

QYO

COSHH essentials in quarries: Silica



This information will help quarry managers 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 for controlling exposure to silica.

Advice for managers

Introduction

What is silica, where is it found?

Many minerals contain silica, and produce silica dust known as Respirable Crystalline Silica (RCS). RCS is also known as respirable α -quartz, cristobalite, or 'free silica'.

Crystalline silica concentrations in common materials

silica flour, cristobalite flour	100%
sandstone, gritstone, quartzite	more than 70%
sand, gravel, flint	more than 70%
calcined diatomite	25% to 65%
shale	40% to 60%
marl	up to 60%
china stone	up to 50%
slate	up to 40%
granite	up to 30%
industrial grade talc	up to 30% (some are silica-free)
ball clay	15% to 30%
pumice	up to 25%
ironstone	up to 15%
basalt, dolerite	up to 5%
kaolinite	less than 5%
limestone, chalk, marble	up to 2% (but these can contain silica layers)

This is one in a series of advice sheets for those working in quarries

- QY1 Rock drilling
- QY2 Excavating and haulage
- QY3 Crushing
- QY4 Drying and cooling
- QY5 Dry screening
- QY6 Dry grinding
- QY7 Jumbo bag filling: 500-1500 kg
- QY8 Silica flour: Small bag (15-50 kg) filling and transfer
- QY9 Mineral powders: Small bag (15-50 kg) filling and transfer
- QY10 Cleaning up silica dusts
- QY11 Control cabins and vehicle cabs

The risks

Inhaling RCS can lead to silicosis. Silicosis is a serious and irreversible lung disease that causes permanent disablement and early death, and it is made worse by smoking.

All RCS is hazardous. 'Respirable' means that the dust is invisibly fine, and gets deep into the lungs.

Action

You need to find out how much silica your workers are being exposed to. If you are unsure, you need to arrange for exposure measurements. See sheet G409.

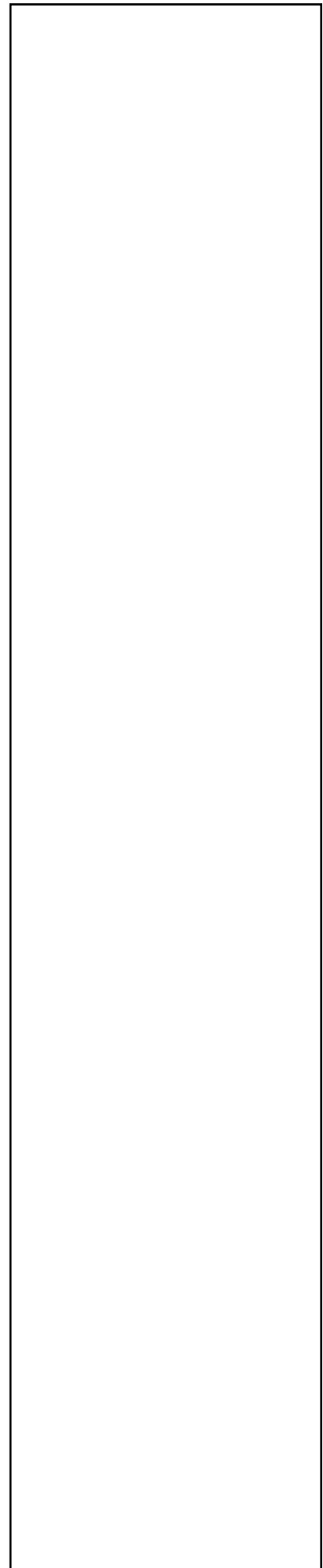
Then you need to minimise the amount of RCS being breathed-in by reducing the amount of airborne dust. Look carefully at the control measures that can be used, some are more cost effective and practical for each situation than others.

Before acting, make sure the advice really fits your situation. Following all the advice in these sheets (and this may include respiratory protection as part of the integrated set of controls) means that you will normally comply with workplace exposure limits (WELs). Read the advice in each of the sheet(s) you downloaded. Compare it with what you do now.

You may already have the right controls in place, but are they all working properly? When were they last checked? Are they always used when needed? Is the RCS exposure controlled?

