

# Using cut-off saws

## A guide to protecting your lungs



This is a web-friendly version of leaflet INDG461, published 03/13

### Introduction

If you are working in highway paving construction or maintenance work, it is highly likely that you use a cut-off saw (also known as a disc cutter, a con saw or a 'whizzer'). Cutting kerbs, paving or blocks can produce enormous amounts of dust. The dust will contain some very fine dust called **respirable crystalline silica (RCS)**. Exposure to RCS dust can cause serious health problems and may eventually kill you.

HSE and the Highways Agency have produced this leaflet which explains how RCS dust exposure can affect your health and what you can do to control the risks.

### Health effects

Stones, rocks, sands and clays may contain large amounts of crystalline silica. They are used to make kerbs, flags, bricks, tiles and concrete. Even plastic kerbs can contain a silica-based filler. Cutting these materials produces very fine RCS particles in the airborne dust. These particles are small and you can't always see dust given out by cutting.

By breathing in RCS, you could develop the following lung diseases.

#### ***Silicosis***

Silicosis makes breathing more difficult and increases the risk of lung infections. Silicosis usually follows exposure to RCS over many years, but extremely high exposures can lead rapidly to ill health.

#### ***Chronic obstructive pulmonary disease (COPD)***

COPD is a group of lung diseases, including bronchitis and emphysema, resulting in severe breathlessness, prolonged coughing and chronic disability. It may be caused by breathing in any fine dusts, including RCS. It can be very disabling and is a leading cause of death. Cigarette smoking can make it worse.



RCS exposure without dust suppression can be massive

### Lung cancer

Heavy and prolonged exposure to RCS can cause lung cancer. When someone already has silicosis, there is an increased risk of lung cancer.

The health risks from RCS are insignificant when exposure to dust is adequately controlled – you do not need to become ill through work activities.

#### Be aware!

- You can't always see dust from cutting.
- Dust could harm workmates and other people standing near you.

### Managing or reducing the risk

#### Damp down the dust

Water suppression is your first line of defence. All modern cut-off saws have an attachment for a water hose. The water can be supplied from a mains feed (the best option) or a pressurised water bottle. We recommend a minimum flow rate of **0.5 litres per minute** to damp down dust effectively.



#### Wear a suitable dust mask

Even with water suppression, you will need to wear a suitable dust mask (respirator). **Nuisance-grade dust masks do not protect your lungs.** Use one with an assigned protection factor of 20, even when your water suppression equipment is working effectively. Use either FFP3 filtering facepieces or orinasal respirators with P3 filters.

#### Maintain equipment

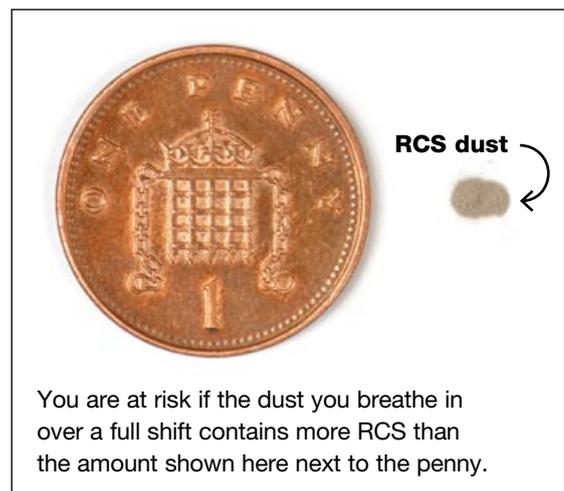
Check your machinery and safety equipment regularly.

- Make sure the water jets are working properly. Maintaining an adequate water flow by cleaning the water jets is essential and should be done at least every time the blades are changed.
- Replace worn cutting discs to reduce the cutting time.
- Maintain hoses and bottles.
- Inspect and maintain re-usable masks.

#### Other risks

Make sure you deal with other risks, eg:

- noise;
- flying debris;
- water spray;



- hand-arm vibration;
- manual handling.

Consider the safety of yourself and others when you operate a cut-off saw. Use suitable personal protective equipment, such as hard hats, safety glasses and ear defenders. Make sure these items are worn correctly and are suitable for use together.

### Remember!

- Always damp down dust.
- Wear a suitable dust mask.

### Find out more

To protect employees and others, employers should comply with the workplace health and safety requirements in the Control of Substances Hazardous to Health Regulations 2002 (as amended) (COSHH). HSE has produced simple guidance on how to control RCS exposure in construction. These *COSHH essentials* guidance sheets are at [www.hse.gov.uk/pubns/guidance/cnseries.htm](http://www.hse.gov.uk/pubns/guidance/cnseries.htm). *COSHH essentials* sheet CN6 gives guidance on cutting paving and kerbstones with rotary cutters.



*Control of exposure to silica dust: A guide for employees* Leaflet INDG463  
HSE Books 2013 [www.hse.gov.uk/pubns/indg463.htm](http://www.hse.gov.uk/pubns/indg463.htm)

HSE have produced a DVD *Time to clear the air! Protect your lungs when using cut-off saws*, available from HSE's website at [www.hse.gov.uk/construction/resources/videos.htm](http://www.hse.gov.uk/construction/resources/videos.htm)

*Respiratory protective equipment at work: A practical guide* HSG53 (Third edition)  
HSE Books 2005 ISBN 978 0 7176 2904 6 [www.hse.gov.uk/pubns/books/hsg53.htm](http://www.hse.gov.uk/pubns/books/hsg53.htm)

You can find more information about RPE at [www.hse.gov.uk/respiratory-protective-equipment/index.htm](http://www.hse.gov.uk/respiratory-protective-equipment/index.htm)

See HSE's construction web pages at [www.hse.gov.uk/construction/index.htm](http://www.hse.gov.uk/construction/index.htm)

## Further information

For information about health and safety, or to report inconsistencies or inaccuracies in this guidance, visit [www.hse.gov.uk/](http://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.

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.



This leaflet is available at [www.hse.gov.uk/pubns/indg461.htm](http://www.hse.gov.uk/pubns/indg461.htm).

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