
- ✓ Tell workers to discard disposable RPE at the end of the shift, or sooner if their RPE becomes blocked with dust.
- ✓ Change the filters on non-disposable respirators in accordance with manufacturers' recommendations and if:
 - the shelf-life expiry date has passed;
 - they are damaged or visibly contaminated; or
 - they become harder to breathe through.
- ✓ Examine and test non-disposable RPE thoroughly at least once every month.
- ✓ Tell workers to check RPE is working properly before every use.
- ✓ If RPE is required for extended periods, eg longer than 1 hour continuously, use powered respirators.
- ✓ Keep RPE clean and store it in a clean place.

Personal protective equipment (PPE)

- ✓ Provide coveralls that do not retain dust.
- ✓ Where necessary provide waterproof trousers to keep legs dry.
- ✓ Ask your safety clothing supplier if you need any advice on selecting suitable protective equipment.
- ✓ Provide storage for PPE to prevent damage or contamination when not in use.



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- ✓ Keep any PPE cleaned and replace at recommended intervals.
 - ✓ Use a contract laundry or a suitable equivalent to wash work clothing. Don't allow workers to do this at home.

Personal decontamination and skin care

- ✓ 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.

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

Maintenance, examination and testing

- ✓ Keep all equipment used for the task in effective working order. Maintain it as advised by the supplier.
- ✓ Maintain or replace worn diamond bits/hole cutters.
- ✓ For wet coring, check water tubing/outlets are clean and water containers well maintained. Replace seals if necessary.
- ✓ For dry coring, regularly look for signs of damage to hood, hoses or extraction unit – pay particular attention to filters, extraction rates and warning devices.
- ✓ On-tool extraction is a type of local exhaust ventilation (LEV). For LEV, a user manual or log book is helpful in setting out the frequency of checking, maintenance or parts replacement.
- ✓ For LEV with no user manual or log book you may need the help of a competent person. They can determine the performance needed for adequate control.
- ✓ LEV systems require a statutory 'thorough examination and test' (TExT).
- ✓ Get a competent person to perform the TExT at least every 14 months.
- ✓ Carry out all actions arising from the TExT.
- ✓ Keep records of all examinations for at least 5 years.

Cleaning and housekeeping

- ✓ Clean up as soon as possible.
- ✓ Clean work equipment daily.
- ✓ Vacuum dry dust or use wet cleaning methods.
- ✓ Use vacuum equipment that meets at least dust Class M (medium hazard) classification to remove dust.

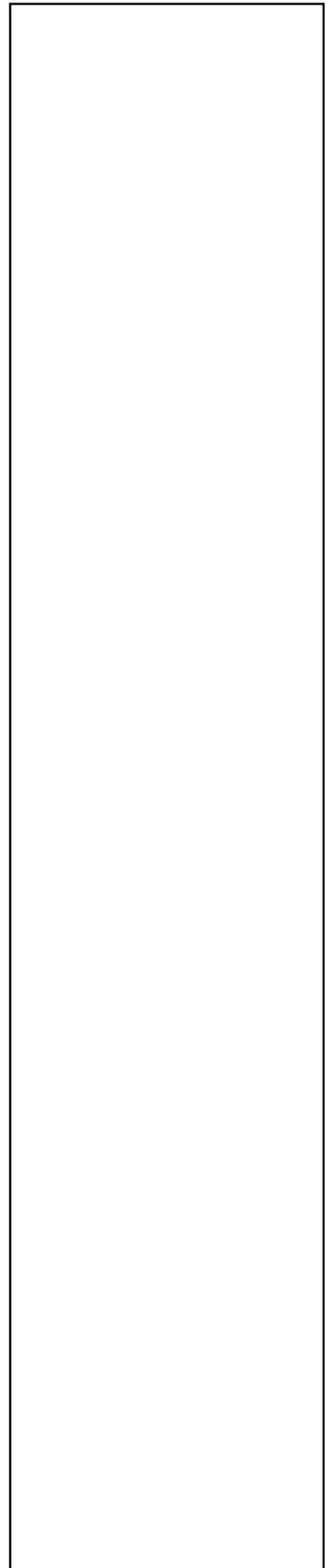
Caution: Avoid the use of brushes or compressed air for cleaning surfaces.

Health surveillance

- ✓ Provide health surveillance for silicosis where there is a reasonable likelihood that silicosis may occur in your workplace. See G404.
- ✓ Provide health surveillance for dermatitis where there is a reasonable likelihood that dermatitis may occur in your workplace. See G403.

Training and supervision

- ✓ Tell workers about the hazards associated with their work.
- ✓ Provide workers with training on:
 - working safely with hazardous substances;



- when and how to use controls;
 - how to check they are working;
 - how the LEV system works;
 - how to use the LEV to get the best out of it;
 - how to check that the LEV is working;
 - what to do if something goes wrong.
- ✓ Consider keeping training records.
 - ✓ Have a procedure to check that control measures are in place and being followed.
 - ✓ Involve managers and supervisors in health and safety training.

Essential Information

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

Advice for managers COSHH Guidance Sheet CN0
www.hse.gov.uk/pubns/guidance/cn0.pdf

Small scale clearing of rubble, dust and debris COSHH Guidance Sheet CN5
www.hse.gov.uk/pubns/guidance/cn5.pdf

Health surveillance, monitoring and sampling sheets are available at www.hse.gov.uk/pubns/guidance/gseries.htm

Health surveillance for occupational dermatitis COSHH Guidance Sheet G403 HSE 2011
www.hse.gov.uk/pubns/guidance/g403.pdf

Health surveillance for silicosis COSHH Guidance Sheet G404 HSE 2011
www.hse.gov.uk/pubns/guidance/g404.pdf

Further information

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

For more information on construction dust risks and controls see www.hse.gov.uk/construction/healthrisks/

Construction dust Construction information sheet CIS36 (rev2) HSE 2013
www.hse.gov.uk/pubns/cis36.htm

Controlling construction dust with on-tool extraction Construction information sheet CIS69 HSE 2013
www.hse.gov.uk/pubns/cis69.htm

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

Controlling airborne contaminants at work: A guide to local exhaust ventilation (LEV) HSG258 HSE Books 2011
www.hse.gov.uk/pubns/books/hsg258.htm

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This document is available at: www.hse.gov.uk/pubns/guidance/cn8.pdf

Employee checklist

- Are you sure about safe work procedures?
- Is the equipment in good condition and working properly?
- Is the extraction working?
- Look for signs of leaks, wear and damage every day.
- If you find any problems, tell your supervisor. Don't just carry on working.
- Wash your hands before eating, drinking, smoking, using the lavatory and after work.
- Co-operate with health surveillance.
- Use, maintain and store any PPE provided in accordance with instructions.

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