

FD14

COSHH essentials for foundries: Silica



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 RPE.

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.

This sheet does not apply to emergency work. Seek expert advice - see 'Useful links'.

Main points

- Relining produces a great deal of dust.
- Keep exposure as low as possible using all the controls in this sheet. Make sure the controls work.
- Health surveillance is usually needed. See sheet G404.

Furnace relining

Control approach R

Respiratory protective equipment (RPE)

Hazard

- ✓ Relining can produce airborne 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).
- ✓ Refractory ceramic fibre (RCF) can degrade to silica.

Access and premises

- ✓ Use a permit-to-work for access.
- ✓ Post a trained person outside, to act as lookout.
- ✓ Provide good access to enable safe waste removal.

Equipment

- ✓ RPE is normally needed to reduce exposures to an acceptable level.
- ✓ Provide a good standard of general ventilation.

Small furnaces

- ✓ Write a method statement for the job. Dust exposures can be high - specify what controls to use.
- ✓ Ensure the work area is cold before starting work. Consider using water for dust suppression.
- ✓ For very small furnaces (eg induction furnaces) soak ceramic fibre insulation with water before removal.

Large furnaces

- ✓ Use a permit-to-work system.
- ✓ For hot work, prepare a formal risk assessment. Seek expert advice - see 'Useful links'.
- ✓ Provide an air blower to get fresh air into restricted working places.
- ✓ Use a Type H vacuum cleaner fitted with a HEPA filter to remove dust residues. Never use dry brushing or compressed air.

Procedures

- ✓ Make sure that users check their RPE works properly every time they use it.

Maintenance, examination and testing

- ✓ Minerals and silica-containing dusts are very abrasive. Plan regular maintenance.
- ✓ Follow instructions in maintenance manuals - keep equipment in effective and efficient working order.
- ✓ Examine and test RPE thoroughly at least once every three months.
- ✓ Visually check compressed airlines for signs of damage before use.
- ✓ Check the air flow and air quality to air-fed RPE at least once every three months or before use. Ensure that compressors (including mobile compressors) take in only clean air.
- ✓ 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.
- ✓ Provide storage for clean and contaminated PPE.

Respiratory protective equipment (RPE)

- ✓ RPE is needed and must be compatible with hearing protection.
- ✓ Use air-fed breathing apparatus (BA) with an assigned protection factor (APF) of at least 40. See sheet R5.
- ✓ Provide RPE that includes eye and face protection.
- ✓ Make sure all RPE is properly fit-tested - get advice from your supplier.
- ✓ Keep RPE clean.

Other protective equipment

- ✓ Workers also need coveralls, a hard hat (worn correctly), and protective gloves and footwear.
- ✓ Provide clean, dust-resistant coveralls.
- ✓ Use a contract laundry or a suitable equivalent to wash work clothing. Warn them that the dust contains silica.
- ✓ Skin creams help in washing contamination from the skin. After-work creams help to replace skin oils.

Caution: Never allow use of compressed air to remove dust from clothing.

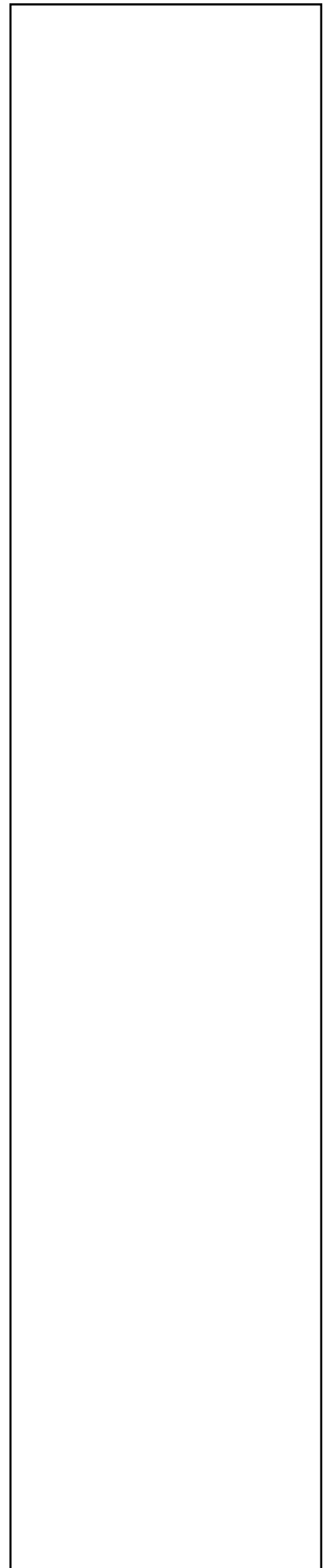
Health surveillance

- ✓ 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

- ✓ Keep vehicle routes clean or damp to avoid raising dust.

Caution: Don't use a brush or compressed air.



Training and supervision

- ✓ Tell your workers that silica 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.
- ✓ Workers need specific training for furnace relining.

Further information

- *General ventilation in the workplace: Guidance for employers* HSG202 HSE Books 2000 ISBN 0 7176 1793 9
- *Respiratory protective equipment at work: A practical guide* HSG53 (Third edition) HSE Books 2005 ISBN 0 7176 2904 X
- *Permit-to-work systems* Leaflet INDG98(rev3) HSE Books 1997 (single copy free or priced packs of 15 ISBN 0 7176 1331 3)
- For environmental guidelines see sheet FDO

Useful links

- HSE priced and free publications are available from HSE Books Tel: 01787 881165 Website: www.hsebooks.co.uk.
- HSE free leaflets can be downloaded from HSE's website: www.hse.gov.uk/pubns.
- For information about health and safety ring HSE's Infoline Tel: 0845 345 0055 Textphone: 0845 408 9577 e-mail: hse.infoline@natbrit.com.
- 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.
- British Standards are available from BSI Customer Services, 389 Chiswick High Road, London W4 4AL Tel: 020 8996 9001 Fax: 020 8996 7001 e-mail: cservices@bsi-global.com Website: www.bsi-global.com.

Employee checklist

- Has the area been vacated and warning signs put up?
- Are you sure how to use all dust controls?
- Has someone been posted outside, trained to get help in an emergency?
- Check your RPE works properly every time you use it.
- Check the RPE clean air supply.
- Look for signs of leaks, wear and damage every day.
- If you find any problems, tell your supervisor. Don't just carry on working.
- 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.
- Use skin creams provided as instructed.

This guidance is issued by the Health and Safety Executive. Following the guidance is not compulsory 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 as illustrating good practice.