

FD9

COSHH essentials for foundries: Silica

Abrasive blasting small castings in a cabinet

Control approach 3 Containment



This information will help employers (including the self-employed) comply with the Control of Substances Hazardous to Health

Regulations 2002 (COSHH), as amended, to control exposure to respirable crystalline silica (RCS) and protect workers' health.

It is also useful for trade union safety representatives.

This sheet describes good practice using a blasting cabinet.

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

It is important to follow all the points, or use equally effective measures.

Sand is banned as an abrasive.

Main points

- Abrasive blasting produces high levels of dust.
- Keep exposure as low as possible using all the controls in this sheet. Make sure the controls work.
- You need air sampling. See sheet G409.
- Health surveillance is usually needed. See sheet G404.

Hazard

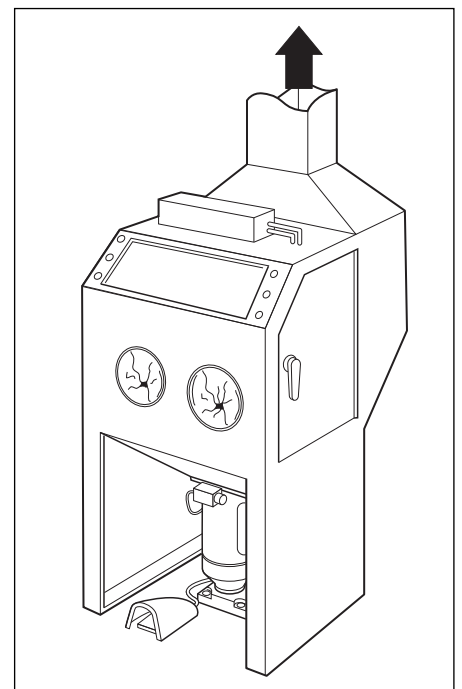
- ✓ Abrasive blasting (shot-blasting) can produce respirable crystalline silica (RCS).
- ✓ All RCS is hazardous, causing silicosis. This is a serious lung disease causing permanent disability and early death.
- ✓ Silicosis is made worse by smoking.
- ✓ 'Respirable' means that the dust can get to the deepest parts of the lung. Such fine dust is invisible under normal lighting.
- ✓ Keep inhalation of RCS as low as possible.
- ✓ When all controls are applied properly, less than 0.1 mg/m³ RCS is usually achievable (based on an 8-hour time-weighted average).
- ✓ Sand contains up to 100% crystalline silica.

Access and premises

- ✓ Only allow access to authorised staff.

Equipment

- ✓ Use a fully enclosed cabinet or booth for abrasive blasting, held under negative pressure
- ✓ Fit a pressure gauge, interlocked with the power supply.
- ✓ You need a high standard of filtration for the air discharged from the cabinet.
- ✓ Discharge filtered air outside the building, away from doors, windows and air inlets.
- ✓ Run the cabinet for two minutes after blasting has ceased to clear the air.
- ✓ Fit an indicator or alarm to show if filters have blocked or failed.
- ✓ Shake down air filters four times a day.
- ✓ See sheet WL19 for advice on using an abrasive blasting booth for larger castings. See 'Further information'.



Maintenance, examination and testing

- ✓ Follow instructions in maintenance manuals - keep equipment in effective and efficient working order.
- ✓ Abrasives wear out plant quickly. Plan regular maintenance.
- ✓ If the extraction system is faulty, stop work until it is repaired
- ✓ Every day, look for signs of damage to ducting, fans and air filters. Noisy or vibrating fans can indicate a problem.
- ✓ At least once a week, check that the extraction and gauge work properly, with no dust leaks.
- ✓ You need to know the manufacturer's specifications to check the extraction's performance.
- ✓ If this information isn't available, hire a competent ventilation engineer to determine the performance needed for effective control.
- ✓ The engineer's report must show the target extraction rates.
- ✓ Keep this information in your testing log-book.
- ✓ Get a competent ventilation engineer to examine the extraction thoroughly and test its performance at least once every month. See the HSE publication HSG54 - see 'Further information'.
- ✓ Keep records of all examinations and tests for at least five years.

Personal protective equipment (PPE)

- ✓ Ask your supplier to help you get the right PPE.

