

ST3A

COSHH essentials for stone workers: 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 (such as 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.

Cutting and polishing engineered stone using powered hand-held rotary tools

Control approach 2: Engineering controls and Respiratory protective equipment (RPE)

What this sheet covers

This sheet describes good control practice for respirable crystalline silica (RCS) dust from cutting, grinding and polishing of engineered stone using powered hand-held rotary tools. Working stone using automated rotary tools is covered in sheet ST2 (see Essential information).

Engineered stone is artificial stone manufactured using crushed natural stone or minerals bonded together with resin.

Follow the good control practice described in this sheet to reduce exposure to below the relevant workplace exposure limits (WELs).

Main points

- Work with stone containing the lowest crystalline silica content to reduce health risks for all workers.
- Use on-tool water suppression.
- Control the mist generated by water suppression because it contains crystalline silica.
- Use powered air purifying respirators (PAPR) with an assigned protection factor (APF) of at least 20 when processing, cleaning or when maintaining machinery.
- Regularly review your control measures to check that they are still effective.
- Provide health surveillance for workers if they are regularly exposed to RCS dust and there is a reasonable likelihood that chronic obstructive pulmonary disease (COPD) and/or silicosis may develop.
- Clean the work area regularly. Dust from surfaces or work clothing can be a significant source of exposure.

Hazards

RCS is fine enough to reach deep inside the lungs. It can cause irreversible lung damage, silicosis, chronic obstructive pulmonary disease (COPD) and lung cancer.

Damage to health may be done before any symptoms develop. Silicosis can continue to worsen even after exposure to RCS stops. Wet working can cause dermatitis. RCS is also abrasive and drying when in contact with skin.

Organisation of work area

- ✓ Segregate tasks which create dust and mist to reduce spreading of airborne contamination to other workers.
- ✓ Only allow access to authorised and appropriately trained people.
- ✓ Slope floors gently towards gulleys, where possible, to help slurry drain.

- ✓ Avoid gulleys flowing through clean areas; slurry can dry out and lead to dust becoming airborne.

Equipment and procedures for water suppression and mist control

- ✓ Use on-tool water suppression to reduce dust.
- ✓ Provide an adequate supply of clean water, in accordance with the equipment suppliers' instructions.
- ✓ If recirculating water, you must:
 - establish a programme of checks and maintenance to ensure that conditions do not allow the growth of bacteria, including legionella (detailed guidance is at www.hse.gov.uk/legionnaires/testing-monitoring-water-system.htm);
 - replace or treat contaminated water according to the equipment supplier's instructions. This prevents the build-up of silica in the water which could affect the machinery tooling, increasing the need for maintenance, and the effectiveness of the water suppression.
- ✓ Work within a partially enclosed and externally vented local exhaust ventilation (LEV) booth to control mist, for example a water wall LEV booth. This will reduce the spread of crystalline silica beyond the work area. Design your system to extract wet mist.
- ✓ Provide mechanical ventilation to prevent the build-up of mist.

Respiratory protective equipment (RPE)

- ✓ Provide powered air purifying respirators (PAPR) or other equivalent positive pressure RPE (sheets R3 and R4 in Essential information).
- ✓ Make sure workers are trained on how to check RPE is working properly before every use, how to fit it properly and how to look after it.
- ✓ Change the filters on respirators in accordance with the manufacturer's recommendations.
- ✓ Change the filters on respirators if:
 - the shelf-life expiry date has passed;
 - they look damaged or contaminated;
 - they become harder to breathe through.
- ✓ Keep RPE clean and store it in a clean place.
- ✓ Test and examine reusable RPE at least once a month, and carry out any maintenance. If the RPE is only used occasionally, make sure an examination and test is done before use. Never exceed 3-month intervals for checks and maintenance.
- ✓ Make sure workers wearing tight-fitting RPE are clean shaven and face fit tested (see INDG479 in Essential information).

Personal protective equipment (PPE)

- ✓ Do not allow workers to wear their own outer clothing in contaminated areas.
- ✓ Provide coveralls that do not retain dust – synthetic rather than cotton. If exposure to the mist is likely, then the coveralls should also provide water protection.
- ✓ Consult workers to ensure PPE is suitable for them.
- ✓ Make suitable arrangements for maintenance, separate storage and replacement of PPE.

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- ✓ 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.
 - ✓ Provide suitable footwear for working in a wet floor area.
 - ✓ Provide protective gloves suitable for contact with crystalline silica.

Personal decontamination

- ✓ Do not allow eating, drinking or 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.
- ✓ Do not rely on barrier creams; they are not 'liquid gloves' and they do not provide a full barrier.

Maintenance, examination and testing

- ✓ Plan regular maintenance of equipment; it can wear out quickly as silica-containing dusts are abrasive.
- ✓ Clean down equipment before starting maintenance; use wet or dustless methods.
- ✓ Keep all equipment in working order. Maintain it as advised by the supplier or installer.
- ✓ Check for signs of damage to control equipment before starting work.
- ✓ Make sure that on-tool water suppression systems work properly before using the tool.
- ✓ Make sure that mist control systems work properly before use.
- ✓ Air sampling may be needed to show that control of exposure to dust and mist is being maintained (see G409 in Essential information).

