

# CN7

## COSHH essentials in construction: 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.

### Main points

- Very high dust levels result from abrasive blasting.
- Breathing in dust may cause silicosis.
- Keep exposure as low as possible using all the controls in this sheet. Make sure the controls work.
- Avoid using sand as an abrasive.

# Abrasive blasting

## Control approach R

### Respiratory protective equipment (RPE)

#### Hazard

- ✓ Construction work 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/m<sup>3</sup> RCS is usually achievable (based on an 8-hour time-weighted average).

#### *Crystalline silica concentrations in common materials*

- ✓ See table in sheet CN0.

#### Access and premises

- ✓ Use a permit-to-work for access.
- ✓ Designate an exclusion zone. Fence it off and post warning signs.

#### Equipment

- ✓ Ensure that workers wear RPE and blasting suits.
- ✓ Air for RPE must be clean. Supply air for breathing from upwind of air contaminants and blasting operations.
- ✓ Use alumina or other non-sand abrasives.
- ✓ Can you do wet blasting?
- ✓ Use shrouds or screens to contain the flying abrasive.

#### *Procedures*

- ✓ Make sure that workers check their RPE works properly every time they put it on.

#### Special Care

- ✓ Old paint often contains lead and is subject to special health provisions. Seek expert advice - see 'Useful links'.

#### Maintenance, examination and testing

- ✓ Minerals and silica-containing dusts are very abrasive. Plan regular maintenance.
- ✓ Follow the manufacturer's maintenance schedules - keep equipment in effective and efficient working order.

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- ✓ Maintain all respiratory protective equipment (RPE) in effective and efficient working order.
  - ✓ Daily, look for signs of damage. Make repairs.
  - ✓ Check that the cut-off works properly.
  - ✓ Visually check compressed airlines for signs of damage before use.
  - ✓ Get a competent engineer to examine the system thoroughly and test its performance regularly.
  - ✓ Examine and test RPE thoroughly at least once every three months.
  - ✓ Keep records of all examinations and tests for at least five years.
  - ✓ Review records - failure patterns show where preventive maintenance is needed.
  - ✓ 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.

### **Personal protective equipment (PPE)**

- ✓ Ask your supplier, or the company health and safety advisor to help you select the right PPE.

### *Respiratory protective equipment (RPE)*

- ✓ RPE is needed and must be compatible with hearing protection.
- ✓ Select RPE that suits the wearer, the job and the work environment.
- ✓ Use a compressed airline blasting helmet with an assigned protection factor (APF) of at least 40. See sheet R5.
- ✓ Make sure all RPE is properly fit-tested - get advice from your supplier.
- ✓ Keep RPE clean.

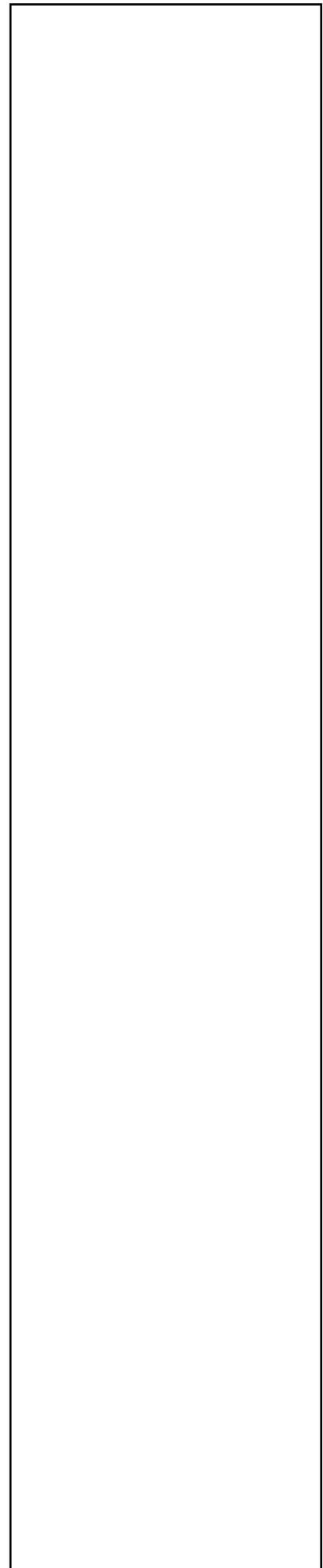
### *Other protective equipment*

- ✓ Workers also need blast suits, protective gloves and footwear.
- ✓ Provide coveralls that do not retain dust. Use synthetic fabrics - not cotton or knitted.
- ✓ 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 for removing dust from clothing.**

### **Health surveillance**

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



### Cleaning and housekeeping

- ✓ Damp down and shovel large amounts carefully to avoid stirring up dust. Provide RPE.
- ✓ Clean up as soon as possible after the job is done - hose down and wet brush.

### Training and supervision

- ✓ Tell workers that silica dust can cause serious lung diseases.
- ✓ Working in the right way and using the controls correctly is important for exposure control. Train and supervise workers. See sheet CN0.
- ✓ Workers need specific training for abrasive blasting.
- ✓ Check that the exclusion provisions are adequate.

### Further information

- *Respiratory protective equipment at work: A practical guide* HSG53 (Third edition) HSE Books 2005 ISBN 0 7176 2904 X
- *Silica Construction Information Sheet* CIS36(rev1) HSE Books 1999
- *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 CN0

### Useful links

- Construction Trade Associations may advise on health and safety consultants and training providers.
- HSE priced and free publications are available from HSE Books Tel: 01787 881165 Website: [www.hsebooks.co.uk](http://www.hsebooks.co.uk).
- HSE free leaflets can be downloaded from HSE's website: [www.hse.gov.uk/pubns](http://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](mailto:hse.infoline@natbrit.com).
- Contact the British Occupational Hygiene Society (BOHS) on 01332 298101 or at [www.bohs.org](http://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](http://www.nhsplus.nhs.uk).

### Employee checklist

- Are you sure how to use all dust controls?
- Check your RPE works properly every time you use it.
- Check the RPE clean air supply.
- Is the equipment in good condition and working properly?
- 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.