You need to keep all controls in good working order. This means mechanical controls (eg extraction, respirator), administrative controls (eg supervision, health surveillance) and operator behaviour (following instructions). Look at all aspects of the advice, don't pick and choose. The points work together to provide 'adequate control'. See sheet G406 for advice on engineering controls.

Show that control is being sustained – keep good records.
You need to carry out health surveillance for workers. See sheet G404.



If you are in doubt, seek expert help. Remember, just because this advice means that you have to change old working practices or spend money on new controls, that doesn't make it unsuitable! Decide how best to make any changes required 'across the board'.

If you do need expert help, please don't give up. Ask your trade association, trade union, or log onto www.bohs.org.

Procedures

Wherever possible, enclose operations (eg, grinding, dry screening) as much as possible and ensure the equipment is dust-tight.

Can you reduce the need for people to be there by using automated systems with CCTV to monitor the process.

Can you time certain operations (eg crushing, mineral extraction) to coincide with wetter times of the year?

Facilities

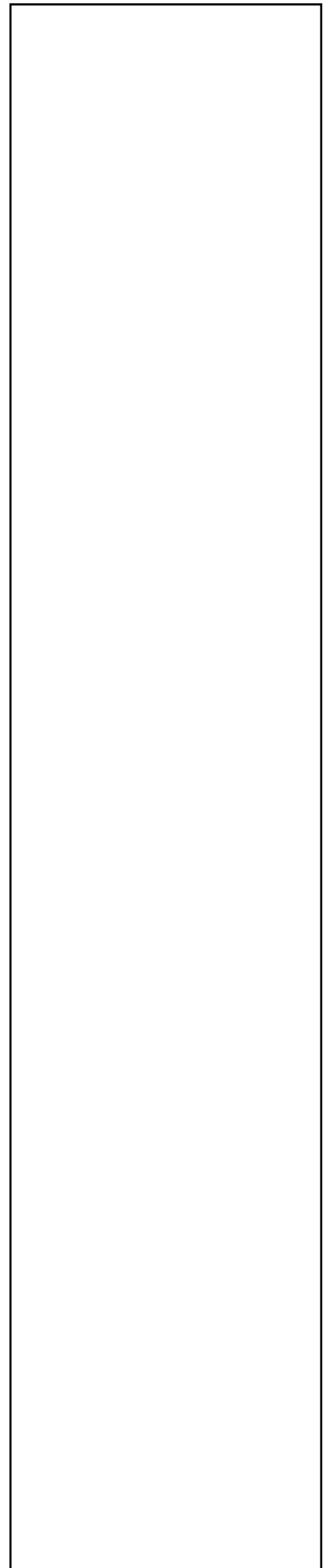
Provide clean facilities: a washroom, showers, storage for clean and contaminated work clothing, and a refreshment area.

Information, training and supervision

Tell workers:

- that very fine quarry dust can cause silicosis, which leads to disablement and early death;
- to avoid breathing in dust;
- to do the job in the correct way and minimise dust clouds;
- to always use the dust suppression and extraction equipment properly;
- to keep this equipment clean and working properly;
- if equipment is not working - report it;
- to keep their protective equipment clean, and wear it properly;
- to keep surfaces clean as this helps to prevent dust being made airborne again;
- to wash dust off skin
- to avoid cotton or knitted clothing; and
- to vacuum clean, not sweep.

Train and supervise workers - you need to make sure they are doing the job in the right way, and using controls properly to reduce their exposure. Include supervisors and managers in health and safety training.



Training should include:

- how to use the dust controls and how to check that they are working;
- how to maintain and clean equipment safely;
- how to use and look after personal protective equipment (PPE); and
- what to do if something goes wrong.

Remind workers that cotton or knitted work clothes hold dust that can be inhaled later.

Supervision means checking workers:

- use the controls provided;
- follow the correct work method;
- turn up for health surveillance; and
- are following the rules on personal hygiene.

Contractors also need supervision. Find out if they are bringing hazardous substances on site, and how they will protect your workers from them.

Environmental guidelines

Releases and wastes may be regulated within the Pollution Prevention and Control (PPC) framework. You should consult your local authority or the Environment Agency.

In Scotland, consult the Scottish Environment Protection Agency (SEPA). For more information, see www.netregs.gov.uk/netregs.

Further information

- *Control of respirable crystalline silica in quarries* HSG73 HSE Books 1992 ISBN 0 11 885680 4

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.