Cleaning and housekeeping

- ✓ Clean work equipment and the work area daily. Clean other equipment and the workroom regularly - at least once a week.
- ✓ Vacuum dry dust or use wet cleaning methods.
- ✓ Use vacuum equipment that meets at least Class M (medium hazard) classification.
- ✓ Clear up slurry and dispose of it safely.
- ✓ Do not use brushes or compressed air for removing dust from clothing, surfaces and machinery.
- ✓ Do not disturb dried dust from overspray or slurry. Dust from surfaces or work clothing can be a significant source of exposure.
- ✓ Clean regularly. **No dry brushing.**
- ✓ Provide coveralls. These must be removed safely before removing RPE. Do not leave the workplace wearing PPE, to prevent taking the dust home.

Health surveillance

- ✓ Provide health surveillance (see G403 and G404 in Essential information).
- ✓ You must consider other health effects such as hand-arm vibration, dermatitis and noise-induced hearing loss.
- ✓ Take advice from a competent occupational health professional (a doctor or nurse) to set up and run 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 from exposure to RCS.
- ✓ Provide workers with training on:
 - when and how to use controls;
 - how to check controls are working;
 - what to do if something goes wrong.
- ✓ Provide supervision to make sure that controls are used and safe work procedures are followed.
- ✓ Involve managers and supervisors in health and safety training.
- ✓ Keeping training records is helpful to demonstrate what information, instruction and training have been provided.

Essential information

- Control of exposure to silica dust - A guide for employees INDG463
<https://www.hse.gov.uk/pubns/guidance/indg463.htm>
- Guidance on respiratory protective equipment (RPE) fit testing INDG479 (www.hse.gov.uk/pubns/indg479.htm)

Stoneworkers COSHH Essentials:

All available at www.hse.gov.uk/coshh/essentials/direct-advice/stonemasons.htm

RPE COSHH Essentials:

- R3 UK Standard Assigned Protection Factor 20
- R4 UK Standard Assigned Protection Factor 40

Both available at www.hse.gov.uk/coshh/essentials/direct-advice/respiratory-protective-equipment.htm

General guidance COSHH Essentials:

- G403 Health surveillance for occupational dermatitis
- G404 Health surveillance for those exposed to respirable crystalline silica
- G409 Exposure measurement: Air sampling

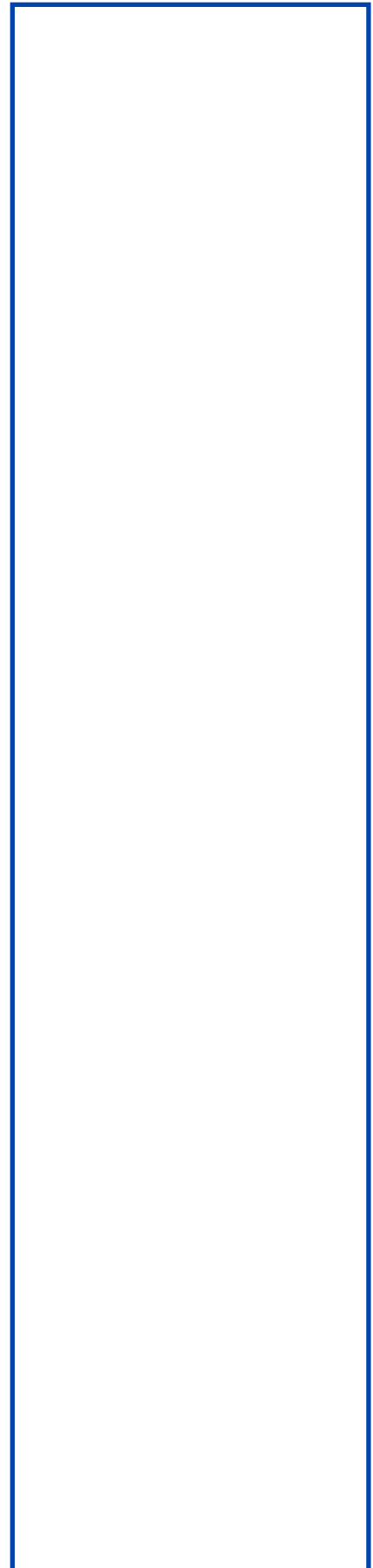
All available at www.hse.gov.uk/pubns/guidance/gseries.htm

Further information

Controlling exposure to stone dust, HSG201.
<https://www.hse.gov.uk/pubns/books/hsg201.htm>

G406 – New and existing engineering control systems.
<https://www.hse.gov.uk/pubns/guidance/g406.pdf>

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



Health surveillance for those exposed to respirable crystalline silica (RCS) - Guidance for occupational health professionals.
<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>

Information on health and safety for stoneworking in the stone manufacturing and construction industries:

The Health and Safety Executive at
<http://www.hse.gov.uk/stonemasonry/index.htm>

Stone Federation at <http://www.stonefed.org.uk>

Worktop Fabricators Federation <https://www.worktopfabricators.org/>

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

Institute of Local Exhaust Ventilation Engineers Accredited members
<https://www.cibse.org/get-involved/societies/institute-of-local-exhaust-ventilation-engineers-ileve>

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

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To report inconsistencies or inaccuracies in this guidance, email: commissioning@williamslea.com

This document is available at: www.hse.gov.uk/pubns/guidance/st3a.pdf

Employee checklist

- Do you understand the health hazards associated with your work?
- Are you sure how to use all controls?
- Is the water suppression system working effectively?
- Check that any RPE works properly every time you use it. Look for signs of leaks, wear and damage.
- Use, maintain and store your PPE in accordance with instructions. Do not take PPE home for laundering.
- If you find any problems, tell your supervisor, don't just carry on working.
- Wash hands before eating, drinking, smoking, using the toilet and after work.
- Follow any skin care programme provided. Never use solvents to clean your skin.
- Co-operate with health surveillance.