Respiratory protective equipment (RPE)

- ✓ Respiratory protective equipment (RPE) should not be needed if the extraction is designed correctly and working properly
- ✓ RPE may be needed for maintenance. If so:
 - Provide RPE with an assigned protection factor (APF) of at least 20. See sheet R3.
 - Disposable RPE is acceptable - throw this away at the end of the task.
 - Otherwise replace RPE filters as recommended by the supplier.

Other protective equipment

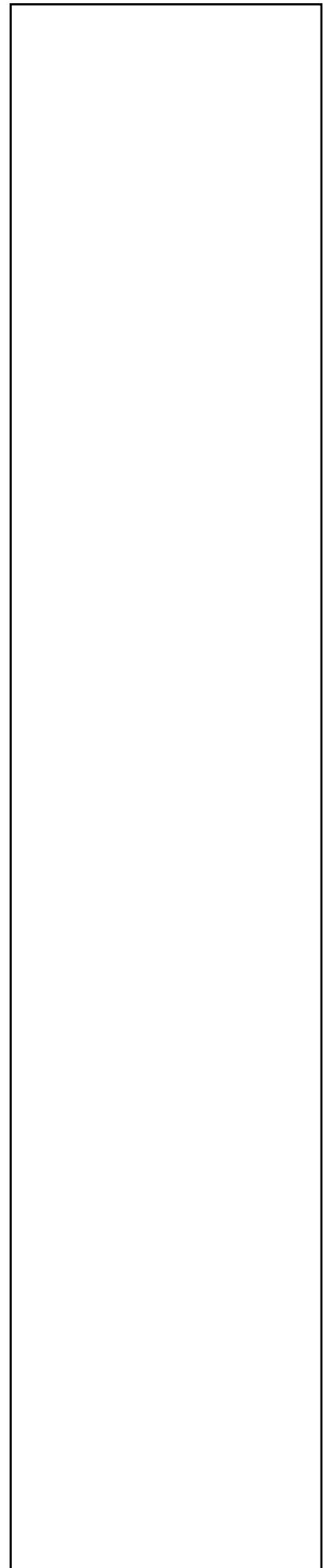
- ✓ Provide coveralls that do not retain dust.
 - ✓ Use a contract laundry or suitable equivalent to wash work clothing. Warn them that the dust contains silica.
- Caution: Never allow use of compressed air to remove dust from clothing.**

Health surveillance

- ✓ You need health surveillance unless exposure to RCS is well below the limit. See sheet G404.
- ✓ Consult an occupational health professional. See 'Useful links'.

Cleaning and housekeeping

- ✓ Every day, clear up spilt abrasive and dust.
 - ✓ Clean general workrooms once a week to stop dust being stirred up.
 - ✓ Use a Type H vacuum cleaner fitted with a HEPA filter to clear up dust.
- Caution: Don't use a brush or compressed air.**



Training and supervision

- ✓ Tell workers that abrasive blasting dust can cause serious lung disease.
- ✓ Working in the right way and using the controls correctly is important for exposure control. Train and supervise workers. See sheet FDO.

Further information

- *Maintenance, examination and testing of local exhaust ventilation* HSG54 (Second edition) HSE Books 1998 ISBN 0 7176 1485 9
- *Respiratory protective equipment at work: A practical guide* HSG53 (Third edition) HSE Books 2005 ISBN 0 7176 2904 X
- Also see *COSHH essentials for welding, hot work and allied processes* at www.hse.gov.uk/welding/guidance/index.htm
- For environmental guidelines see sheet FDO

Useful links

- For information about health and safety, or to report inconsistencies or inaccuracies in this guidance, visit 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.
- Contact the British Occupational Hygiene Society (BOHS) on 01332 298101 or at www.bohs.org for lists of qualified hygienists who can help you.
- Look in the Yellow Pages under 'Health and safety consultants' and 'Health authorities and services' for 'occupational health'.
- Also see www.nhsplus.nhs.uk.

This document is available at: www.hse.gov.uk/pubns/guidance/ and www.hse.gov.uk/coshh/essentials/

This document contains notes on good practice which are not compulsory but which you may find helpful in considering what you need to do.

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Employee checklist

- Is the extraction switched on and working properly? Check the gauge.
- Check that any RPE works properly every time you use it.
- Look for signs of leaks, wear and damage.
- If you find any problems, tell your supervisor. Don't just carry on working.
- Co-operate with health surveillance.
- Use, maintain and store your PPE in accordance with instructions.
- Never use solvents to clean your skin.